Stanford University

Stanford, California
Reports on Federal Awards in Accordance with the Uniform Guidance
August 31, 2022
EIN: 94-1156365

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Page(s)

I. Financial

II. Internal Control and Compliance

III. Findings

I. Financial

Report of Independent Auditors

To The Board of Trustees of the Leland Stanford Junior University

Report on the Audit of the Consolidated Financial Statements

Opinion

We have audited the accompanying consolidated financial statements of The Leland Stanford Junior University and its subsidiaries ("Stanford"), which comprise the consolidated statements of financial position as of August 31, 2022 and 2021, and the related consolidated statements of activities and of cash flows for the years then ended, including the related notes (collectively referred to as the "consolidated financial statements").

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of Stanford as of August 31, 2022 and 2021, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (US GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are required to be independent of Stanford and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about Stanford's ability to continue as a going concern for one year after the date the financial statements are issued.

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with US GAAS and *Government*

Auditing Standards, will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with US GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Stanford's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about Stanford's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Supplemental Information

Our audit was conducted for the purpose of forming an opinion on the consolidated financial statements as a whole. The accompanying schedule of expenditures of federal awards for the year ended August 31, 2022 is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) and is not a required part of the consolidated financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves, and other additional procedures, in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the consolidated financial statements taken as a whole.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated December 6, 2022, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 10, 2023, on our consideration of Stanford's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters for the year ended August 31, 2022. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Stanford's internal control over financial reporting and compliance.

PricewaterhouseCoopers LLP

San Francisco, California
December 6, 2022, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 10, 2023

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

At August 31, 2022 and 2021 (in thousands of dollars)

	2022	2021
ASSETS		
Cash and cash equivalents	$ 2,346,372	$ 1,672,789
Accounts receivable, net	2,007,638	1,754,010
Prepaid expenses and other assets	512,188	510,490
Pledges receivable, net	2,201,736	1,700,525
Student loans receivable, net	37,524	42,699
Faculty and staff mortgages and other loans receivable, net	984,106	892,098
Assets limited as to use	397,926	453,452
Investments at fair value	52,180,412	54,039,545
Right-of-use assets	1,038,384	999,513
Plant facilities, net of accumulated depreciation	13,377,434	13,078,630
Works of art and special collections	—	—
TOTAL ASSETS	**$ 75,083,720**	**$ 75,143,751**
LIABILITIES AND NET ASSETS		
LIABILITIES:		
Accounts payable and accrued expenses	$ 2,805,757	$ 2,806,361
Liabilities associated with investments	863,746	974,756
Lease liabilities	1,093,986	1,047,618
Deferred income and other obligations	1,991,260	1,988,117
Accrued pension and postretirement benefit obligations	562,496	629,851
Notes and bonds payable	8,271,006	8,302,590
TOTAL LIABILITIES	**15,588,251**	**15,749,293**
NET ASSETS:		
Without donor restrictions	35,519,294	35,452,324
With donor restrictions	23,976,175	23,942,134
TOTAL NET ASSETS	**59,495,469**	**59,394,458**
TOTAL LIABILITIES AND NET ASSETS	**$ 75,083,720**	**$ 75,143,751**

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF ACTIVITIES

For the years ended August 31, 2022 and 2021 (in thousands of dollars)

	2022	2021
NET ASSETS WITHOUT DONOR RESTRICTIONS		
OPERATING REVENUES:		
TOTAL STUDENT INCOME, NET	**$ 715,465**	**$ 507,923**
Sponsored support:		
Direct costs - University	971,253	900,635
Direct costs - SLAC National Accelerator Laboratory	524,943	489,872
Indirect costs	315,562	297,514
TOTAL SPONSORED SUPPORT	**1,811,758**	**1,688,021**
TOTAL HEALTH CARE SERVICES, primarily net patient service revenue	**9,232,029**	**8,301,556**
TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS	**278,501**	**293,715**
Net assets released from restrictions:		
Payments received on pledges	224,177	245,873
Prior year gifts released from donor restrictions	81,402	99,352
TOTAL NET ASSETS RELEASED FROM RESTRICTIONS	**305,579**	**345,225**
Investment income distributed for operations:		
Endowment	1,475,411	1,349,444
Expendable funds pools and other investment income	276,740	401,838
TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS	**1,752,151**	**1,751,282**
TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME	**1,036,678**	**1,051,292**
TOTAL OPERATING REVENUES	**15,132,161**	**13,939,014**
OPERATING EXPENSES:		
Salaries and benefits	8,881,869	7,877,461
Depreciation	851,818	866,675
Other operating expenses	4,863,755	4,349,432
TOTAL OPERATING EXPENSES	**14,597,442**	**13,093,568**
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 534,719**	**$ 845,446**

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF ACTIVITIES, Continued

For the years ended August 31, 2022 and 2021 (in thousands of dollars)

	2022	2021
NET ASSETS WITHOUT DONOR RESTRICTIONS (continued)		
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 534,719**	**$ 845,446**
NON-OPERATING ACTIVITIES:		
Increase (decrease) in reinvested gains	(743,938)	5,548,668
Donor advised funds, net	34,611	3,395
Current year gifts not included in operations	5,053	408
Capital and other gifts released from restrictions	71,100	71,698
Pension and other postemployment benefit related changes other than service cost	89,504	107,179
Transfer to net assets with donor restrictions, net	(70,233)	(75,080)
Swap interest and change in value of swap agreements	138,866	53,351
Gain (loss) on extinguishment of debt	6,947	(2,558)
Non-controlling interest	2,207	—
Other	(1,866)	(6,958)
NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS	**66,970**	**6,545,549**
NET ASSETS WITH DONOR RESTRICTIONS		
Gifts and pledges, net	1,679,138	1,104,077
Increase (decrease) in reinvested gains	(1,255,771)	4,817,896
Change in value of split-interest agreements, net	(63,311)	122,553
Net assets released to operations	(321,244)	(370,724)
Capital and other gifts released to net assets without donor restrictions	(71,100)	(71,698)
Transfer from net assets without donor restrictions, net	70,233	75,080
Other	(3,904)	(1,134)
NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS	**34,041**	**5,676,050**
NET CHANGE IN TOTAL NET ASSETS	**101,011**	**12,221,599**
Total net assets, beginning of year	59,394,458	47,172,859
TOTAL NET ASSETS, END OF YEAR	**$59,495,469**	**$59,394,458**

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ended August 31, 2022 and 2021 (in thousands of dollars)

	2022	2021
CASH FLOW FROM OPERATING ACTIVITIES		
Change in net assets	$ 101,011	$ 12,221,599
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Depreciation	852,123	866,675
Amortization of bond premiums, discounts and other	28,637	19,569
Net losses (gains) on investments	884,229	(12,230,714)
Change in fair value of interest rate swaps	(161,455)	(78,195)
Change in split-interest agreements	(28,173)	158,814
Change in deferred tax asset and liability	(23,182)	129,127
Investment income (expense) for restricted purposes	(48,573)	99,098
Gifts restricted for long-term investments	(756,085)	(863,431)
Gifts of securities and properties	(22,698)	(30,509)
Gain on extinguishment of debt	(6,947)	—
Other	31,040	33,740
Premiums received from bond issuance	—	96,831
Changes in operating assets and liabilities:		
Accounts receivable	(242,890)	(245,004)
Pledges receivable, net	(345,886)	(15,298)
Prepaid expenses and other assets	(88,117)	(63,056)
Accounts payable and accrued expenses	213,018	(98,896)
Accrued pension and postretirement benefit obligations	(67,355)	(90,028)
Lease liabilities	(43,160)	(38,247)
Deferred income and other obligations	(33,402)	259,373
NET CASH PROVIDED BY OPERATING ACTIVITIES	**242,135**	**131,448**
CASH FLOW FROM INVESTING ACTIVITIES		
Additions to plant facilities, net	(925,020)	(790,859)
Student, faculty and other loans:		
New loans made	(179,632)	(178,342)
Principal collected	77,393	105,835
Purchases of investments	(17,466,423)	(20,316,653)
Sales and maturities of investments	18,336,816	18,387,854
Change associated with short term investments	111,202	437,983
Swap settlement payments, net	(19,811)	(21,420)
NET CASH USED FOR INVESTING ACTIVITIES	**(65,475)**	**(2,375,602)**
CASH FLOW FROM FINANCING ACTIVITIES		
Gifts and reinvested income for restricted purposes	627,369	548,843
Proceeds from borrowing	268,547	1,027,471
Repayment of notes and bonds payable	(263,377)	(1,012,887)
Bond issuance costs and interest rate swaps	(2,225)	(5,412)
Contributions received for split-interest agreements	17,676	19,709
Payments made under split-interest agreements	(57,515)	(51,186)
Securities lending collateral sold, net	(7,696)	9,393
Other	(5,269)	(4,907)
NET CASH PROVIDED BY FINANCING ACTIVITIES	**577,510**	**531,024**
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	**754,170**	**(1,713,130)**
Cash and cash equivalents, beginning of year	1,865,725	3,578,855
CASH AND CASH EQUIVALENTS, END OF YEAR	**$ 2,619,895**	**$ 1,865,725**
SUPPLEMENTAL DATA:		
Cash and cash equivalents as shown in the *Statements of Financial Position*	$ 2,346,372	$ 1,672,789
Restricted cash and cash equivalents included in assets limited as to use	81,946	117,179
Restricted cash included in other assets	12,382	28,432
Cash and restricted cash included in investments	179,195	47,325
TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE CONSOLIDATED STATEMENTS OF CASH FLOWS	**$ 2,619,895**	**$ 1,865,725**
Interest paid, net of capitalized interest	$ 286,217	$ 294,161
Change in payables for plant facilities	$ 25,300	$ (27,908)
Right-of-use assets obtained in exchange for lease liabilities	$ 172,836	$ 66,534

The accompanying notes are an integral part of these consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1. Basis of Presentation and Significant Accounting Policies

BASIS OF PRESENTATION

The *Consolidated Financial Statements* include the accounts of The Leland Stanford Junior University ("Stanford University" or the "University"), Stanford Health Care (SHC), Lucile Salter Packard Children's Hospital at Stanford (LPCH) and other majority-owned or controlled entities of the University, SHC and LPCH. Collectively, all of these entities are referred to as "Stanford". All significant inter-entity transactions and balances have been eliminated in consolidation. Certain prior year amounts have been reclassified to conform to the current year's presentation. These reclassifications had no impact on total net assets or the change in total net assets.

University

The University is a private, not-for-profit educational institution, founded in 1885 by Senator Leland and Mrs. Jane Stanford in memory of their son, Leland Stanford Jr. A Board of Trustees (the "Board") governs the University. The University information presented in the *Consolidated Financial Statements* comprises all of the accounts of the University, including its institutes and research centers, and the Stanford Management Company.

SLAC National Accelerator Laboratory (SLAC) is a federally funded research and development center owned by the U.S. Department of Energy (DOE). The University manages and operates SLAC for the DOE under a management and operating contract; accordingly, the revenues and expenditures of SLAC are included in the *Consolidated Statements of Activities*, but SLAC's DOE funded assets and liabilities are not included in the *Consolidated Statements of Financial Position*. SLAC employees are University employees and participate in the University's employee benefit programs. The University holds some receivables from the DOE substantially related to reimbursement for employee compensation and benefits.

Hospitals

SHC and LPCH (the "Hospitals") are California not-for-profit public benefit corporations, each governed by a separate Board of Directors. The University is the sole member of each of these entities. SHC and LPCH support the mission of medical education and clinical research of the University's School of Medicine (SOM). Collectively, the SOM and Hospitals comprise Stanford Medicine. SHC and LPCH operate two licensed acute care and specialty hospitals on the Stanford campus, a leading community acute care hospital, and numerous physician clinics on the campus, in community settings and in association with regional hospitals in the San Francisco Bay Area and elsewhere in California. The University has partnered with SHC and LPCH, respectively, to establish physician medical foundations to support Stanford Medicine's mission of delivering quality care to the community and conducting research and education.

TAX STATUS

The University, SHC and LPCH are exempt from federal and state income taxes to the extent provided by Section 501(c)(3) of the Internal Revenue Code and equivalent state provisions, except with regard to unrelated business income which is taxable at corporate income tax rates.

In accordance with the guidance on accounting for uncertainty in income taxes, management regularly evaluates its tax positions and does not believe the University, SHC or LPCH have any uncertain tax positions that require disclosure in or adjustment to the *Consolidated Financial Statements*. The University, SHC and LPCH are subject to routine audits by taxing jurisdictions. Management of each of the consolidated entities believes they are no longer subject to income tax examinations for fiscal years prior to August 31, 2018.

BASIS OF ACCOUNTING

The *Consolidated Financial Statements* are prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). These principles require management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the *Consolidated Financial Statements* and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

For financial reporting purposes, net assets and revenues, expenses, gains and losses are classified into one of two categories - net assets without donor restrictions and net assets with donor restrictions based on the existence or absence of legal or donor-imposed restrictions (see *Note 10*).

Net assets without donor restrictions are expendable resources which are not subject to donor-imposed restrictions. These net assets may be designated by Stanford for specific purposes under internal operating and administrative arrangements or be subject to contractual agreements with external parties (see *Note 10*).

Net assets with donor restrictions include gifts, pledges and split-interest agreements (a) which by donor stipulation must be made available in perpetuity for investment or specific purposes, or (b) for which legal or donor-imposed restrictions have not yet been met. Such restrictions include purpose restrictions where donors have specified the purpose for which the net assets are to be spent, or time restrictions imposed by donors, or appreciation and income on certain donor-restricted endowment funds that have not yet been appropriated for spending (see Note 11).

Gifts and pledges subject to donor-imposed restrictions for specific purposes are recorded as net assets with donor restrictions and reclassified to net assets without donor restrictions upon expiration of time and purpose restrictions. Donor-restricted resources intended for capital projects are initially recorded as "Net assets with donor restrictions" and then released and reclassified as "Net assets without donor restrictions" when the asset is placed in service. Contributions with donor restrictions that are received and expended or deemed expended, based on the nature of donors' restrictions, in the same fiscal year are recorded as "Net assets without donor restrictions".

Transfers from net assets without donor restrictions to net assets with donor restrictions are primarily the result of donor redesignations or matching funds that are added to donor gift funds which then take on the same restrictions as the donor gift.

The operating activities of Stanford include the revenues earned and expenses incurred in the current year to support education, research, and health care. The non-operating activities of Stanford include increases in reinvested gains, current year gifts not included in operations, capital and other gifts released from restrictions, pension and other postemployment benefit related changes other than service cost, and certain other non-operating activities. All expenses are recorded as a reduction of net assets without donor restrictions with the exception of investment expenses that are required to be netted against investment returns.

CASH AND CASH EQUIVALENTS

"Cash and cash equivalents" included in the *Consolidated Statements of Financial Position* primarily consist of U.S. Treasury bills, certificates of deposit, repurchase agreements, money market funds and all other short-term investments available for current operations with original maturities of 90 days or less at the time of purchase. These amounts are carried at amortized cost, which approximates fair value. Cash and cash equivalents that are held for investment purposes are classified as investments (see *Note 6*). The University has elected the policy to treat cash equivalents held for investment as short-term investments, and are therefore excluded from "Cash and cash equivalents" on the *Consolidated Statements of Cash Flows.*

ASSETS LIMITED AS TO USE

Assets limited as to use consist of deferred compensation plan assets and tax-exempt bond proceeds as described below:

Deferred compensation plan assets

The University's custodians hold 457(b) non-qualified deferred compensation plan assets under a grantor trust which requires that they be used to satisfy plan obligations to participants and beneficiaries unless the University becomes insolvent. The funds are primarily invested in mutual funds, at the participants' discretion, which are valued based on quoted market prices (and exchange rates, if applicable) on the last trading date of the principal market on or before August 31.

Tax-exempt bond proceeds

The proceeds of tax-exempt bonds issued for the benefit of the University and trustee-held accounts holding proceeds of tax-exempt bonds issued for the benefit of SHC and LPCH are limited by the terms of indentures to use for qualified capital projects. The assets consist of cash and cash equivalents, recorded at cost, which approximates fair value.

ACCOUNTS AND LOANS RECEIVABLE

Accounts and loans receivable are carried at cost, less an allowance for doubtful accounts.

PREPAID EXPENSES

Prepaid expenses consist of amounts paid in advance for goods or services that will be received after the end of the fiscal year.

PLEDGES RECEIVABLE

Unconditional promises to give are included in the *Consolidated Financial Statements* as "Pledges receivable, net" and are classified as net assets with donor restrictions. Pledges recognized on or after September 1, 2009 are recorded at an applicable risk-adjusted discount rate commensurate with the duration of the donor's payment plan. Pledges recognized in periods prior to September 1, 2009 were recorded at a discount based on the U.S. Treasury rate. Conditional promises to give are not recorded until specified obligations or barriers, such as milestones or performance targets, are met.

INVESTMENTS

Investments are recorded at fair value. Gains and losses (realized and unrealized) on investments are recognized in the *Consolidated Statements of Activities* (see *Note 6*).

PLANT FACILITIES

Plant facilities are recorded at cost or, for donated assets, at fair value at the date of donation, except for land and improvements previously reported as "Investments" and reclassified as "Plant facilities". Such land and improvements are reported at fair value as of the date of reclassification (see *Note 8*) in accordance with interpreted accounting guidance. Interest expense for construction financing, net of income earned on unspent proceeds, is capitalized as a cost of construction. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. The useful lives used in calculating depreciation for the years ended August 31, 2022 and 2021 are as follows:

Land improvements	5-25 years
Buildings and building improvements	3-50 years
Furniture, fixtures and equipment	3-20 years
Utilities	5-40 years

WORKS OF ART AND SPECIAL COLLECTIONS

Works of art, historical treasures, literary works and artifacts, which are preserved and protected for educational, research and public exhibition purposes, are not capitalized. Donations of such collections are not recorded for financial statement purposes. Purchases of collection items are recorded as operating expenses in the period in which they are acquired. Proceeds from sales of such items are used to acquire other items for the collections.

DONATED ASSETS

Donated assets, other than works of art and special collections, are recorded at fair value at the date of donation. Undeveloped land, including land acquired under the original endowment to the University from Senator Leland and Mrs. Jane Stanford, is reported at fair value as of the date of acquisition. Under the terms of the original founding grant, a significant portion of University land may not be sold.

DONOR ADVISED FUNDS

The University receives gifts from donors under donor advised fund (DAF) agreements. These funds are owned and controlled by the University and are separately identified by donor. A significant portion of the gift must be designated to the University. At August 31, 2022 and 2021, approximately $733.1 million and $772.0 million, respectively, of DAFs may be used to support other approved charities; the donors have advisory privileges with respect to the distribution of these funds.

Current year gifts under the DAF agreements are included in the *Consolidated Statements of Activities* as "Donor advised funds, net" at the full amount of the gift. Transfers of funds to other charitable organizations are included in the *Consolidated Statements of Activities* as a reduction to "Donor advised funds, net" at the time the transfer is made.

SPLIT-INTEREST AGREEMENTS

Split-interest agreements consist of arrangements with donors where Stanford has an interest in the assets and receives benefits that are shared with other beneficiaries. Stanford's split-interest agreements with donors, for which Stanford serves as trustee, consist primarily of irrevocable charitable remainder trusts, charitable gift annuities, pooled income funds, perpetual trusts and charitable lead trusts. Assets are invested and payments are made to donors or other beneficiaries in accordance with the respective agreements. Contribution revenues are recognized at the date the agreements are established. The fair value of the estimated future payments to beneficiaries under these agreements is recorded as a liability.

The assets held under split-interest agreements, where the University is the trustee, were $1.0 billion and $1.1 billion at August 31, 2022 and 2021, respectively, and were recorded in specific investment categories. The assets held under split-interest agreements, where LPCH is the trustee, were $12.8 million and $13.1 million at August 31, 2022 and 2021, respectively, and were recorded in specific investment categories. Liabilities for the discounted present value of any income beneficiary interest are reported in "Liabilities associated with investments" in the *Consolidated Statements of Financial Position*. At August 31, 2022 and 2021, the University used discount rates of 3.8% and 1.2%, respectively, based on the Charitable Federal Midterm Rate. The LPCH discount rate used during the years ended August 31, 2022 and 2021 was 3.3% and 1.2%, respectively, determined using the T-bill rate.

Included in assets held under split-interest agreements are amounts held to meet legally mandated annuity reserves of $30.7 million and $29.8 million as of August 31, 2022 and 2021 respectively, as required by California state law.

For irrevocable split-interest agreements whose assets are held in trusts not administered by the University, Stanford recognizes the estimated fair value of its beneficial interest in the trust assets and the associated gift revenue when reported to Stanford. These split-interest agreements are recorded in the "Assets held by other trustees" category of "Investments" in the *Consolidated Statements of Financial Position* as described in *Note 6*.

During fiscal years 2022 and 2021, the discounted present value of new University gifts subject to split-interest agreements, net of any income beneficiary share, was $17.2 million and $8.0 million, respectively, and was included in net assets with donor restrictions as "Gifts and pledges, net" in the *Consolidated Statements of Activities*. Actuarial gains or losses were included in "Change in value of split-interest agreements, net" in the *Consolidated Statements of Activities*.

DEFERRED INCOME AND OTHER OBLIGATIONS

Deferred income and other obligations consist of advance payments of student tuition, student room and board, sponsored support, and support of other operating programs. Revenue is recognized as it is earned or as the associated conditions are satisfied. In addition, the University records other deferred income and obligations as described below.

Deferred Rental Income

As part of its investment portfolio, the University holds certain investment properties that it leases to third parties under non-cancellable leases. In some lease transactions with properties in the Stanford Research Park and other properties, including the Stanford Shopping Center, prepaid rent is received, recorded as deferred rental income and amortized over the term of the lease (see also the *Future Minimum Rental Income* section in *Note 6*). As of August 31, 2022 and 2021, deferred rental income was $919.3 million and $912.8 million, respectively.

457(b) Deferred Compensation Plan

The University offers a non-qualified deferred compensation plan under Internal Revenue Code 457(b) to a select group of highly compensated employees. There is no University contribution related to the plan. The University has recorded both an asset and a liability related to the plan of $316.0 million and $336.3 million as of August 31, 2022 and 2021, respectively; the assets are included in "Assets limited as to use" in the *Consolidated Statements of Financial Position*.

Repurchase Obligations

In an effort to provide affordable housing, certain residential units are offered to eligible faculty and staff under long-term restricted ground leases. These units are located on or in close proximity to Stanford's campus. The cost of the units that are constructed or purchased by the University is included in "Plant facilities, net of accumulated depreciation" in the *Consolidated Statements of Financial Position*.

The University has the obligation to repurchase certain residential units when specified triggering events occur. As of August 31, 2022 and 2021, Stanford has recognized a net repurchase obligation of $142.3 million and $121.0 million, respectively, to repurchase its interests in these residential units, net of home mortgage financing assistance provided by the University of $222.8 million and $204.1 million, respectively (see *Note 5*). The change in the repurchase obligation and the original purchase price is recorded as interest accretion and is reflected in "Other operating expenses" in the *Consolidated Statements of Activities*. For the years ended August 31, 2022 and 2021, interest accretion was $13.3 million and $9.4 million, respectively.

Asset Retirement Obligations

Asset retirement obligations are legal obligations associated with the retirement of long-lived assets. These liabilities are initially recorded at fair value and the related asset retirement costs are capitalized at the same amount as the liability. Asset retirement costs are subsequently amortized over the useful lives of the related assets and the obligations are increased based on an appropriate discount rate. As of August 31, 2022 and 2021, the University had asset retirement obligations of $17.2 million and $15.1 million, respectively. SHC had asset retirement obligations of $111.3 million and $107.7 million, respectively.

SELF-INSURANCE

The University self-insures at varying levels for unemployment, disability, workers' compensation, property losses, certain health care plans and general and professional liability losses. SHC and LPCH self-insure at varying levels for health care plans, workers' compensation and, through their captive insurance company, for professional liability losses. In some cases, third-party insurance is purchased to cover liabilities in excess of self-insured retentions. Estimates of retained self-insured losses are reserved and accrued.

INTEREST RATE EXCHANGE AGREEMENTS

The University and SHC have entered into several interest rate exchange agreements to reduce the effect of interest rate fluctuation on their variable rate revenue bonds and notes. Current accounting guidance for derivatives and hedges requires entities to recognize all derivative instruments at fair value. The University and SHC do not designate and qualify their derivatives for hedge accounting; accordingly, any changes in the fair value (i.e. gains or losses) flow directly to the *Consolidated Statements of Activities* as a non-operating activity in "Swap interest and change in value of swap agreements." The settlements (net cash payments less receipts) under the interest rate exchange agreements are also recorded in the *Consolidated Statements of Activities* in "Swap interest and change in value of swap agreements."

The University has also entered into interest rate exchange agreements to reduce the effect of interest rate fluctuations of certain investment positions (see *Note 7*).

REVENUE

Student income and financial aid

"Student income, net" reported in the *Consolidated Statements of Activities* consists of tuition, room and board, and other student fees from undergraduate and graduate students which are recognized as revenue ratably during the fiscal year in which the academic services are rendered. The University also provides financial aid in the form of scholarship and fellowship grants that cover a portion of tuition, room and board, and other student fees; this financial assistance is reflected as a reduction of student income. Student payments are due at the beginning of each academic term. Payments received for future academic terms are recorded as deferred income and totaled $13.9 million and $8.3 million for the years ended August 31, 2022 and 2021, respectively. These payments are recognized in the subsequent fiscal year. The following table presents student income, net of financial aid, for the years ended August 31, in thousands of dollars:

	2022	2021
Student income:		
Undergraduate programs	$ 445,406	$ 337,103
Graduate programs	404,204	378,240
Room and board	267,386	132,521
Student financial aid	(401,531)	(339,941)
TOTAL STUDENT INCOME, NET	**$ 715,465**	**$ 507,923**

In addition to student financial aid, the University also provided other graduate support in the form of stipends, teaching and research assistantships, and related allowances for tuition. These amounts are reflected in operating expenses.

Sponsored Support

The University conducts substantial research pursuant to contracts and grants from the federal government, state and local governments, corporations, foundations and others. Sponsored support earned from the federal government (including SLAC) is the largest segment of sponsored support. For the years ended August 31, 2022 and 2021, federal sponsored support was $1.4 billion and $1.3 billion, respectively. The Office of Naval Research is the University's cognizant federal agency for determining indirect cost rates charged to federally sponsored agreements. It is supported by the Defense Contract Audit Agency, which has the responsibility for auditing direct and indirect charges under those agreements.

The majority of sponsored support is considered contribution revenue and is recognized when any sponsor-imposed conditions have been met, typically when qualifying expenditures are incurred. Sponsored contribution revenue for both the years ended August 31, 2022 and 2021 was $1.1 billion.

Other sponsored arrangements are considered exchange transactions and revenue is recognized in accordance with the terms of each contract or grant which are primarily based on costs incurred, completion of milestones, or other obligations as specified in the contracts. For the years ended August 31, 2022 and 2021, the University recognized $144.6 million and $123.8 million in revenue from exchange contracts, respectively.

SLAC is managed and operated by the University for the DOE under a management and operating contract, which is considered to be an exchange transaction. The University operates SLAC, and the DOE is obligated to pay for allowable operating costs. The University recognizes revenue from the DOE as costs are incurred in the management and operation of SLAC per the terms of the contract. Revenue of $524.9 million and $489.9 million was recognized for the years ended August 31, 2022 and 2021, respectively.

Deferred income of $209.1 million and $180.4 million was recorded at August 31, 2022 and 2021, respectively, for payments received from sponsors that have not been earned. During the years ended August 31, 2022 and 2021, $126.0 million and $121.0 million of revenue was recognized that was included in the prior year deferred income balance, respectively. In addition, as of August 31, 2022 and 2021, the University had been awarded $1.3 billion and $1.1 billion, respectively, in sponsored support for which the conditions to recognize revenue have not been met. These are conditional contributions and are not recorded in the *Consolidated Financial Statements*.

Health Care Services

"Total health care services" is reported in the *Consolidated Statements of Activities* at the estimated net realizable amounts from patients, third-party payers, and others for services rendered (collectively, "Patient care revenue"). Estimated net realizable amounts represent amounts due, net of price concessions. Price concessions are based on management's assessment of expected net collections considering economic conditions, historical experience, trends in health care coverage and other collection indicators. SHC and LPCH derive a majority of patient care revenues from contractual agreements with Medicare, Medi-Cal and other third-party payers. Payments under these agreements and programs are based on a variety of payment models (see *Note 12*). Health care revenue is recognized as services are rendered either at a point in time or, for inpatient acute care services, over time generally from admission to discharge. Generally, patients and third-party payers are billed several days after services are performed or shortly after discharge. Substantially all health care revenue relates to contracts with customers with a duration of less than one year.

The University has entered into various operating agreements with SHC and LPCH for the professional services of School of Medicine faculty members, and for non-physician services such as telecommunications, facilities, and other services. The payments by the Hospitals to the University for professional and other services are eliminated in consolidation.

SHC and LPCH provide care to patients who meet certain criteria under their charity care policies without charge or at amounts less than their established rates. The Hospitals do not record revenue for amounts determined to qualify as charity care (see *Note 12*).

Gifts

Gifts are contributions primarily received from donors such as alumni and other private individuals, trusts, and foundations. Gifts may be designated by donors for specific purposes; accordingly, they are recognized in the period received and in the appropriate net asset category based on the presence or absence of donor restrictions on their use. Contributions designated for the acquisition of plant facilities and long-term investments are initially reported in net assets with donor restrictions.

Gifts are considered conditional if the terms of the agreement include both a requirement for Stanford to meet certain specified obligations, or barriers, such as milestones or performance targets, and a refund of amounts paid (or a release from obligation to make future payments). Conditional gifts are not recorded until the obligations or barriers are met.

Special Program Fees and Other Income

Special program fees and other income consists of several streams of income from exchange contracts. Depending on the program, revenue is recognized at a point in time or over time as obligations are met. For the years ended August 31, 2022 and 2021, other income includes $205.0 million and $399.5 million of CARES Act provider relief funding, respectively. Provider relief funding was recognized based on information contained in laws and regulations, as well as interpretations issued by the Department of Health and Human Services (see *Note 19*).

RECENT ACCOUNTING PRONOUNCEMENTS

Periodically, the Financial Accounting Standards Board (FASB) issues updates to the Accounting Standards Codification (ASC) which impact Stanford's financial reporting and related disclosures. The following paragraphs summarize relevant updates.

Contributed nonfinancial assets

ASU 2020-07, FASB Issue Date: September 2020, Effective Date: Fiscal Year 2022

The Accounting Standards Update (ASU) provides enhanced presentation and disclosure requirements for contributed nonfinancial assets for not-for-profit entities. Contributed nonfinancial assets should be presented in a separate line item in the *Statement of Activities* apart from cash contributions. Additional disclosures are required about types of contributions, policy (if any) on monetizing rather than utilizing, donor-imposed restrictions and fair value measurement of contributed nonfinancial assets. The new guidance has been adopted in fiscal year 2022 and did not have a material impact on the *Consolidated Financial Statements.*

Reference rate reform

ASU 2020-04 and 2021-01, FASB Issue Date: March 2020 and January 2021, Effective Date: All contracts as of March 12, 2020 through December 31, 2022

These ASUs provide optional expedients for applying GAAP to contracts and other transactions that reference LIBOR or other reference rates that are expected to be discontinued because of reference rate reform. The amendments also permit an entity to consider

contract modifications due to reference rate reform to be an event that does not require contract remeasurement. For the year ended August 31, 2022, no impacted contracts have transitioned to other benchmark rates.

Cloud computing arrangements

ASU 2018-15, FASB Issue Date: August 2018, Effective Date: Fiscal Year 2022

The ASU requires capitalization of implementation costs incurred in a cloud computing arrangement in a manner that is consistent with the capitalization of implementation costs incurred to develop or obtain internal-use software. The new guidance has been adopted prospectively in fiscal year 2022 and did not have a material impact on the *Consolidated Financial Statements.*

Defined benefit plan disclosures

ASU 2018-14, FASB Issue Date: August 2018, Effective Date: Fiscal Year 2022

The ASU adds, removes, and clarifies disclosure requirements related to defined benefit pension and other postretirement plans. The new guidance has been adopted in fiscal year 2022 and updated disclosures are found in *Note 15 and 16* of the *Consolidated Financial Statements.*

2. Financial Assets and Liquid Resources

OVERVIEW

Stanford closely monitors its liquidity requirements and structures its financial assets to meet its short and long-term needs and contractual commitments. To meet these needs, Stanford holds investments in various pools or in specific assets with varying degrees of liquidity, as well as having an authorized short-term commercial paper program. Stanford also has access to additional short-term financing facilities such as revolving lines of credit that can be available for unexpected liquidity needs (see *Note 9*).

OPERATIONS

The University, SHC and LPCH each manage their own operating cash through short-term investment pools. The primary investment objective for these funds is to preserve the principal value of the portfolio while meeting the liquidity needs of each of the entities. Cash flows vary seasonably during the year due to a variety of factors including timing of donor contributions, the University's academic calendar and the Hospitals' patient admission cycles. For working capital purposes, cash is managed by matching the timing of inflows and outflows as closely as possible, combined with active use of cash forecasting models to manage investment timing. Operating liquidity is tracked daily and reported weekly to provide management visibility. As noted above, back up borrowing facilities are also available to meet working capital needs.

MERGED POOL

The Merged Pool (MP) is the primary investment pool for endowment and other long-term funds for the University and the Hospitals. Approximately 14% of the MP consists of liquid investments, with the balance representing investments which are generally subject to constraints which either limit Stanford's ability to withdraw such capital or limit the amounts available for withdrawal at given redemption dates. The MP further maintains sufficient liquidity to distribute the monthly endowment payout in support of University operating expenditures, and to meet unfunded commitments associated with certain alternative investments. It is not the intention of the University to utilize its financial assets without donor restrictions - including board designated endowment funds - that are invested for the long-term for unplanned operating commitments; however, amounts could be made available from these sources if necessary, except for those underlying investments with lock-up provisions (see *Note 6)*.

Financial assets and liquid resources available within one year of the balance sheet date at August 31, 2022 and 2021 in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2022				
Financial assets:				
Cash and cash equivalents	$ 1,355,180	$ 536,803	$ 454,389	$ 2,346,372
Assets limited as to use	81,946	—	—	81,946
Accounts receivable, net	269,539	1,023,568	599,587	1,892,694
Pledges receivable available for operations	293,664	—	21,345	315,009
Investments available for current use	458,637	1,408,067	747,323	2,614,027
Endowment payout in support of operations	1,748,400	—	—	1,748,400
Financial assets available to meet cash needs for general expenditure within one year	4,207,366	2,968,438	1,822,644	8,998,448
Liquid resources available for use:				
Taxable commercial paper	469,945	—	—	469,945
Tax-exempt commercial paper	300,000	—	—	300,000
Revolving credit facilities	425,000	100,000	200,000	725,000
TOTAL FINANCIAL ASSETS AND LIQUID RESOURCES AVAILABLE WITHIN ONE YEAR	**$ 5,402,311**	**$ 3,068,438**	**$ 2,022,644**	**$ 10,493,393**
2021				
Financial assets:				
Cash and cash equivalents	$ 874,943	$ 407,044	$ 390,802	$ 1,672,789
Assets limited as to use	117,179	—	—	117,179
Accounts receivable, net	218,351	764,948	617,783	1,601,082
Pledges receivable available for operations	135,427	—	12,564	147,991
Investments available for current use	962,602	2,222,890	788,068	3,973,560
Endowment payout in support of operations	1,428,000	—	—	1,428,000
Financial assets available to meet cash needs for general expenditure within one year	3,736,502	3,394,882	1,809,217	8,940,601
Liquid resources available for use:				
Taxable commercial paper	500,000	—	—	500,000
Tax-exempt commercial paper	300,000	—	—	300,000
Revolving credit facilities	425,000	100,000	200,000	725,000
TOTAL FINANCIAL ASSETS AND LIQUID RESOURCES AVAILABLE WITHIN ONE YEAR	**$ 4,961,502**	**$ 3,494,882**	**$ 2,009,217**	**$ 10,465,601**

3. Accounts Receivable

Accounts receivable, net of allowances for doubtful accounts, at August 31, 2022 and 2021, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2022				
U.S. government sponsors	$ 138,624	$ 1,760	$ —	$ 140,384
Non-federal sponsors and programs	65,316	3,548	—	68,864
Accrued interest on investments	25,965	—	—	25,965
Student	16,114	—	—	16,114
Patient and third-party payers	—	1,023,568	590,940	1,614,508
Other	54,931	83,037	8,647	146,615
	300,950	1,111,913	599,587	2,012,450
Less allowance for doubtful accounts	(4,812)	—	—	(4,812)
ACCOUNTS RECEIVABLE, NET	**$ 296,138**	**$ 1,111,913**	**$ 599,587**	**$ 2,007,638**
2021				
U.S. government sponsors	$ 116,338	$ 17,955	$ —	$ 134,293
Non-federal sponsors and programs	60,218	18,951	26,361	105,530
Accrued interest on investments	22,695	—	—	22,695
Student	9,466	—	—	9,466
Patient and third-party payers	—	764,948	579,760	1,344,708
Other	36,199	92,667	11,662	140,528
	244,916	894,521	617,783	1,757,220
Less allowance for doubtful accounts	(3,210)	—	—	(3,210)
ACCOUNTS RECEIVABLE, NET	**$ 241,706**	**$ 894,521**	**$ 617,783**	**$ 1,754,010**

4. Pledges Receivable

Pledges are recorded at discounted rates ranging from 0.6% to 5.7%. At August 31, 2022 and 2021, pledges receivable, net of discounts and allowances, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2022					
One year or less	$ 652,373	$ 29,346	$ 138,364	$ (54,141)	$ 765,942
Between one year and five years	1,180,469	13,695	94,257	(18,653)	1,269,768
More than five years	325,449	2,250	25,020	(200)	352,519
	2,158,291	45,291	257,641	(72,994)	2,388,229
Less discounts and allowances	(171,411)	(3,414)	(11,668)	—	(186,493)
PLEDGES RECEIVABLE, NET	**$ 1,986,880**	**$ 41,877**	**$ 245,973**	**$ (72,994)**	**$ 2,201,736**
2021					
One year or less	$ 281,562	$ 29,398	$ 79,879	$ (19,030)	$ 371,809
Between one year and five years	1,121,211	19,755	58,269	(27,688)	1,171,547
More than five years	272,670	4,000	25,237	(5,027)	296,880
	1,675,443	53,153	163,385	(51,745)	1,840,236
Less discounts and allowances	(125,129)	(4,293)	(10,289)	—	(139,711)
PLEDGES RECEIVABLE, NET	**$ 1,550,314**	**$ 48,860**	**$ 153,096**	**$ (51,745)**	**$ 1,700,525**

During fiscal year 2022, John and Ann Doerr pledged $1.1 billion to support the new Stanford Doerr School of Sustainability. The gift will be recorded in the financial statements as milestones in establishing the school are completed. In fiscal year 2022, $99.6 million of the gift was recorded. The University had total conditional pledges of approximately $1.0 billion and $7.8 million at August 31, 2022 and 2021, respectively, which are subject to specified future events. SHC and LPCH had no conditional pledges at August 31, 2022 and 2021.

Lucile Packard Foundation for Children's Health (LPFCH) is the primary community fundraising agent for LPCH and the pediatric faculty and programs at the University's SOM. Pledges received by LPFCH on behalf of the University are recorded by the University as beneficial interest in LPFCH. At August 31, 2022 and 2021 the University held $73.0 million and $51.7 million, respectively, of beneficial interest in LPFCH, which is included in "Pledges receivable, net", and eliminated in consolidation.

5. Loans Receivable

Loans receivable consist primarily of University student loans receivable and faculty and staff mortgages. University management regularly assesses the adequacy of the allowance for credit losses of its loans by performing ongoing evaluations considering the differing economic risks associated with each loan category, the financial condition of specific borrowers, the economic environment in which the borrowers operate, the level of delinquent loans and the value of any collateral.

STUDENT LOANS RECEIVABLE

Student loans receivable consist of institutional and federally-sponsored loans due from both current and former students. Student loans and allowance for student loan losses at August 31, 2022 and 2021, in thousands of dollars, are as follows:

	2022	2021
Institutional loans	$ 29,774	$ 29,593
Federally-sponsored loans	9,459	13,804
	39,233	43,397
Less allowance for student loan losses	(1,709)	(698)
STUDENT LOANS RECEIVABLE, NET	**$ 37,524**	**$ 42,699**

Institutional loans are funded by donor funds restricted for student loan purposes and University funds made available to meet demand for student loan borrowing in specific situations.

Federally-sponsored loans are funded by advances to the University primarily under the Federal Perkins Loan Program (the "Program"). During the years ended August 31, 2022 and 2021, the University returned $4.6 million and $6.2 million of Program funds to the U.S. Department of Education, respectively. Loans to students under the Program are subject to mandatory interest rates and significant restrictions and can be assigned to the federal government in certain non-repayment situations. In these situations, the federal portion of the loan balance is guaranteed.

Amounts received under the Program are ultimately refundable to the federal government in the event the University no longer participates in the Program, and accordingly, have been reported as an obligation in the *Consolidated Statements of Financial Position* within "Accounts payable and accrued expenses." The Program expired in September 2017 and the University is no longer issuing new loans under the Program.

FACULTY AND STAFF MORTGAGES

In a program to attract and retain excellent faculty and senior staff, the University provides home mortgage financing assistance, primarily in the form of subordinated loans. The loans and mortgages are collateralized by deeds of trust on properties concentrated in the region surrounding the University. Notes receivable amounting to $969.3 million and $877.4 million at August 31, 2022 and 2021, respectively, from University faculty and staff are included in "Faculty and staff mortgages and other loans receivable, net" in the *Consolidated Statements of Financial Position*. Management has determined that no allowance is necessary.

The August 31, 2022 and 2021 amounts are net of the University's recorded obligation to repurchase certain residential units sold under long-term restricted ground leases of $222.8 million and $204.1 million, respectively. See the *Repurchase Obligations* section of *Note 1*.

6. Investments

Investments are measured and recorded at fair value. The valuation methodology, investment categories, fair value hierarchy, certain investment activities and related commitments for fiscal years 2022 and 2021 are presented below. Investments held by Stanford at August 31, 2022 and 2021, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2022					
Investment assets:					
Cash and short-term investments	$ 1,770,226	$ 67,850	$ 5,247	$ —	$ 1,843,323
Collateral held for securities loaned	2,151	—	—	—	2,151
Public equities	9,683,129	1,061,767	50,515	—	10,795,411
Derivatives	(8,968)	—	—	—	(8,968)
Fixed income	2,421,961	744,330	101,994	—	3,268,285
Real estate	10,032,000	—	8,134	—	10,040,134
Natural resources	1,497,476	—	7,268	—	1,504,744
Private equities	16,830,775	—	41,768	—	16,872,543
Absolute return	6,703,158	—	23,164	—	6,726,322
Assets held by other trustees	126,994	—	15,942	—	142,936
Other	960,190	33,341	—	—	993,531
Total	50,019,092	1,907,288	254,032	—	52,180,412
Hospitals' funds invested in the University's investment pools	(3,545,292)	2,496,403	1,041,464	7,425	—
INVESTMENTS AT FAIR VALUE	**$46,473,800**	**$ 4,403,691**	**$ 1,295,496**	**$ 7,425**	**$ 52,180,412**
Investment liabilities:					
Income beneficiary share of split interest agreements[1]	$ 662,634	$ —	$ —	$ —	$ 662,634
Net investment income excise tax	196,516	—	—	—	196,516
Securities lending[2]	2,151	—	—	—	2,151
Accrued management fees	2,445	—	—	—	2,445
LIABILITIES ASSOCIATED WITH INVESTMENTS	**$ 863,746**	**$ —**	**$ —**	**$ —**	**$ 863,746**

[1] *See split-interest agreements section in Note 1*

[2] *Investments at fair value include $2.1 million of securities pledged or on loan.*

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2021					
Investment assets:					
Cash and short-term investments	$ 717,827	$ 67,096	$ 3,215	$ —	$ 788,138
Collateral held for securities loaned	9,847	—	—	—	9,847
Public equities	11,361,826	1,211,571	67,336	—	12,640,733
Derivatives	(5,464)	—	—	—	(5,464)
Fixed income	4,222,821	841,098	99,464	—	5,163,383
Real estate	9,101,686	—	10,270	—	9,111,956
Natural resources	1,685,968	—	6,543	—	1,692,511
Private equities	16,913,363	—	43,086	—	16,956,449
Absolute return	6,758,761	—	26,232	—	6,784,993
Assets held by other trustees	149,531	—	19,650	—	169,181
Other	706,970	20,848	—	—	727,818
Total	51,623,136	2,140,613	275,796	—	54,039,545
Hospitals' funds invested in the University's investment pools	(3,622,055)	2,522,127	1,092,536	7,392	—
INVESTMENTS AT FAIR VALUE	**$48,001,081**	**$ 4,662,740**	**$ 1,368,332**	**$ 7,392**	**$ 54,039,545**
Investment liabilities:					
Income beneficiary share of split interest agreements[1]	$ 728,530	$ —	$ —	$ —	$ 728,530
Net investment income excise tax	233,057	—	—	—	233,057
Securities lending[2]	9,847	—	—	—	9,847
Securities sold, not yet purchased	—	—	—	—	—
Accrued management fees	3,322	—	—	—	3,322
LIABILITIES ASSOCIATED WITH INVESTMENTS	**$ 974,756**	**$ —**	**$ —**	**$ —**	**$ 974,756**

[1] *See split-interest agreements section in Note 1*

[2] *Investments at fair value include $9.4 million of securities pledged or on loan.*

VALUATION METHODOLOGY

To the extent available, Stanford's investments are recorded at fair value based on quoted prices in active markets on a trade-date basis. Stanford's investments that are listed on any U.S. or non-U.S. recognized exchanges are valued based on readily available market quotations. When such inputs do not exist, fair value measurements are based on the best available information and usually require a degree of judgment. For alternative investments, which are principally interests in limited partnerships or similar investments in private equity, real estate, natural resources, public equities and absolute return funds, the value is primarily based on the Net Asset Value (NAV) of the underlying investments as a practical expedient. The NAV is reported by external investment managers in accordance with their policies as described in their respective financial statements and offering memoranda. The most recent NAV reported is adjusted for any investment-related transactions such as capital calls or distributions and significant known valuation changes of its related portfolio through August 31, 2022 and 2021, respectively. These investments are generally less liquid than other investments, and the value reported may differ from the values that would have been reported had a ready market for these investments existed.

The University exercises due diligence in assessing the policies, procedures, and controls implemented by its external investment managers and believes its proportionate share of the carrying amount of these alternative investments is a reasonable estimate of fair value. Such due diligence procedures include, but are not limited to, ongoing communication, on-site visits, and review of information from external investment managers as well as review of performance. In conjunction with these procedures, estimated fair value is determined by consideration of a range of factors, such as market conditions, redemption terms and restrictions, and risks inherent in the inputs of the external investment managers' valuations.

For certain alternative investments which are direct investments, Stanford considers various factors to estimate fair value, such as, but not limited to, the timing of the transaction, the market in which the company operates, comparable transactions, company performance and projections, as well as discounted cash flow analysis. The selection of an appropriate valuation technique may be

affected by the availability and general reliability of relevant inputs. In some cases, one valuation technique may provide the best indication of fair value while in other circumstances, multiple valuation techniques may be appropriate. Furthermore, Stanford may review the investment's underlying portfolio as well as engage external appraisers, depending on the circumstances and the nature of the investment.

The investment portfolio may be exposed to various risks, including, but not limited to, interest rate, market, sovereign, geographic, counterparty, liquidity and credit risk. Stanford management regularly assesses these risks through established policies and procedures. Fair value reporting requires management to make estimates and assumptions about the effects of matters that are inherently uncertain. Actual results could differ from these estimates and such differences could have a material impact on the *Consolidated Financial Statements*.

INVESTMENT CATEGORIES

Investments are categorized by asset class and valued as described below:

Cash and short-term investments include cash, cash equivalents, mutual funds, and fixed income investments with original maturities of less than one year (see also *Note 1*). Cash equivalents such as money market funds and overnight repurchase agreements are carried at cost. Fixed income investments such as short-term U.S. Treasury bills are carried at amortized cost. Due to the short-term nature and liquidity of these financial instruments, the carrying values of these assets approximates fair value. Cash may include collateral provided to or received from counterparties associated with investment-related derivative contracts (see *Note 7*).

Collateral held for securities loaned is generally received in the form of cash and cash equivalents and is reinvested for income in cash equivalent vehicles. These investments are recorded at fair value.

Public equities are investments valued based on quoted market prices (and exchange rates, if applicable) on the last trading date of the principal market on or before August 31. They include investments that are directly held as well as commingled funds which invest in publicly traded equities. The fair values of public equities held through alternative investments are reported by the respective external investment managers using NAV as described in the *Valuation Methodology* section above.

Derivatives are used by Stanford to manage its exposure to certain risks relating to ongoing business and investment operations. Derivatives may include swaps and forward currency contracts which are reflected at fair value by using quantitative models that utilize multiple market inputs. The market inputs are actively quoted and can be validated through external sources, including market transactions, brokers and third party pricing sources.

Fixed income investments are valued by independent pricing sources, broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. They primarily include investments that are actively traded fixed income securities or mutual funds.

Real estate represents directly owned real estate, mutual funds, interests in long-term ground leases and other real estate interests held through limited partnerships. A significant portion of the fair value of real estate directly owned by Stanford and subject to long-term ground leases, including the Stanford Shopping Center and the Stanford Research Park, is based on independent appraisals that use discounted cash flows and market data, if available. The fair value of alternative investments in real estate held through limited partnerships is based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above. The fair value of real estate held through commingled and mutual funds are based on quoted market prices.

Natural resources represent commodity and energy related investments held through both public and non-public investments. Public securities are valued based on quoted market prices (and exchange rates, if applicable) on the last trading day of the principal market on or before August 31. The fair value of direct non-public investments is based on a combination of models, including appraisals, discounted cash flows and commodity price factors. The fair value of natural resources held as alternative investments is based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above.

Private equities are investments primarily in venture capital, growth equity, and leveraged buyout strategies. Distributions from these investments are received in the form of either cash or distributed shares, which are typically valued using quoted market prices.

The fair value of alternative investments is based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above.

Absolute return investments are typically commingled funds that employ multiple strategies to produce positive returns which may be uncorrelated to financial market activities. The fair value of these types of alternative investments is valued based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above.

Assets held by other trustees generally represent Stanford's residual (or beneficial) interest in split-interest agreements where the University, SHC or LPCH is not the trustee. The residual interest represents the present value of the future distributions expected to be received over the term of the agreement, which approximates fair value.

Other investments are typically non-public investments such as preferred stocks, convertible notes and mineral rights. The fair value of these types of direct investments is determined as described in the *Valuation Methodology* section above.

LIABILITIES ASSOCIATED WITH INVESTMENTS

Income beneficiary share of split interest agreements - See the *Split–Interest Agreements* section of *Note 1*.

Net investment income excise tax - Under the Tax Cuts and Jobs Act, the University is subject to a 1.4% excise tax on its net investment income as defined under the Internal Revenue Code which, among other things, includes net investment income of certain related entities such as the Hospitals. The University has recorded current and deferred tax liabilities based on reasonable estimates.

Securities lending - The University has a collateralized borrowing program in which it receives short-term U.S. government obligations or cash and cash equivalents in exchange for transferring securities as collateral to the counterparty and recognizes an obligation to reacquire the securities for cash at the transaction's maturity. It is the University's policy to require receipt of collateral equal to a minimum of 102% of the fair market value of these collateralized borrowings. In the event the counterparty was to default on its obligations, The University has the right to repurchase the securities in the open market using the collateral received.

Under the securities lending agreement, securities loaned are primarily public equities, corporate bonds or U.S. Treasury bills and the agreement continues until the security is delivered back to the University. The estimated fair value of securities loaned at August 31, 2022 and 2021 was $2.1 million and $9.4 million, respectively. The University received on loan publicly traded equities of $2.2 million and $9.8 million at August 31, 2022 and 2021, respectively.

Securities sold, not yet purchased are obligations to acquire and deliver to the lenders the publicly traded securities identical to the ones borrowed. A realized gain or loss is recognized for the difference between the proceeds and the cost of such securities at that time.

Accrued management fees are obligations related to management and performance fees due quarterly or annually to external investment managers in accordance with agreed-upon terms.

Pending trades of securities are obligations arising from trades of securities purchased but not settled. These are usually settled three business days after the trade date.

FAIR VALUE HIERARCHY

U.S. GAAP defines fair value as the price received upon sale of an asset or paid upon transfer of a liability in an orderly transaction between market participants. Current guidance establishes a hierarchy of valuation inputs based on the extent to which the inputs are observable in the marketplace. Inputs are used in applying the various valuation techniques and take into account the assumptions that market participants use to make valuation decisions. Inputs may include price information, credit data, liquidity statistics, and other factors specific to the financial instrument. Observable inputs reflect market data obtained from independent sources. In contrast, unobservable inputs reflect the entity's assumptions about how market participants would value the financial instrument. Valuation techniques used under U.S. GAAP must maximize the use of observable inputs to the extent available.

A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. The following describes the hierarchy of inputs used to measure fair value and the primary valuation methodologies used for financial instruments measured at fair value on a recurring basis:

Level 1 - Investments whose values are based on quoted market prices in active markets for identical assets or liabilities are classified as Level 1. Level 1 investments include active listed equities and certain short term fixed income securities. Such investments are valued based upon the closing price quoted on the last trading date on or before the reporting date on the principal market, without adjustment.

Level 2 - Investments that trade in markets that are not actively traded, but are valued based on quoted market prices, dealer quotations, or alternative pricing sources for similar assets or liabilities are classified as Level 2. These investments include certain U.S. government and sovereign obligations, government agency obligations, investment grade corporate bonds and certain limited marketable securities.

Privately negotiated over-the-counter (OTC) derivatives such as forward currency contracts, total return swaps, and interest rate swaps are typically classified as Level 2 (see *Note 7*). In instances where quotations received from counterparties or valuation models are used, the value of an OTC derivative depends upon the contractual terms of the instrument as well as the availability and reliability of observable inputs. Such inputs include market prices for reference securities, yield curves, or credit curves.

Level 3 - Investments classified as Level 3 have significant unobservable inputs, as they trade infrequently or not at all. The inputs into the determination of fair value of these investments are based upon the best information available and may require significant management judgment. These investments primarily consist of Stanford's direct real estate and alternative investments.

The following tables summarize Stanford's investment assets and liabilities within the fair value hierarchy and asset categories at August 31, 2022 and 2021, in thousands of dollars:

	LEVEL 1	LEVEL 2	LEVEL 3	TOTAL
2022				
Investment assets:				
Cash and short-term investments	$ 241,942	$ 1,593,325	$ —	$ 1,835,267
Collateral held for securities loaned	—	2,151	—	2,151
Public equities	3,139,972	4,111	—	3,144,083
Derivatives	—	(8,968)	—	(8,968)
Fixed income	1,009,556	2,252,463	—	3,262,019
Real estate	218,614	—	7,721,395	7,940,009
Natural resources	5,337	—	67,375	72,712
Private equities	96,951	125	12,589	109,665
Absolute return	—	—	24,616	24,616
Assets held by other trustees	—	—	142,936	142,936
Other	15,068	5,055	958,653	978,776
INVESTMENTS SUBJECT TO FAIR VALUE LEVELING	**$ 4,727,440**	**$ 3,848,262**	**$ 8,927,564**	**17,503,266**
Investments measured using Net Asset Value[1]				34,677,146
TOTAL CONSOLIDATED INVESTMENT ASSETS				**$ 52,180,412**
Investment liabilities:				
Income beneficiary share of split interest agreements	$ —	$ 662,634	$ —	$ 662,634
Net investment income excise tax	196,516	—	—	196,516
Securities lending	—	2,151	—	2,151
Accrued management fees	2,445	—	—	2,445
LIABILITIES ASSOCIATED WITH INVESTMENTS	**$ 198,961**	**$ 664,785**	**$ —**	**$ 863,746**

[1] *Entities may estimate the fair value of certain investments by using NAV as a practical expedient as of the measurement date. Investments measured under this method are not categorized in the fair value hierarchy. The fair value amounts of such investments are presented for reconciliation purposes.*

	LEVEL 1	LEVEL 2	LEVEL 3	TOTAL
2021				
Investment assets:				
Cash and short-term investments	$ 100,821	$ 680,224	$ —	$ 781,045
Collateral held for securities loaned	—	9,847	—	9,847
Public equities	3,759,859	7,028	—	3,766,887
Derivatives	—	(5,464)	—	(5,464)
Fixed income	1,198,382	3,962,700	—	5,161,082
Real estate	256,286	—	6,985,383	7,241,669
Natural resources	155,430	—	125,178	280,608
Private equities	484,310	146	7,289	491,745
Absolute return	—	—	16,662	16,662
Assets held by other trustees	—	—	169,182	169,182
Other	13,161	12,179	688,743	714,083
INVESTMENTS SUBJECT TO FAIR VALUE LEVELING	**$ 5,968,249**	**$ 4,666,660**	**$ 7,992,437**	**18,627,346**
Investments measured using Net Asset Value[1]				35,412,199
TOTAL CONSOLIDATED INVESTMENT ASSETS				**$ 54,039,545**
Investment liabilities:				
Income beneficiary share of split interest agreements	$ —	$ 728,530	$ —	$ 728,530
Net investment income excise tax	233,057	—	—	233,057
Securities lending	—	9,847	—	9,847
Accrued management fees	3,322	—	—	3,322
LIABILITIES ASSOCIATED WITH INVESTMENTS	**$ 236,379**	**$ 738,377**	**$ —**	**$ 974,756**

[1] *Entities may estimate the fair value of certain investments by using NAV as a practical expedient as of the measurement date. Investments measured under this method are not categorized in the fair value hierarchy. The fair value amounts of such investments are presented for reconciliation purposes.*

SUMMARY OF LEVEL 3 INVESTMENT ACTIVITIES AND TRANSFERS

The following tables present the activities for Level 3 investments for the years ended August 31, 2022 and 2021, in thousands of dollars:

FAIR VALUE MEASUREMENTS USING SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3)	BEGINNING BALANCE AS OF SEPTEMBER 1, 2021	PURCHASES AND ADDITIONS	SALES AND MATURITIES	NET REALIZED AND UNREALIZED GAINS (LOSSES)	TRANSFERS IN*	TRANSFERS OUT*	ENDING BALANCE AS OF AUGUST 31, 2022
Real estate	$ 6,985,383	$ 46,387	$ (12,523)	$ 896,655	$ —	$ (194,507)	$ 7,721,395
Natural resources	125,178	—	(113,811)	56,008	—	—	67,375
Private equities	7,289	8,800	—	(3,392)	—	(108)	12,589
Absolute return	16,662	—	(1,393)	9,347	—	—	24,616
Assets held by other trustees	169,182	7,230	(4,033)	(27,610)	751	(2,584)	142,936
Other	688,743	42,126	(40,347)	269,858	—	(1,727)	958,653
TOTAL	**$7,992,437**	**$ 104,543**	**$(172,107)**	**$1,200,866**	**$ 751**	**$(198,926)**	**$ 8,927,564**

FAIR VALUE MEASUREMENTS USING SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3)	BEGINNING BALANCE AS OF SEPTEMBER 1, 2020	PURCHASES AND ADDITIONS	SALES AND MATURITIES	NET REALIZED AND UNREALIZED GAINS (LOSSES)	TRANSFERS IN*	TRANSFERS OUT*	ENDING BALANCE AS OF AUGUST 31, 2021
Real estate	$ 6,796,817	$ 124,463	$ (6,502)	$ 70,605	$ —	$ —	$ 6,985,383
Natural resources	108,561	1,561	(29,456)	44,512	—	—	125,178
Private equities	539	175	—	6,575	—	—	7,289
Absolute return	22,293	—	—	(5,631)	—	—	16,662
Assets held by other trustees	143,238	1,129	(1,332)	26,024	123	—	169,182
Other	731,284	31,973	(77,180)	45,150	—	(42,484)	688,743
TOTAL	**$7,802,732**	**$ 159,301**	**$(114,470)**	**$ 187,235**	**$ 123**	**$ (42,484)**	**$ 7,992,437**

**Transfers in (out) are primarily due to reclassification of investments between asset classes and changes in the fair value hierarchy.*

Net realized and unrealized gains (losses) in the tables above are included in the *Consolidated Statements of Activities* primarily as increases or decreases in reinvested gains by level of restriction. For the years ended August 31, 2022 and 2021, the change in unrealized gains (losses) for Level 3 investments still held at August 31, 2022 and 2021 was $1.2 billion and $231.8 million, respectively.

LEVEL 3 INVESTMENT VALUATION TECHNIQUES AND SIGNIFICANT UNOBSERVABLE INPUTS

The following table summarizes the significant unobservable inputs and valuation methodologies for Level 3 investments as of August 31, 2022 and 2021, in thousands of dollars.

For each investment category and respective valuation technique, the range of the significant unobservable input is dependent on the nature and characteristics of the investment and may vary at each balance sheet date.

INVESTMENT CATEGORIES	FAIR VALUE[1]	VALUATION TECHNIQUE	SIGNIFICANT UNOBSERVABLE INPUTS	RANGE MIN	RANGE MAX	WEIGHTED AVERAGE	IMPACT TO VALUATION FROM AN INCREASE IN INPUT[2]
2022							
Real estate	$ 6,807,660	Discounted cash flow	Discount rate	5.8 %	20.0 %	7.1%	Decrease
			Capitalization rate	5.5 %	8.3 %	6.3%	Decrease
Assets held by other trustees	126,994	Net present value	Discount rate	3.8 %	3.8 %	N/A	Decrease
Other	936,789	Market comparables	Recent transactions	N/A	N/A	N/A	N/A
TOTAL AMOUNT WITH SIGNIFICANT UNOBSERVABLE INPUTS	**$7,871,443**						
2021							
Real estate	$ 6,073,613	Discounted cash flow	Discount rate	4.7 %	20.0 %	7.2%	Decrease
			Capitalization rate	5.5 %	8.0 %	6.1%	Decrease
Assets held by other trustees	149,532	Net present value	Discount rate	1.2 %	1.2 %	N/A	Decrease
Other	691,366	Market comparables	Recent transactions	N/A	N/A	N/A	N/A
TOTAL AMOUNT WITH SIGNIFICANT UNOBSERVABLE INPUTS	**$6,914.511**						

[1] *$1.0 billion of Level 3 investments at both August 31, 2022 and 2021 are valued using third-party valuations, other market comparables or recent transactions as an approximation of fair value.*

[2] *Unless otherwise noted, this column represents the directional change in the fair value of the Level 3 investments that would have resulted from an increase to the corresponding unobservable input. A decrease to the unobservable input would have the opposite effect. Significant increases and decreases in these unobservable inputs in isolation would result in significantly higher or lower fair value measurements.*

INVESTMENT-RELATED COMMITMENTS

The University is obligated under certain alternative investment agreements to advance additional funding up to specified levels over a period of several years. The following table presents significant terms of such agreements including redemption terms, notice periods, and remaining life for all related alternative investments at August 31, 2022, in thousands of dollars:

ASSET CLASS	FAIR VALUE	UNFUNDED COMMITMENT	REMAINING LIFE (YEARS)	REDEMPTION TERMS
Public equities	$ 7,140,098	$ 135,235	0 to 5	Generally, lock-up provisions ranging from 0 to 3 years. After initial lock up expires, redemptions are available on a rolling basis and require 30 to 90 days prior notification.
Real estate	2,139,989	1,448,451	0 to 9	Not eligible for redemption
Natural resources	1,452,742	795,985	0 to 9	Not eligible for redemption
Private equities	17,207,532	5,432,311	0 to 20	Not eligible for redemption
Absolute return	6,703,158	664,887	0 to 3	Generally, lock-up provisions ranging from 0 to 3 years. After initial lock up expires, redemptions are available on a rolling basis and require 30 to 90 days prior notification.
TOTAL	**$34,643,519**	**$ 8,476,869**		

OFFSETS TO INVESTMENT-RELATED ASSETS AND LIABILITIES

Financial instruments with off-balance sheet risk such as derivatives, securities lending agreements, securities sold, not yet purchased and repurchase agreements are subject to counterparty credit risk. The University seeks to control this risk in various ways, such as entering into transactions with counterparties with high creditworthiness, establishing and monitoring credit limits, and requiring collateral in certain situations.

The University generally maintains master netting agreements and collateral agreements with its counterparties. These agreements provide the University the right to net a counterparty's rights and obligations under the agreement and to liquidate and offset collateral against any net amount owed by the counterparty, in the event of default by the counterparty, such as bankruptcy or a failure to pay or perform. For certain derivatives, a master netting arrangement allows the counterparty to net any of its applicable liabilities or payment obligations to the University against any collateral previously provided or received (see *Note 7*).

The University may enter into repurchase and reverse repurchase agreements to sell or purchase securities to or from the counterparty with an agreement to repurchase or sell the same securities from or to the counterparty at a predetermined price.

The following table presents information about the gross amounts of assets and liabilities, the offset of these instruments and the related collateral amounts as of August 31, 2022 and 2021, in thousands of dollars:

	GROSS AMOUNTS OF ASSETS AND LIABILITIES	OFFSET AMOUNTS	NET AMOUNTS	COLLATERAL RECEIVED (PLEDGED)[2]	NET EXPOSURE
2022					
Assets:					
Derivatives[1]	$ 3,363	$ (12,331)	$ (8,968)	$ (8,968)	$ —
Repurchase agreements[3]	304,683	—	304,683	304,683	—
TOTAL	**308,046**	**(12,331)**	**295,715**	**295,715**	**—**
Liabilities:					
Derivatives[1]	12,332	(12,332)	—	—	—
Securities lending	2,151	—	2,151	(2,151)	—
TOTAL	**$ 14,483**	**$ (12,332)**	**$ 2,151**	**$ (2,151)**	**$ —**
2021					
Assets:					
Derivatives[1]	$ 2	$ (5,466)	$ (5,464)	$ (5,464)	$ —
Repurchase agreements[3]	132,142	—	132,142	132,142	—
TOTAL	**132,144**	**(5,466)**	**126,678**	**126,678**	**—**
Liabilities:					
Derivatives[1]	5,466	(5,466)	—	—	—
Securities lending	9,847	—	9,847	(9,847)	—
TOTAL	**$ 15,313**	**$ (5,466)**	**$ 9,847**	**$ (9,847)**	**$ —**

[1] *Gross derivative assets less gross derivative liabilities are presented as derivatives in the investment assets table.*

[2] *These collateral amounts received (pledged) are limited to the asset balance and accordingly, do not include any excess collateral received.*

[3] *Repurchase agreements are included in cash and short-term investments in the investment assets table.*

INVESTMENT RETURNS

Total investment returns for the years ended August 31, 2022 and 2021, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2022				
Investment income	$ 398,137	$ 123,298	$ 2,303	$ 523,738
Net realized and unrealized losses	(445,728)	(386,982)	(38,851)	(871,561)
TOTAL INVESTMENT RETURNS, NET	**$ (47,591)**	**$ (263,684)**	**$ (36,548)**	**$ (347,823)**
Reconciliation to *Statements of Activities:*				
Total investment income distributed for operations	$ 1,742,175	$ 606	$ 9,370	$ 1,752,151
Increase (decrease) in reinvested gains:				
Without donor restrictions	(449,755)	(264,528)	(29,655)	(743,938)
With donor restrictions	(1,243,613)	238	(12,396)	(1,255,771)
Change in value of split-interest agreements, net	(59,444)	—	(3,867)	(63,311)
Adjustments for actuarial re-evaluations and maturities of split-interest agreements	(36,954)	—	—	(36,954)
TOTAL INVESTMENT RETURNS, NET	**$ (47,591)**	**$ (263,684)**	**$ (36,548)**	**$ (347,823)**
2021				
Investment income	$ 263,205	$ 76,578	$ 2,869	$ 342,652
Net realized and unrealized gains	10,884,804	808,700	357,325	12,050,829
TOTAL INVESTMENT RETURNS, NET	**$ 11,148,009**	**$ 885,278**	**$ 360,194**	**$ 12,393,481**
Reconciliation to *Statements of Activities:*				
Total investment income distributed for operations	$ 1,731,388	$ 1,095	$ 18,799	$ 1,751,282
Increase in reinvested gains:				
Without donor restrictions	4,468,169	871,876	208,623	5,548,668
With donor restrictions	4,676,143	12,307	129,446	4,817,896
Change in value of split-interest agreements, net	119,227	—	3,326	122,553
Adjustments for actuarial re-evaluations and maturities of split-interest agreements	153,082	—	—	153,082
TOTAL INVESTMENT RETURNS, NET	**$ 11,148,009**	**$ 885,278**	**$ 360,194**	**$ 12,393,481**

Investment returns are net of investment management expenses, including both external management fees and internal University investment-related salaries, benefits and operating expenses.

FUTURE MINIMUM RENTAL INCOME

As part of its investment portfolio, Stanford holds certain investment properties that it leases to third parties. Future minimum rental income due from the Stanford Shopping Center, the Stanford Research Park and other properties under non-cancellable leases in effect with tenants at August 31, 2022, in thousands of dollars, is as follows:

	FUTURE MINIMUM RENTAL INCOME			
YEAR ENDING AUGUST 31	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023	$ 164,115	$ 5,338	$ 865	$ 170,318
2024	154,485	4,461	563	159,509
2025	136,222	2,504	308	139,034
2026	128,588	1,703	214	130,505
2027	104,925	953	127	106,005
Thereafter	2,553,044	8,931	—	2,561,975
TOTAL	**$ 3,241,379**	**$ 23,890**	**$ 2,077**	**$ 3,267,346**

7. Derivatives

Stanford, directly or through external investment managers on Stanford's behalf, utilizes various strategies to reduce investment and credit risks, to serve as a temporary surrogate for investment in stocks and bonds, to manage interest rate exposure on debt, and/or to manage specific exposure to foreign currencies. Futures, options and other derivative instruments are used to adjust elements of investment exposures to various securities, sectors, markets and currencies without actually taking a position in the underlying asset or basket of assets. Interest rate swaps are used to manage interest rate risk. With respect to foreign currencies, Stanford utilizes forward contracts and foreign currency options to manage exchange rate risk.

INVESTMENT-RELATED DERIVATIVES

The following table presents amounts for investment-related derivatives, including the notional amount, the fair values at August 31, 2022 and 2021, and gains and losses for the years ended August 31, 2022 and 2021, in thousands of dollars:

	NOTIONAL AMOUNT[1]	GROSS DERIVATIVE ASSETS[2]	GROSS DERIVATIVE LIABILITIES[2]	REALIZED AND UNREALIZED GAINS (LOSSES)[3]
2022	AS OF AUGUST 31			YEAR ENDED AUGUST 31
Foreign exchange contracts	$ 102,873	$ 42	$ 913	$ (1,937)
Equity contracts[4]	378,657	3,321	11,418	87,318
TOTAL	**$ 481,530**	**$ 3,363**	**$ 12,331**	**$ 85,381**
2021				
Foreign exchange contracts	$ 13,466	$ 2	$ 209	$ (1,049)
Equity contracts[4]	379,694	—	5,257	(80,118)
TOTAL	**$ 393,160**	**$ 2**	**$ 5,466**	**$ (81,167)**

[1] *The notional amount is representative of the volume and activity of the respective derivative type during the years ended August 31, 2022 and 2021.*

[2] *Gross derivative assets less gross derivative liabilities of $(9.0) million and $(5.5) million as of August 31, 2022 and 2021, respectively, are presented as derivatives on the investment table in Note 6.*

[3] *Gains and losses on derivatives are included in the Statements of Activities line "Increase (decrease) in reinvested gains" in "Non-operating activities."*

[4] *The realized and unrealized gains and (losses) related to hedging derivatives were $0 and $28.2 million for the years ended August 31, 2022 and 2021, respectively.*

DEBT-RELATED DERIVATIVES

The University and SHC use interest rate exchange agreements to manage the interest rate exposure of their debt portfolios. Under the terms of the current agreements, the entities pay a fixed interest rate, determined at inception, and receive a variable rate on the underlying notional principal amount. Generally, the exchange agreements require mutual posting of collateral by the University and SHC and the counterparties if the termination values exceed a predetermined threshold dollar amount.

At August 31, 2022, the University had interest rate exchange agreements related to $97.0 million of the outstanding balance of the CEFA Series S bonds in variable rate mode (see *Note 9*). The agreements, which have a weighted average interest rate of 3.68%, expire November 1, 2039. The notional amount and the fair value of the exchange agreements are included in the table below. Collateral posted with various counterparties was $9.7 million and $22.3 million at August 31, 2022 and 2021, respectively, and is included in the *Consolidated Statements of Financial Position*. In addition, the University issued an irrevocable standby letter of credit of $15.0 million to support collateral requirements at August 31, 2022 and 2021 (see *Note 9*).

At August 31, 2022, SHC had interest rate exchange agreements expiring through November 2051 (see *Note 9*). The agreements require SHC to pay fixed interest rates to the counterparties varying from 3.37% to 4.08% in exchange for variable rate payments from the counterparties based on a percentage of the One Month London Interbank Offered Rate (LIBOR). The notional amount and the fair value of the exchange agreements are included in the table below. There was cash collateral required to be posted with counterparties at August 31, 2022 and 2021 of $0 and $21.2 million, respectively.

The following table presents amounts for debt-related derivatives including the notional amount, the fair values at August 31, 2022 and 2021, and gains and losses for the years ended August 31, 2022 and 2021, in thousands of dollars:

	AS OF AUGUST 31, 2022		YEAR ENDED AUGUST 31, 2022	AS OF AUGUST 31, 2021		YEAR ENDED AUGUST 31, 2021
	NOTIONAL AMOUNT[1]	GROSS DERIVATIVE LIABILITIES[2]	UNREALIZED GAINS[3]	NOTIONAL AMOUNT[1]	GROSS DERIVATIVE LIABILITIES[2]	UNREALIZED GAINS[3]
Debt-related interest-rate contracts:						
University	$ 97,000	$ 21,550	$ 21,707	$ 97,000	$ 43,257	$ 10,557
SHC	573,725	145,906	139,748	574,025	285,654	67,638
TOTAL	**$ 670,725**	**$ 167,456**	**$ 161,455**	**$ 671,025**	**$ 328,911**	**$ 78,195**

[1] *The notional amount is representative of the volume and activity of the respective derivative type during the years ended August 31, 2022 and 2021.*

[2] *Fair value is measured using Level 2 inputs as defined in Note 6. Amounts are included in the Statements of Financial Position in "Accounts payable and accrued expenses" and discussed more fully in Note 9.*

[3] *Gains on derivatives are included in the Statements of Activities as "Swap interest and change in value of swap agreements" in "Non-operating activities".*

8. Plant Facilities

Plant facilities, net of accumulated depreciation, at August 31, 2022 and 2021, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2022				
Land and improvements	$ 899,191	$ 155,325	$ 120,605	$ 1,175,121
Buildings and building improvements	9,714,384	3,912,975	1,954,449	15,581,808
Furniture, fixtures and equipment	2,194,236	1,720,456	500,663	4,415,355
Utilities	1,053,134	—	—	1,053,134
Construction in progress	458,954	503,430	58,531	1,020,915
	14,319,899	6,292,186	2,634,248	23,246,333
Less accumulated depreciation	(6,415,976)	(2,566,698)	(886,225)	(9,868,899)
PLANT FACILITIES, NET OF ACCUMULATED DEPRECIATION	**$ 7,903,923**	**$ 3,725,488**	**$ 1,748,023**	**$ 13,377,434**
2021				
Land and improvements	$ 681,619	$ 77,368	$ 120,605	$ 879,592
Buildings and building improvements	9,619,090	3,817,842	1,930,883	15,367,815
Furniture, fixtures and equipment	2,122,470	1,650,865	483,032	4,256,367
Utilities	956,104	—	—	956,104
Construction in progress	319,317	387,419	39,446	746,182
	13,698,600	5,933,494	2,573,966	22,206,060
Less accumulated depreciation	(6,015,428)	(2,314,043)	(797,959)	(9,127,430)
PLANT FACILITIES, NET OF ACCUMULATED DEPRECIATION	**$ 7,683,172**	**$ 3,619,451**	**$ 1,776,007**	**$ 13,078,630**

At August 31, 2022, $2.7 billion, $1.5 billion, and $403.4 million of fully depreciated plant facilities were still in use by the University, SHC, and LPCH, respectively, and are included in plant facilities and accumulated depreciation in the above table.

In May 2022, the Board of Trustees of the University approved the purchase of Oak Creek Apartments, a 759-unit apartment complex on leased Stanford land reflecting an effort to meet increased demand for faculty, staff, and student housing on and near the historic campus. As a result, the $194.5 million value of the ground lease was reclassified from "Investments" to land and Improvements in "Plant facilities, net of accumulated depreciation".

9. Notes and Bonds Payable

Notes and bonds payable for the University, SHC, and LPCH at August 31, 2022 and 2021, in thousands of dollars, are presented in the table below. The University is not an obligor or guarantor with respect to any obligations of SHC or LPCH, nor are SHC or LPCH obligors or guarantors with respect to obligations of the University or each other.

	YEAR OF MATURITY	EFFECTIVE INTEREST RATE * 2022/2021	OUTSTANDING PRINCIPAL 2022	2021
UNIVERSITY:				
Tax-exempt:				
CEFA Fixed Rate Revenue Bonds:				
Series S	2040	3.18%	$ 30,210	$ 30,210
Series T	2023-2039	3.66%-4.30%	188,900	188,900
Series U	2032-2046	2.71%-4.25%	1,043,090	1,043,090
Series V	2029-2051	1.83%-3.12%	742,230	742,230
CEFA Variable Rate Revenue Bonds and Notes:				
Series L	2023	1.20%/0.01%	36,208	36,208
Series S	2040-2051	1.20%-1.47%/0.10%-0.12%	141,200	141,200
Taxable:				
Fixed Rate Notes and Bonds:				
Stanford University Bonds	2024	6.88%	150,000	150,000
Medium Term Note	2026	7.65%	50,000	50,000
Stanford University Series 2012	2042	4.01%	143,235	143,235
Stanford University Series 2013	2044	3.56%	150,115	150,115
Stanford University Series 2014	2054	4.25%	150,000	150,000
Stanford University Series 2015	2047	3.46%	250,000	250,000
Stanford University Series 2017	2048	3.65%	750,000	750,000
Stanford University Series 2019	2029	3.09%	121,000	121,000
Stanford University Series 2020	2027-2050	1.29%-2.41%	750,000	750,000
Other	2031	3.29%	480	480
Commercial Paper	2023	2.32%-2.55%	30,055	—
University notes and bonds payable			4,726,723	4,696,668
Unamortized issuance costs, premiums, and discounts, net			427,115	447,181
UNIVERSITY TOTAL			**$ 5,153,838**	**$ 5,143,849**
SHC:				
CHFFA Fixed Rate Revenue Bonds:				
2008 Series A-2	2022	3.81%	$ —	$ 450
2008 Series A-3	2022	3.81%	—	375
2012 Series B	2023	2.57%/2.52%	7,430	14,985
2015 Series A	2052-2054	4.10%	100,000	100,000
2017 Series A	2023-2041	2.87%/2.85%	447,075	454,200
2020 Series A	2050	2.70%	170,120	170,120
2021 Series A	2025	0.42%	157,715	157,715
2018 Series Taxable Bonds	2049	3.80%	500,000	500,000
2020 Series Taxable Bonds	2030	3.31%	300,000	300,000
2021 Series Taxable Bonds	2051	3.03%	365,100	365,100
CHFFA Variable Rate Revenue Bonds:				
2008 Series B	2042-2046	1.38%/0.07%	168,200	168,200
SHC notes and bonds payable			2,215,640	2,231,145
Unamortized issuance costs, premiums, and discounts, net			79,697	87,635
SHC TOTAL			**$ 2,295,337**	**$ 2,318,780**
LPCH:				
CHFFA Fixed Rate Revenue Bonds:				
2012 Series A	2022	4.32%	$ —	$ 200,000
2012 Series B	2013-2022	2.99%/2.96%	—	28,720
2014 Series A	2025-2043	3.84%	100,000	100,000
2016 Series A	2016-2033	2.48%/2.42%	53,940	57,310
2016 Series B	2052-2055	3.34%	100,000	100,000
2017 Series A	2019-2057	3.11%/3.08%	190,940	193,545
2022 Series A	2023-2051	2.47%	206,670	—
CHFFA Variable Rate Revenue Bonds:				
2014 Series B	2034-2043	2.17%/0.46%	100,000	100,000
LPCH notes and bonds payable			751,550	779,575
Unamortized issuance costs, premiums, and discounts, net			70,281	60,386
LPCH TOTAL			**$ 821,831**	**$ 839,961**
CONSOLIDATED TOTAL			**$ 8,271,006**	**$ 8,302,590**

**Exclusive of interest rate exchange agreements (see Note 7).*

The University borrows at tax-exempt interest rates through the California Educational Facilities Authority (CEFA), a conduit issuer. CEFA debt is a general unsecured obligation of the University. Although CEFA is the issuer, the University is responsible for the repayment of the tax-exempt debt. SHC and LPCH borrow at tax-exempt interest rates through the California Health Facilities Financing Authority (CHFFA). CHFFA debt is a general obligation of each of the hospitals. Payments of principal and interest on SHC's and LPCH's bonds are collateralized by a pledge of their respective revenues. Although CHFFA is the issuer, each hospital is responsible for the repayment of its respective tax-exempt debt.

The University's long-term ratings of AAA/AAA/Aaa were affirmed in August 2022 by S&P Global Ratings, March 2022 by Fitch Ratings, and March 2021 by Moody's Investors Service, respectively. In fiscal year 2022, Moody's additionally rated the University as part of their updated Environmental, Social and Governance methodology which introduced ESG Issuer Profile (IPS) and Credit Impact Scores (CIS) for rated entities. The new scores are part of Moody's commitment to demonstrate the systematic and transparent incorporation of material ESG issues into credit ratings. The scoring range is from 1 (positive) to 5 (very highly negative). The University was rated as a 2 on each of the environmental, governance and social dimensions, respectively, of the Issuer Profile score; and 2 on the Credit Impact Score. The score of 2 correlates to a "neutral-to-low" credit impact of impact of ESG considerations. In March and April 2022, SHC's long-term ratings were affirmed by S&P Global Ratings, Moody's Investors Service, and Fitch Ratings at AA-/Aa3/AA, respectively. LPCH's long-term ratings of A+/A1/AA- were affirmed by S&P Global Ratings, Moody's Investors Service, and Fitch Ratings in June 2022, respectively.

SHC and LPCH are each party to separate master trust indentures that include, among other requirements, limitations on the incurrence of additional indebtedness, liens on property, restrictions on disposition or transfer of assets and compliance with certain financial ratios. Subject to applicable no-call provisions, SHC and LPCH may cause the redemption of the bonds, in whole or in part, prior to the stated maturities.

UNIVERSITY

Debt issuances and repayment activity

In May 2021, CEFA Series U-5 bond in the amount of $124.1 million matured and was refunded with a portion of the proceeds of CEFA Series V-2.

In April 2021, CEFA, on behalf of the University, issued its tax-exempt Series V-2 bonds in the amount of $300.4 million, maturing on April 1, 2051. The series was comprised of two tranches; the first tranche of $155.0 million with a coupon rate of 2.25% plus an original issue discount of $4.9 million and subject to an optional redemption at par on or after April 1, 2031; and the second tranche of $145.4 million with a coupon rate of 5.00% plus an original issue premium of $79.5 million and subject to an optional make-whole call redemption. The tranches have yields of 2.40% and 2.42%, respectively. The bonds carry dual Sustainability and Climate Bond Certified designations based on the use of proceeds and an assessment by an independent verification agent. Proceeds are being used to refinance CEFA Series U-5, and to finance or refinance certain capital projects of the University.

The University has two unsecured revolving credit facilities. One credit facility has a capacity of $250.0 million and maturity date of May 31, 2024 and the other has a capacity of $175.0 million and maturity date of September 30, 2024. Funds drawn on the revolving credit facilities bear interest at a floating rate equal to the applicable LIBOR rate plus a specified margin. There were no amounts outstanding on these credit facilities at August 31, 2022 and 2021. These facilities have provisions to address the upcoming LIBOR transition (see *Note 1*).

The University's taxable and tax-exempt commercial paper authorized borrowing capacity was $500.0 million and $300.0 million, respectively, at both August 31, 2022 and 2021. Taxable commercial paper of $30.1 million and $0 was outstanding at August 31, 2022 and 2021, respectively. There was no tax-exempt commercial paper outstanding at August 31, 2022 and 2021.

Variable rate debt subject to remarketing or tender

The University had $177.4 million of revenue bonds in variable rate mode outstanding at August 31, 2022. CEFA Series L bonds bear interest at a weekly rate and CEFA Series S bonds bear interest at a commercial paper municipal rate for various interest periods of 270 days or less. In the event the University receives notice of any optional tender of these bonds, or if the bonds become subject to mandatory tender, the purchase price of the bonds will be paid from the remarketing of such bonds. However, if the remarketing proceeds are insufficient, the University will have a current obligation to purchase the bonds tendered. The University has identified several sources of funding including cash, money market funds, U.S. Treasury securities and agencies' discount notes to provide for the full and timely purchase price of any bonds tendered in the event of a failed remarketing.

Letters of credit

In December 2010, the University entered into a credit agreement and established a letter of credit facility under which the bank agreed to issue standby letters of credit in a principal amount not to exceed $50.0 million. In June 2018, the facility was raised to $75.0 million and in June 2020, the University decreased the facility to $65.0 million. At August 31, 2022, irrevocable standby letters of credit of $51.2 million were outstanding in the following amounts and for the following respective purposes: (1) $15.0 million to support

collateral requirements under certain interest rate exchange agreements discussed in *Note 7*; (2) $32.1 million to serve as security for workers' compensation deductible insurance arrangements; and (3) $4.1 million for other purposes. There were no amounts drawn on these letters of credit at August 31, 2022.

SHC

Debt issuances and repayment activity

In November 2021, SHC amended its revolving line of credit facility by extending the maturity date until November 2024 and modifying the reference rate to the Bloomberg Short-Term Yield Index Rate (BSBY). Drawdowns from the facility bear interest at BSBY plus an applicable spread. The size of the facility is $150.0 million, of which $50.0 million is earmarked for the issuance of stand-by letters of credit. There were no amounts drawn on this credit facility as of August 31, 2022 and 2021.

In April 2021, CHFFA, on behalf of SHC, issued its tax-exempt 2021 Series A revenue bonds in the aggregate principal amount of $157.7 million plus an original issue premium of $17.3 million. The bonds were issued initially in a long-term interest rate mode at a fixed rate of 3.00% and are subject to mandatory tender on August 15, 2025. Proceeds of the 2021 Series A bonds were used to refund the 2012 Series D and 2015 Series B bonds previously issued by CHFFA for the benefit of SHC.

In April 2021, SHC issued the 2021 Taxable Bonds in the amount of $365.1 million. The bonds bear interest at a coupon rate of 3.03% and mature on August 15, 2051. Proceeds were used to advance refund the 2012 Series A bonds previously issued by CHFFA for the benefit of SHC. All advance refunded bonds are considered extinguished.

In April 2021, SHC established a $150.0 million taxable commercial paper facility to be used for general corporate purposes. There were no amounts outstanding as of August 31, 2022 and 2021.

Variable rate debt

At August 31, 2022, SHC had $168.2 million of revenue bonds in variable rate mode outstanding. The 2008 Series B bonds are supported by SHC's self-liquidity. In the event SHC receives a tender notice of any of the 2008 Series B bonds, the purchase price of the bonds will be paid from the remarketing of such bonds. However, if the remarketing proceeds are insufficient, SHC has an obligation to purchase any remaining bonds. SHC maintains sufficient liquidity to provide for the full and timely purchase price of any bonds tendered in the event of a failed remarketing.

Letters of credit

At August 31, 2022, SHC had irrevocable standby letters of credit in the aggregate amount of $28.8 million posted with certain beneficiaries in the following amounts and for the following respective purposes: (i) $26.6 million to serve as security for the workers' compensation self-insurance arrangement and (ii) $2.2 million to serve as security deposits for certain construction projects being undertaken by SHC. There were no amounts drawn on these letters of credit at August 31, 2022 and 2021.

LPCH

Debt activity

In June 2022, LPCH extended its $200.0 million revolving credit facility until June 2025. There were no amounts drawn on the line of credit as of August 31, 2022 and 2021.

In May 2022, CHFFA issued, on behalf of LPCH, forward delivery refunding bonds in the aggregate par amount of $206.7 million, with a premium of $23.9 million (the "2022 Series A Bonds"). Proceeds of the 2022 Series A Bonds were used for the legal defeasance and redemption of the 2012 Series A bonds, partial refund of the 2012 Series B bonds, and payments of costs of issuance. The coupon interest rates for the Series 2022 Series A Bonds range from 4.00-5.00% over the life of the bonds. The defeasance of 2012 Bonds resulted in a gain of $6.9 million recognized as "Gain on extinguishment of debt" included in the *Statements of Activities*.

Letters of credit

At August 31, 2022, LPCH had irrevocable standby letters of credit in the aggregate amount of $11.6 million posted with certain beneficiaries in the following amounts and for the following respective purposes: (i) $10.2 million to serve as security for the workers' compensation self-insurance arrangement, and (ii) $1.4 million to serve as security deposits for construction, operation and maintenance of certain utility facilities. There were no amounts drawn on these letters of credit at August 31, 2022 and 2021.

INTEREST

Stanford's interest expense, which includes settlements under the interest rate exchange agreements, amortized bond issuance costs and amortized bond premium or discount is recorded in "Other operating expenses". Interest expense for the years ended August 31, 2022 and 2021, in thousands of dollars, is as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2022				
Interest expense, gross	$ 164,162	$ 71,939	$ 31,042	$ 267,143
Less:				
Interest income earned on unspent proceeds	(1,398)	—	—	(1,398)
Interest capitalized as a cost of construction	(8,021)	—	—	(8,021)
Interest expense which is classified as an investment expense	(4,151)	—	—	(4,151)
INTEREST EXPENSE, NET	**$ 150,592**	**$ 71,939**	**$ 31,042**	**$ 253,573**
2021				
Interest expense, gross	$ 159,912	$ 73,309	$ 31,982	$ 265,203
Less:				
Interest income earned on unspent proceeds	(48)	—	—	(48)
Interest capitalized as a cost of construction	(4,580)	—	—	(4,580)
Interest expense which is classified as an investment expense	(4,345)	—	—	(4,345)
INTEREST EXPENSE, NET	**$ 150,939**	**$ 73,309**	**$ 31,982**	**$ 256,230**

The University and SHC use interest rate exchange agreements to manage the interest rate exposure of their debt portfolios. University net payments on interest rate exchange agreements were $3.2 million and $3.5 million for the years ended August 31, 2022 and 2021, respectively. SHC net payments on interest rate exchange agreements were $19.8 million and $21.4 million for the years ended August 31, 2022 and 2021, respectively.

PRINCIPAL PAYMENTS

At August 31, 2022, scheduled principal payments on notes and bonds, in thousands of dollars, are as follows:

	PRINCIPAL PAYMENTS			
YEAR ENDING AUGUST 31	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023 Commercial paper	$ 30,055	$ —	$ —	$ 30,055
2023 Variable debt subject to remarketing	177,408	168,200	—	345,608
2023 Other	51,765	17,065	9,110	77,940
2024	150,000	13,475	9,570	173,045
2025	—	175,330	9,975	185,305
2026	75,360	18,480	10,470	104,310
2027	300,000	19,320	11,020	330,340
Thereafter	3,942,135	1,803,770	701,405	6,447,310
TOTAL	**$ 4,726,723**	**$ 2,215,640**	**$ 751,550**	**$ 7,693,913**

10. Net Assets

Net assets without donor restrictions include Board-designated funds functioning as endowment *(see Note 11)*, net investment in plant facilities and other operating funds.

Net assets with donor restrictions consist primarily of endowment gifts that are limited for long-term investment, and accumulated appreciation that may be appropriated for expenditure by the University (see *Note 11*). Net assets with donor restrictions also include gifts and pledges that are subject to donor-imposed restrictions that expire with the passage of time, payment of pledges, and/or actions of the University, and other funds including Stanford's net equity in split-interest agreements and student loans.

Net assets at August 31, 2022 and 2021, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2022					
NET ASSETS WITHOUT DONOR RESTRICTIONS					
Board designated endowment - Funds functioning as endowment	$ 16,915,950	$ —	$ 144,650	$ —	$ 17,060,600
Net investment in plant facilities and other plant funds	4,742,628	2,216,499	926,193	—	7,885,320
Operating funds	5,719,867	3,756,261	1,268,887	(171,641)	10,573,374
Total net assets without donor restrictions	27,378,445	5,972,760	2,339,730	(171,641)	35,519,294
NET ASSETS WITH DONOR RESTRICTIONS					
Subject to expenditure for specified purpose:					
Unspent gifts and gifts with undecided purpose restrictions	864,997	—	—	—	864,997
Plant facilities	298,676	13,390	87,629	—	399,695
Total	1,163,673	13,390	87,629	—	1,264,692
Subject to passage of time:					
Pledges receivable	1,182,846	41,877	268,983	(46,254)	1,447,452
Other funds	329,483	48,550	30,276	—	408,309
Total	1,512,329	90,427	299,259	(46,254)	1,855,761
Subject to University's spending policy:					
Accumulated appreciation	10,808,455	25,737	198,821	—	11,033,013
Subject to restrictions in perpetuity:					
Endowment funds	8,454,185	15,544	260,854	—	8,730,583
Pledges receivable	804,034	—	2,376	—	806,410
Other funds	285,716	—	—	—	285,716
Total	9,543,935	15,544	263,230	—	9,822,709
Total net assets with donor restrictions	23,028,392	145,098	848,939	(46,254)	23,976,175
TOTAL NET ASSETS	**$50,406,837**	**$6,117,858**	**$3,188,669**	**$ (217,895)**	**$ 59,495,469**

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2021					
NET ASSETS WITHOUT DONOR RESTRICTIONS					
Board designated endowment - Funds functioning as endowment	$ 17,556,924	$ —	$ 162,832	$ —	$ 17,719,756
Net investment in plant facilities and other plant funds	4,597,835	2,086,049	936,046	—	7,619,930
Operating funds	5,347,454	3,607,109	1,277,114	(119,039)	10,112,638
Total net assets without donor restrictions	27,502,213	5,693,158	2,375,992	(119,039)	35,452,324
NET ASSETS WITH DONOR RESTRICTIONS					
Subject to expenditure for specified purpose:					
Gifts with undecided purpose restrictions	642,923	—	—	—	642,923
Plant facilities	157,218	10,353	57,512	—	225,083
Total	800,141	10,353	57,512	—	868,006
Subject to passage of time:					
Pledges receivable	794,845	48,860	176,909	(89,996)	930,618
Other funds	346,120	49,442	37,953	(1,176)	432,339
Total	1,140,965	98,302	214,862	(91,172)	1,362,957
Subject to University's spending policy:					
Accumulated appreciation	12,127,538	27,305	232,034	—	12,386,877
Subject to restrictions in perpetuity:					
Endowment funds	7,959,566	15,373	260,975	—	8,235,914
Pledges receivable	755,469	—	2,567	—	758,036
Other funds	330,344	—	—	—	330,344
Total	9,045,379	15,373	263,542	—	9,324,294
Total net assets with donor restrictions	23,114,023	151,333	767,950	(91,172)	23,942,134
TOTAL NET ASSETS	**$50,616,236**	**$5,844,491**	**$3,143,942**	**$ (210,211)**	**$ 59,394,458**

11. Endowments

The University classifies a substantial portion of its financial resources as endowment, which is invested to generate income to support operating and strategic initiatives. The endowment, which includes endowed lands, is comprised of pure endowment funds, term endowment funds, and funds functioning as endowment (FFE). Depending on the nature of the donor's stipulation, these resources are recorded as net assets with donor restrictions or net assets without donor restrictions. Term endowments are similar to other endowment funds except that, upon the passage of a stated period of time or the occurrence of a particular event, all or part of the principal may be expended. Accordingly, term endowments are classified as net assets with donor restrictions until expiration of the term. FFE are University resources designated by the Board as endowment and are invested for long-term appreciation and current income. These assets, however, remain available and may be spent at the Board's discretion. Accordingly, FFE are recorded as net assets without donor restrictions.

Stanford classifies as net assets with donor restrictions (a) the original value of gifts donated to the endowment with donor restrictions and (b) accumulations to the endowment with donor restrictions made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining accumulation to the endowment funds that are required to be maintained in perpetuity in accordance with the direction of the applicable donor gift instrument, is classified as net assets with donor restrictions until those amounts are authorized for expenditure. The aggregate amount by which fair value was below historic value was $15.5 million and $2.8 million at August 31, 2022 and 2021, respectively.

Endowment funds by net asset classification at August 31, 2022 and 2021, in thousands of dollars, are as follows:

	2022	2021
University endowment		
Endowment funds without donor restrictions:		
Funds functioning as endowment	$ 16,915,950	$ 17,556,924
Endowment funds with donor restrictions:		
Original donor-restricted gift amount and gains maintained in perpetuity	8,454,185	7,959,566
Term endowment and related gains	259,640	264,314
Additional accumulated gains available for expenditure, subject to spending policy	10,709,019	12,007,383
Total endowment funds with donor restrictions	19,422,844	20,231,263
University endowment	36,338,794	37,788,187
LPCH endowment		
Endowment funds without donor restrictions:		
Funds functioning as endowment	144,650	162,832
Endowment funds with donor restrictions	477,209	509,796
LPCH endowment	621,859	672,628
SHC endowment funds with donor restrictions	41,281	31,249
TOTAL ENDOWMENT FUNDS	**$ 37,001,934**	**$ 38,492,064**

Most of Stanford's endowment is invested in the MP. The return objective for the MP is to generate optimal long-term total return while maintaining an appropriate level of risk. Investment returns are achieved through both capital appreciation (realized and unrealized gains) and current yield (interest and dividends). Portfolio asset allocation targets as well as expected risk, return and correlation among the asset classes are reevaluated regularly by Stanford Management Company.

UNIVERSITY

Changes in the University's endowment, excluding pledges, for the years ended August 31, 2022 and 2021, in thousands of dollars, are as follows:

	NET ASSETS WITHOUT DONOR RESTRICTIONS	NET ASSETS WITH DONOR RESTRICTIONS	TOTAL
2022			
Endowment, beginning of year	$ 17,556,924	$ 20,231,263	$ 37,788,187
Total investment returns, net	566,728	(474,784)	91,944
Amounts distributed for operations	(609,718)	(855,939)	(1,465,657)
Gifts, transfers and other changes in endowment:			
Current year gifts and pledge payments	5,053	398,596	403,649
Transfers of prior year gifts	3,125	98,629	101,754
Withdrawn from FFE reserves	(372,878)	—	(372,878)
Other funds added to (withdrawn from) the endowment, net	(233,284)	25,079	(208,205)
Total gifts, transfers and other changes in endowment	(597,984)	522,304	(75,680)
Total net increase in endowment	(640,974)	(808,419)	(1,449,393)
ENDOWMENT, END OF YEAR	**$ 16,915,950**	**$ 19,422,844**	**$ 36,338,794**
2021			
Endowment, beginning of year	$ 13,707,220	$ 15,240,891	$ 28,948,111
Total investment returns, net	3,420,540	5,341,069	8,761,609
Amounts distributed for operations	(541,050)	(789,103)	(1,330,153)
Gifts, transfers and other changes in endowment:			
Current year gifts and pledge payments	405	371,678	372,083
Transfers of prior year gifts	5,303	59,159	64,462
Added to FFE reserves	1,302,134	—	1,302,134
Other funds added to (withdrawn from) the endowment, net	(337,628)	7,569	(330,059)
Total gifts, transfers and other changes in endowment	970,214	438,406	1,408,620
Total net increase in endowment	3,849,704	4,990,372	8,840,076
ENDOWMENT, END OF YEAR	**$ 17,556,924**	**$ 20,231,263**	**$ 37,788,187**

Approximately 15% of the University's endowment is invested in real estate on Stanford's lands, including the Stanford Research Park. This portion of the endowment includes the present value of ground leases, and rental properties that have been developed on Stanford lands. The net operating income from these properties is distributed each year for University operations.

Through the combination of investment strategy and payout policy, the University strives to provide a reasonably consistent payout from endowment to support operations, while preserving the purchasing power of the endowment adjusted for inflation.

The Board approves the amounts to be paid out annually from endowment funds invested in the MP. Consistent with the Uniform Prudent Management of Institutional Funds Act, when determining the appropriate payout the Board considers the purposes of the University and the endowment, the duration and preservation of the endowment, general economic conditions, the possible effect of inflation or deflation, the expected return from income and the appreciation of investments, other resources of the University, and the University's investment policy.

The Board approved spending rate for fiscal year 2022 was 5.5%. The payout amount is determined by applying a smoothing rule designed to mitigate the impact of short-term market volatility on the flow of funds to support operations. The Board has the authority to override the smoothing rule and set the payout rate directly. Beginning in fiscal year 2021, the Board approved the creation of two payout rates, one for student aid funds and the other for non-student aid funds. The sources of payout are earned income on endowment assets (interest, dividends, rents and royalties), realized capital gains and FFE, as needed and as available.

SHC

SHC's endowment is intended to generate investment income to support its current operating and strategic initiatives. SHC invests all of its endowment in the University's MP. The endowments are subject to the same investment and spending strategies that the University employs. "Amounts distributed for operations" in the table below represents SHC's current year endowment payout spent for designated purposes. All of SHC's endowment is donor restricted. Changes in SHC's endowment, excluding pledges, for the years ended August 31, 2022 and 2021, in thousands of dollars, are as follows:

	2022	2021
Endowment, beginning of year	$ 42,678	$ 31,249
Total investment returns, net	(1,184)	11,028
Amounts distributed for operations	(384)	(492)
Gifts and pledge payments	171	740
Other	—	153
Total net increase (decrease) in endowment	(1,397)	11,429
ENDOWMENT, END OF YEAR	**$ 41,281**	**$ 42,678**

LPCH

LPCH's endowment is intended to generate investment income that can be used to support their current operating and strategic initiatives. The endowment includes funds held by LPCH and Lucile Packard Foundation for Children's Health (LPFCH). LPCH is the sole member of LPFCH, a public charity, whose mission is to elevate the priority of children's health and increase the quality and accessibility of children's health care through leadership and direct investment. LPCH invests the majority of its endowment in the University's MP, and LPFCH invests its endowment in other long-term investments.

LPCH's Board of Directors has adopted the University's investment and spending policies for its donor-restricted and board designated funds functioning as an endowment that provide for annual amounts (payout) to be distributed to appropriate restricted funds supporting operating and strategic activities of LPCH.

LPFCH's endowment is approved as board designated funds functioning as endowment by LPFCH's Board of Directors. LPFCH has a policy of appropriating for distribution each year an amount determined annually based on budget needs. The annual distribution is expected to average no more than 5% of the endowment fund's fair value. For individual years, it is expected to fall within a target range of 4.75% to 5.25% of the endowment fund's average fair value over the prior 12 quarters. Unspent program budget may be spent in future years subject to certain limits. LPFCH's Board of Directors may also appropriate an amount outside this target range. Accordingly, depending on anticipated activity and timing of the grant opportunities, actual spending may fall outside of the range. In establishing this policy, the LPFCH considered the long term expected return on its endowment. Over the long term, the LPFCH expects the current spending policy to allow its endowment to grow at a rate of expected inflation. This is consistent with the LPFCH's objective to maintain the purchasing power of the endowment assets held in perpetuity as well as to provide additional real growth through investment return.

Changes in LPCH's endowment, excluding pledges, for the years ended August 31, 2022 and 2021, in thousands of dollars, are as follows:

	NET ASSETS WITHOUT DONOR RESTRICTIONS	NET ASSETS WITH DONOR RESTRICTIONS	TOTAL
2022			
Endowment, beginning of year	$ 162,832	$ 509,796	$ 672,628
Total investment returns, net	(12,436)	(17,340)	(29,776)
Amounts distributed for operations	(5,746)	(9,370)	(15,116)
Gifts and pledge payments	—	3,103	3,103
Other	—	(8,980)	(8,980)
Total net decrease in endowment	(18,182)	(32,587)	(50,769)
ENDOWMENT, END OF YEAR	**$ 144,650**	**$ 477,209**	**$ 621,859**
2021			
Endowment, beginning of year	$ 128,521	$ 390,056	$ 518,577
Total investment returns, net	39,886	130,731	170,617
Amounts distributed for operations	(5,607)	(18,799)	(24,406)
Gifts and pledge payments	32	8,393	8,425
Other	—	(585)	(585)
Total net increase in endowment	34,311	119,740	154,051
ENDOWMENT, END OF YEAR	**$ 162,832**	**$ 509,796**	**$ 672,628**

12. Health Care Services Revenue

SHC and LPCH derive a majority of health care services revenue from contractual agreements with Medicare, Medi-Cal and other third-party payers that provide for payments at amounts different from established rates. Payments under these agreements and programs are based on a variety of payment models, including estimated retroactive audit adjustments under reimbursement agreements with third-party payers. Retroactive adjustments are estimated and recorded in the period the related services are rendered and adjusted in future periods, as final settlements are determined. Contracts, laws and regulations governing the Medicare and Medi-Cal programs are complex and subject to interpretation. As a result, it is reasonably possible that recorded estimates may change by a material amount in the near term.

A summary of payment arrangements with major third-party payers follows:

Medicare
Inpatient acute care services rendered to Medicare program beneficiaries are paid at prospectively determined rates per discharge. These rates vary according to a patient classification system that is based on clinical, diagnostic and other factors. Medicare reimburses hospitals for covered outpatient services rendered to its beneficiaries by way of an outpatient prospective payment system based on ambulatory payment classifications.

Inpatient non-acute services, certain outpatient services and medical education costs related to Medicare beneficiaries are paid based, in part, on a cost reimbursement methodology subject to final settlement after submission of annual cost reports and audits thereof by the Medicare fiscal intermediary. The estimated amounts due to or from the program are reviewed and adjusted annually based on the status of such audits and any subsequent appeals. Differences between final settlements and amounts accrued in previous years are reported as adjustments to net health care services revenue in the year examination is substantially completed. Medicare cost reports have been audited by the Medicare administrative contractor through August 31, 2010 for SHC and August 31, 2019 for LPCH.

Professional services are reimbursed based on a fee schedule.

Medi-Cal
The State reimburses hospitals for inpatient services rendered to Medi-Cal program beneficiaries based on a prospectively determined rate per discharge. Hospital outpatient and professional services are reimbursed based upon prospectively determined fee schedules.

The California Children's Services (“CCS”) Program is a partnership between state and counties that provides medical case management for children in California diagnosed with serious chronic diseases. Currently, approximately 70% of CCS-eligible children are also Medi-Cal eligible. The Medi-Cal program reimburses their care.

Managed Care Organizations
SHC and LPCH have entered into agreements with numerous third-party payers to provide patient care to beneficiaries under a variety of payment arrangements. These include arrangements with:

- Commercial insurance companies which reimburse at negotiated charges.
- Managed care contracts such as those with Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), which reimburse at contracted or per diem rates, which are usually less than full charges.
- Counties in the State of California, which reimburse for certain indigent patients covered under county contracts.

Uninsured

For uninsured patients that do not qualify for charity care, revenue is recognized on the basis of standard rates for services less an uninsured discount applied to the patient's account that approximates the average discount for managed care payers.

Premium Revenue

SHC has capitated agreements with various HMOs to provide medical services to enrollees. Under these agreements, monthly payments are received based on the number of health plan enrollees. Additionally, SHC receives premium revenue from the Centers for Medicare & Medicaid Services ("CMS") to provide Medicare services to members. Premium revenue is recognized in the month in which the member is eligible for Medicare services as "Health care services" in the *Consolidated Statements of Activities*. Costs are accrued when services are rendered under these contracts, including cost estimates of incurred but not reported ("IBNR") claims. The IBNR accrual (which is included in "Accounts payable and accrued expenses") includes an estimate of the costs of services for which SHC is responsible, including referrals to outside healthcare providers.

The following table presents health care services revenue, net of price concessions, for the years ended August 31, in thousands of dollars:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2022					
Patient care revenue, net:					
Medicare	$ —	$ 1,119,713	$ 4,606	$ —	$ 1,124,319
Medi-Cal	—	168,892	431,405	—	600,297
Managed care	—	5,327,820	1,626,472	—	6,954,292
Self pay and other	—	261,785	179,408	—	441,193
Physician services and support (see *Note 1*)	1,440,263	44,258	—	(1,484,521)	—
Total patient care revenue, net	1,440,263	6,922,468	2,241,891	(1,484,521)	9,120,101
Premium revenue	—	75,310	—	—	75,310
Other services and support	45,924	—	—	(9,306)	36,618
HEALTH CARE SERVICES REVENUE, NET	**$1,486,187**	**$6,997,778**	**$2,241,891**	**$ (1,493,827)**	**$ 9,232,029**
2021					
Patient care revenue, net:					
Medicare	$ —	$ 1,019,262	$ 10,504	$ —	$ 1,029,766
Medi-Cal	—	131,372	391,598	—	522,970
Managed care	—	4,720,044	1,537,861	—	6,257,905
Self pay and other	—	140,074	198,753	—	338,827
Physician services and support (see *Note 1*)	1,334,418	41,296	—	(1,375,714)	—
Total patient care revenue, net	1,334,418	6,052,048	2,138,716	(1,375,714)	8,149,468
Premium revenue	—	118,741	—	—	118,741
Other services and support	44,601	—	—	(11,254)	33,347
HEALTH CARE SERVICES REVENUE, NET	**$1,379,019**	**$6,170,789**	**$2,138,716**	**$ (1,386,968)**	**$ 8,301,556**

For the years ended August 31, 2022 and 2021, SHC recognized net health care services revenue adjustments of $6.1 million and $9.7 million, respectively, as a result of prior years' favorable and unfavorable developments related to reimbursement and appeals. LPCH had no significant adjustments to revenue for the years ended August 31, 2022 and 2021.

Charity Care and Community Benefits

SHC and LPCH provide charity care, free of charge, to vulnerable populations. SHC's estimated cost of providing charity care was $16.2 million and $19.2 million, and LPCH's estimated cost of providing charity care was $1.3 million and $809 thousand for the years ended August 31, 2022 and 2021, respectively. This cost is estimated by calculating a ratio of total costs to gross patient service charges at established rates, and then multiplying that ratio by gross uncompensated patient service charges at established rates associated with providing care to charity patients. SHC received $73 thousand and $444 thousand during the years ended August 31, 2022 and 2021, respectively, from contributions that were restricted for the care of indigent patients.

SHC and LPCH also provide services to other patients under the Medicare, Medi-Cal and other publicly sponsored programs, which reimburse at amounts less than the cost of the services provided to the recipients. Estimated costs in excess of reimbursements for the Medicare, Medi-Cal and other publicly sponsored programs for the years ended August 31, 2022 and 2021 were $1.7 billion and $1.5 billion for SHC, and $284.1 million and $216.6 million for LPCH, respectively.

Provider Fee

The State of California enacted legislation in 2013 which established a Hospital Quality Assurance Fee (QAF) Program and a Hospital Fee Program. These programs impose a provider fee on certain California general acute care hospitals that, combined with federal matching funds, is used to provide supplemental payments to certain hospitals and support the State's effort to maintain health care coverage for children. California's participation in these programs was made permanent by a ballot initiative passed in November 2016. Specific portions of the program covering the period from July 1, 2019 to December 31, 2021, have not yet been approved by the Centers for Medicare and Medicaid Services (CMS). Accordingly, any potential activity under unapproved programs related to July 1, 2019 through August 31, 2022 have not been recognized as revenue or expense in the *Consolidated Statements of Activities.*

Provider fee revenue is recorded in "Health care services" while provider fee expense is recorded in "Other operating expenses" in the *Consolidated Statements of Activities.* Provider fee revenue, net of expense, under the approved portions of the programs for the years ended August 31, in thousands of dollars, is as follows:

	SHC	LPCH	CONSOLIDATED
2022			
Revenue	$ 98,230	$ 93,730	$ 191,960
Expense	(54,850)	(24,127)	(78,977)
TOTAL	**$ 43,380**	**$ 69,603**	**$ 112,983**
2021			
Revenue	$ 46,008	$ 65,992	$ 112,000
Expense	(41,674)	(20,553)	(62,227)
TOTAL	**$ 4,334**	**$ 45,439**	**$ 49,773**

Deferred revenue and prepaid expense associated with unapproved programs will be recognized as revenue and expense upon CMS approval. Deferred revenue and prepaid expense as of August 31, 2022 and 2021, in thousands of dollars, is as follows:

	SHC	LPCH	CONSOLIDATED
2022			
Deferred revenue	$ 73,145	$ 86,628	$ 159,773
Prepaid expense	$ 44,121	$ 22,410	$ 66,531
2021			
Deferred revenue	$ 103,480	$ 108,884	$ 212,364
Prepaid expense	$ 54,639	$ 26,850	$ 81,489

13. Gifts and Pledges

Gifts and pledges reported for financial statement purposes are recorded on the accrual basis. The Office of Development (OOD), which is the primary fundraising agent for the University and SHC, reports total gifts based on contributions received in cash or property during the fiscal year. Lucile Packard Foundation for Children's Health (LPFCH) is the primary community fundraising agent for LPCH and the pediatric faculty and programs at the University's SOM. The following summarizes gifts and pledges reported for the years ended August 31, 2022 and 2021, per the *Consolidated Statements of Activities*, in thousands of dollars:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2022					
Current year gifts in support of operations	$ 272,812	$ 247	$ 5,442	$ —	$ 278,501
Donor advised funds, net	34,611	—	—	—	34,611
Current year gifts not included in operations	5,053	—	—	—	5,053
Gifts and pledges, net - with donor restrictions	1,437,387	9,178	215,571	17,002	1,679,138
TOTAL	**$ 1,749,863**	**$ 9,425**	**$221,013**	**$ 17,002**	**$ 1,997,303**
2021					
Current year gifts in support of operations	$ 288,110	$ 204	$ 5,401	$ —	$ 293,715
Donor advised funds, net	3,395	—	—	—	3,395
Current year gifts not included in operations	408	—	—	—	408
Gifts and pledges, net - with donor restrictions	998,134	34,860	154,780	(83,697)	1,104,077
TOTAL	**$ 1,290,047**	**$ 35,064**	**$160,181**	**$ (83,697)**	**$ 1,401,595**

14. Functional Expenses

Expenses are presented by functional classification in alignment with Stanford's mission of teaching, research and health care.

Major functional categories consist of the following:

- **Instruction and departmental research** includes teaching and internally funded research expenses.
- **Organized research - direct costs** include sponsored support costs.
- **Health care services** include patient care provided by SHC, LPCH, SOM faculty, and other health care related activities.
- **Auxiliary activities** include housing and dining services, intercollegiate athletics, Stanford Alumni Association, and other activities.
- **SLAC construction** includes the costs associated with major projects and facilities at the SLAC National Accelerator Laboratory.

Natural expenses attributable to more than one functional expense category are allocated using a variety of cost allocation techniques such as square footage and time and effort. Depreciation and facility operations and maintenance expenses are allocated to the functional categories directly or based on the square footage occupancy. Salaries and benefits expenses are allocated to functional categories directly based on time and effort incurred.

Expenses by functional and natural classification for the years ended August 31, 2022 and 2021, in thousands of dollars, are as follows:

	SALARIES AND BENEFITS	DEPRECIATION	OTHER OPERATING EXPENSES	TOTAL OPERATING EXPENSES
2022				
UNIVERSITY				
Instruction and departmental research	$ 1,635,655	$ 141,514	$ 636,365	$ 2,413,534
Organized research - direct costs	850,822	78,024	507,624	1,436,470
Health care services	1,014,285	4,546	20,073	1,038,904
Auxiliary activities	164,366	125,517	322,156	612,039
Administration and general	291,809	55,019	218,453	565,281
Student services	192,248	7,186	149,707	349,141
Libraries	71,936	71,196	52,138	195,270
Development	96,514	4,507	18,271	119,292
SLAC construction	55,549	—	53,592	109,141
TOTAL EXPENSES	**4,373,184**	**487,509**	**1,978,379**	**6,839,072**
SHC				
Health care services	3,097,671	252,056	3,048,541	6,398,268
Administration and general	245,898	17,827	216,894	480,619
Development	1,351	—	14,136	15,487
TOTAL EXPENSES	**3,344,920**	**269,883**	**3,279,571**	**6,894,374**
LPCH				
Health care services	1,044,197	87,632	966,880	2,098,709
Administration and general	101,339	6,263	123,948	231,550
Development	18,229	531	8,804	27,564
TOTAL EXPENSES	**1,163,765**	**94,426**	**1,099,632**	**2,357,823**
ELIMINATIONS				
Health care services	—	—	(1,458,095)	(1,458,095)
Administration and general	—	—	(34,814)	(34,814)
Development	—	—	(918)	(918)
TOTAL ELIMINATIONS	**—**	**—**	**(1,493,827)**	**(1,493,827)**
CONSOLIDATED				
Instruction and departmental research	1,635,655	141,514	636,365	2,413,534
Organized research - direct costs	850,822	78,024	507,624	1,436,470
Health care services	5,156,153	344,234	2,577,399	8,077,786
Auxiliary activities	164,366	125,517	322,156	612,039
Administration and general	639,046	79,109	524,481	1,242,636
Student services	192,248	7,186	149,707	349,141
Libraries	71,936	71,196	52,138	195,270
Development	116,094	5,038	40,293	161,425
SLAC construction	55,549	—	53,592	109,141
TOTAL EXPENSES	**$ 8,881,869**	**$ 851,818**	**$ 4,863,755**	**$14,597,442**

	SALARIES AND BENEFITS	DEPRECIATION	OTHER OPERATING EXPENSES	TOTAL EXPENSES
2021				
UNIVERSITY				
Instruction and departmental research	$ 1,466,994	$ 127,426	$ 471,731	$ 2,066,151
Organized research - direct costs	787,963	75,607	485,473	1,349,043
Health care services	896,547	4,507	14,766	915,820
Auxiliary activities	147,226	125,069	276,614	548,909
Administration and general	348,890	56,052	171,942	576,884
Student services	181,233	6,501	149,351	337,085
Libraries	70,551	70,676	54,463	195,690
Development	84,716	4,346	12,262	101,324
SLAC construction	56,909	—	52,488	109,397
TOTAL EXPENSES	**4,041,029**	**470,184**	**1,689,090**	**6,200,303**
SHC				
Health care services	2,571,957	267,791	2,790,439	5,630,187
Administration and general	240,173	19,359	205,258	464,790
Development	1,092	—	12,795	13,887
TOTAL EXPENSES	**2,813,222**	**287,150**	**3,008,492**	**6,108,864**
LPCH				
Health care services	906,298	101,400	957,797	1,965,495
Administration and general	102,374	7,059	80,861	190,294
Development	14,538	882	9,369	24,789
TOTAL EXPENSES	**1,023,210**	**109,341**	**1,048,027**	**2,180,578**
ELIMINATIONS				
Instruction and departmental research	—	—	(9,209)	(9,209)
Health care services	—	—	(1,332,825)	(1,332,825)
Administration and general	—	—	(41,537)	(41,537)
Development	—	—	(12,606)	(12,606)
TOTAL ELIMINATIONS	**—**	**—**	**(1,396,177)**	**(1,396,177)**
CONSOLIDATED				
Instruction and departmental research	1,466,994	127,426	462,522	2,056,942
Organized research - direct costs	787,963	75,607	485,473	1,349,043
Health care services	4,374,802	373,698	2,430,177	7,178,677
Auxiliary activities	147,226	125,069	276,614	548,909
Administration and general	691,437	82,470	416,524	1,190,431
Student services	181,233	6,501	149,351	337,085
Libraries	70,551	70,676	54,463	195,690
Development	100,346	5,228	21,820	127,394
SLAC construction	56,909	—	52,488	109,397
TOTAL EXPENSES	**$ 7,877,461**	**$ 866,675**	**$ 4,349,432**	**$13,093,568**

15. University Retirement Plans

The University provides retirement benefits through both defined contribution and defined benefit retirement plans for substantially all of its employees.

DEFINED CONTRIBUTION PLAN

The University offers a defined contribution plan to eligible faculty and staff through the *Stanford Contributory Retirement Plan* (SCRP). Employer contributions are based on a percentage of participant annual compensation, participant contributions and years of service. University and participant contributions are primarily invested in annuities and mutual funds. University contributions under the SCRP, which are vested immediately to participants, were approximately $212.0 million and $197.6 million for the years ended August 31, 2022 and 2021, respectively.

DEFINED BENEFIT PLANS

The University provides retirement and postretirement medical and other benefits through the *Staff Retirement Annuity Plan*, the *Faculty Retirement Incentive Program*, and the *Postretirement Benefit Plan* (the "Plans"). The obligations for the Plans, net of plan assets, are recorded in the *Consolidated Statements of Financial Position* as "Accrued pension and postretirement benefit obligations." These plans are described in more detail below.

Staff Retirement Annuity Plan

Retirement benefits for certain employees are provided through the *Staff Retirement Annuity Plan* (SRAP), a noncontributory plan. While the SRAP is closed to new participants, certain employees continue to accrue benefits. Contributions to the plan are made in accordance with the Employee Retirement Income Security Act (ERISA) based on actuarially determined amounts sufficient to meet the benefits to be paid to plan participants.

Faculty Retirement Incentive Program

The University provides a retirement incentive bonus for eligible faculty through the University *Faculty Retirement Incentive Program* (FRIP). The University's faculty may become eligible for the FRIP program if they commit to retire within a designated window of time. At August 31, 2022 and 2021, there were no program assets. The University funds benefit payouts as they are incurred.

Postretirement Benefit Plan

The University provides health care benefits for retired employees through its *Postretirement Benefit Plan* (PRBP). The University's employees and their covered dependents may become eligible for the PRBP upon the employee's retirement and meeting specific years of service and age criteria. Retiree health plans are paid for, in part, by retiree contributions, which are adjusted annually. The University's subsidy varies depending on whether the retiree is covered under the grandfathered design or the defined dollar benefit design. Medicare supplement options are provided for retirees over age 65.

The change in the Plans' assets, the related change in benefit obligations and the amounts recognized in the financial statements, in thousands of dollars, are as follows:

	SRAP	FRIP	PRBP	TOTAL
2022				
Fair value of plan assets, beginning of year	$ 291,085	$ —	$ 337,058	$ 628,143
Change in plan assets:				
Actual return on plan assets	(54,551)	—	(59,394)	(113,945)
Employer contributions	—	10,449	4,365	14,814
Plan participants' contributions	—	—	17,655	17,655
Benefits and plan expenses paid	(20,334)	(10,449)	(43,533) *	(74,316)
Plan settlements	—	—	—	—
FAIR VALUE OF PLAN ASSETS, END OF YEAR	**216,200**	**—**	**256,151**	**472,351**
Benefit obligation, beginning of year	301,571	187,773	652,259	1,141,603
Change in projected benefit obligation:				
Service cost	1,084	11,704	23,913	36,701
Interest cost	6,684	4,403	17,146	28,233
Plan participants' contributions	—	—	17,655	17,655
Actuarial gain	(49,811)	(32,877)	(152,017)	(234,705)
Benefits and plan expenses paid	(20,334)	(10,449)	(43,533) *	(74,316)
BENEFIT OBLIGATION, END OF YEAR	**239,194**	**160,554**	**515,423**	**915,171**
NET LIABILITY RECOGNIZED IN THE *STATEMENTS OF FINANCIAL POSITION*	**$ (22,994)**	**$ (160,554)**	**$ (259,272)**	**$ (442,820)**
2021				
Fair value of plan assets, beginning of year	$ 282,867	$ —	$ 291,126	$ 573,993
Change in plan assets:				
Actual return on plan assets	30,779	—	60,019	90,798
Employer contributions	—	9,148	10,723	19,871
Plan participants' contributions	—	—	15,348	15,348
Benefits and plan expenses paid	(12,788)	(9,148)	(40,158) *	(62,094)
Plan settlements	(9,773)	—	—	(9,773)
FAIR VALUE OF PLAN ASSETS, END OF YEAR	**291,085**	**—**	**337,058**	**628,143**
Benefit obligation, beginning of year	318,081	191,691	662,172	1,171,944
Change in projected benefit obligation:				
Service cost	1,361	12,180	23,313	36,854
Interest cost	6,615	4,182	16,877	27,674
Plan participants' contributions	—	—	15,348	15,348
Plan settlements	(9,773)	—	—	(9,773)
Actuarial gain	(1,925)	(11,132)	(25,293)	(38,350)
Benefits and plan expenses paid	(12,788)	(9,148)	(40,158) *	(62,094)
BENEFIT OBLIGATION, END OF YEAR	**301,571**	**187,773**	**652,259**	**1,141,603**
NET LIABILITY RECOGNIZED IN THE *STATEMENTS OF FINANCIAL POSITION*	**$ (10,486)**	**$ (187,773)**	**$ (315,201)**	**$ (513,460)**

** Net of Medicare subsidy of $1.8 million*

** Net of Medicare subsidy of $1.1 million*

The accumulated benefit obligation for the SRAP was $238.6 million and $300.8 million at August 31, 2022 and 2021, respectively.

CHANGES IN NET BENEFIT OBLIGATION

During fiscal year 2022, the Plans experienced decreases in the net benefit obligation. The primary drivers for the decreases were actuarial gains due to discount rate increases offset by lower returns on plan assets.

Net periodic benefit expense and non-operating activities related to the Plans for the years ended August 31, 2022 and 2021, in thousands of dollars, includes the following components:

	SRAP	FRIP	PRBP	TOTAL
2022				
Service cost	$ 1,084	$ 11,704	$ 23,913	$ 36,701
PERIODIC BENEFIT EXPENSE	**1,084**	**11,704**	**23,913**	**36,701**
Non-operating:				
Interest cost	6,684	4,403	17,146	28,233
Expected return on plan assets	(13,742)	—	(20,223)	(33,965)
Amortization of:				
Prior service cost	850	—	373	1,223
Non-operating periodic benefit cost	(6,208)	4,403	(2,704)	(4,509)
NET PERIODIC BENEFIT COST[1]	**(5,124)**	**16,107**	**21,209**	**32,192**
Non-operating periodic benefit cost	(6,208)	4,403	(2,704)	(4,509)
Net actuarial loss (gain)	18,482	(32,877)	(72,400)	(86,795)
Amortization of:				
Prior service cost	(850)	—	(373)	(1,223)
TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES	**$ 11,424**	**$ (28,474)**	**$ (75,477)**	**$ (92,527)**
2021				
Service cost	$ 1,361	$ 12,180	$ 23,313	$ 36,854
PERIODIC BENEFIT EXPENSE	**1,361**	**12,180**	**23,313**	**36,854**
Non-operating:				
Interest cost	6,615	4,182	16,877	27,674
Expected return on plan assets	(12,055)	—	(17,468)	(29,523)
Amortization of:				
Prior service cost	850	—	373	1,223
Actuarial loss	654	—	—	654
Settlement loss	794	—	—	794
Non-operating periodic benefit cost	(3,142)	4,182	(218)	822
NET PERIODIC BENEFIT COST[1]	**(1,781)**	**16,362**	**23,095**	**37,676**
Non-operating periodic benefit cost	(3,142)	4,182	(218)	822
Net actuarial gain	(20,649)	(11,132)	(67,844)	(99,625)
Amortization of:				
Prior service cost	(850)	—	(373)	(1,223)
Actuarial loss	(654)	—	—	(654)
Settlement loss	(794)	—	—	(794)
TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES	**$ (26,089)**	**$ (6,950)**	**$ (68,435)**	**$ (101,474)**

[1]The components of net periodic benefit cost other than service cost are included in "Pension and other postemployment benefit related changes other than service cost" in the Statement of Activities.

Cumulative amounts recognized in non-operating activities, but not yet recognized in net periodic benefit cost in the *Consolidated Statements of Activities*, are presented in the following table for the years ended August 31, 2022 and 2021, in thousands of dollars:

	SRAP	FRIP	PRBP	TOTAL
2022				
Prior service cost	$ 2,980	$ —	$ 2,127	$ 5,107
Net actuarial loss (gain)	42,992	(28,135)	(85,933)	(71,076)
ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST	**$ 45,972**	**$ (28,135)**	**$ (83,806)**	**$ (65,969)**
2021				
Prior service cost	$ 3,830	$ —	$ 2,500	$ 6,330
Net actuarial loss (gain)	24,510	4,742	(13,533)	15,719
ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST	**$ 28,340**	**$ 4,742**	**$ (11,033)**	**$ 22,049**

ACTUARIAL ASSUMPTIONS

The weighted average assumptions used to determine the benefit obligations and net periodic benefit cost for the Plans are shown below:

	SRAP		FRIP		PRBP	
	2022	2021	2022	2021	2022	2021
BENEFIT OBLIGATIONS						
Discount rate	4.66%	2.34%	4.71%	2.43%	4.65%	2.67%
Covered payroll growth rate	3.00%	3.00%	4.80%	4.80%	N/A	N/A
NET PERIODIC BENEFIT COST						
Discount rate	2.34%	2.18%	2.43%	2.26%	2.67%	2.59%
Expected returns on plan assets	5.00%	4.50%	N/A	N/A	6.00%	6.00%
Covered payroll growth rate	3.00%	3.00%	4.80%	4.79%	N/A	N/A

The expected long-term rate of return on asset assumptions for the SRAP and PRBP plans is 5.00% and 6.50%, respectively. The assumption is used in determining the expected returns on plan assets, a component of net periodic benefit expense (income), representing the expected return for the upcoming fiscal year on plan assets. This assumption is developed based on future expectations for returns in each asset class, as well as the target asset allocation of the portfolios. The use of expected long-term returns on plan assets may result in income that is greater or less than the actual returns of those plan assets in any given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns, and therefore result in a pattern of income and cost recognition that more closely matches the pattern of the services provided by the employees. Differences between actual and expected returns are recognized as a component of non-operating activities and amortized as a component of net periodic benefit expense (income) over the service or life expectancy of the plan participants, depending on the plan, provided such amounts exceed the accounting standards threshold.

To determine the accumulated PRBP obligation at August 31, 2022, a 7.90%, 5.60% and 4.50% annual rate of increase in the cost of covered health care for Medical Pre-65, Medical Post-65, and Part D, respectively, was assumed for calendar year 2022 with all three rates declining gradually to 4.00% by 2046 and remaining at this rate thereafter.

EXPECTED CONTRIBUTIONS

The University expects to contribute $14.9 million to the FRIP, $20.7 million to the PRBP, and does not expect to contribute to the SRAP during the fiscal year ending August 31, 2023.

EXPECTED BENEFIT PAYMENTS

The following benefit payments, which reflect expected future service, are expected to be paid for the years ending August 31, in thousands of dollars:

			PRBP	
YEAR ENDING AUGUST 31	SRAP	FRIP	EXCLUDING MEDICARE SUBSIDY	EXPECTED MEDICARE PART D SUBSIDY
2023	$ 31,115	$ 14,866	$ 22,819	$ 2,142
2024	20,010	15,807	24,111	2,239
2025	19,147	12,307	25,479	2,305
2026	18,969	10,102	26,899	2,371
2027	17,794	10,462	28,303	2,465
2028 - 2032	77,707	60,559	162,976	13,779

INVESTMENT STRATEGY

The University's Retirement Program Investment Committee, acting in a fiduciary capacity, has established formal investment policies for the assets associated with the University's funded plans (SRAP and PRBP). The investment strategy of the plans is to preserve and enhance the value of the plans' assets within acceptable levels of risk. Investments in the plans are diversified among asset classes, striving to achieve an optimal balance between risk and return, and income and capital appreciation. Because the liabilities of each of the plans are long-term, the investment horizon is primarily long-term, with adequate liquidity to meet short-term benefit payment obligations.

CONCENTRATION OF RISK

The University manages a variety of risks, including market, credit, and liquidity risks, across its plan assets. Concentration of risk is defined as an undiversified exposure to one of the above-mentioned risks that increases the exposure of the loss of plan assets unnecessarily. Risk is minimized by predominately investing in broadly diversified index funds for public equities and fixed income. As of August 31, 2022, the University did not have concentrations of risk in any single entity, counterparty, sector, industry or country.

PLAN ASSETS AND ALLOCATIONS

Current U.S. GAAP defines a hierarchy of valuation inputs for the determination of the fair value of plan assets as described in *Note 6*. As of August 31, 2022 and 2021, all of the assets of the PRBP and substantially all of the assets of the SRAP were categorized as Level 1 investments. The fair value of plan assets by asset category, in thousands of dollars, at August 31, 2022 and 2021 and actual allocations and weighted-average target allocations at August 31, 2022 are as follows:

	2022	2021	2022 ACTUAL ALLOCATION	2022 TARGET ALLOCATION
SRAP:				
Cash and cash equivalents	$ 1,666	$ 1,403	1%	0%
Public equities	94,677	128,763	44%	45%
Fixed income	119,842	160,900	55%	55%
Private equities	15	19	<1%	0%
TOTAL	**216,200**	**291,085**	**100%**	**100%**
PRBP:				
Public equities	190,149	254,394	74%	74%
Fixed income	66,002	82,664	26%	26%
TOTAL	**256,151**	**337,058**	**100%**	**100%**
TOTAL PLAN ASSETS AT FAIR VALUE	**$ 472,351**	**$ 628,143**		

16. SHC and LPCH Retirement Plans

SHC and LPCH provide retirement benefits through defined benefit and defined contribution retirement plans covering substantially all of its regular employees.

DEFINED CONTRIBUTION PLAN

The Hospitals offer a defined contribution plan to eligible employees. Employer contributions to the defined contribution retirement plan are based on a percentage of participant annual compensation, participant contributions and years of service. SHC and LPCH contributions under the plan, which are vested immediately to participants, were approximately $164.8 million and $141.2 million, and $64.7 million and $55.8 million for the years ended August 31, 2022 and 2021, respectively.

DEFINED BENEFIT PLANS

The Hospitals provide retirement and postretirement medical benefits through the SHC *Staff Pension Plan*, the SHC *Postretirement Medical Benefit Plan*, and the LPCH *Frozen Pension Plan*, collectively (the "Plans"). The obligations for the Plans, net of plan assets, are recorded in the *Consolidated Statements of Financial Position* as "Accrued pension and postretirement benefit obligations." These plans are described in more detail below.

Staff Pension Plan

Certain employees of SHC and LPCH are covered by the SHC *Staff Pension Plan* (the "Pension Plan"), a noncontributory, defined benefit pension plan. While the Pension Plan is closed to new participants, certain employees continue to accrue benefits. Benefits are based on years of service and the employee's compensation. Contributions to the plan are made in accordance with ERISA based on actuarially determined amounts sufficient to meet the benefits to be paid to plan participants. SHC and LPCH have an arrangement whereby SHC assumes the pension liability of the LPCH employees and previously leased employees. However, LPCH is required to reimburse SHC for the annual expense incurred for these employees and previously leased employees.

Postretirement Medical Benefit Plan

SHC and LPCH provide health care benefits for certain retired employees through the SHC *Postretirement Medical Benefit Plan* (PRMB). The Hospitals' employees and their covered dependents may become eligible for the PRMB upon the employee's retirement as early as age 55, with years of service as defined by specific criteria. Retiree health plans are paid, in part, by retiree contributions, which are adjusted annually. The Hospitals' subsidies vary depending on whether the retiree is covered under the grandfathered design or the defined dollar benefit design. Medicare supplement options are provided for retirees over age 65. LPCH reimburses SHC for costs related to this plan on a periodic basis.

Frozen Pension Plan

Certain other LPCH employees and previously leased employees not covered by the previously described plans are covered by a frozen noncontributory defined benefit pension plan (the "LPCH Frozen Pension Plan"). Benefits are based on years of service and the employee's compensation. Contributions to the plan are based on actuarially determined amounts sufficient to meet the benefits to be paid to plan participants. In November 2020, the LPCH Board of Directors approved a resolution to terminate the LPCH Frozen Pension Plan. As of August 2022, the LPCH Frozen Pension Plan was fully settled, and all benefit obligations released. Plan participants elected to receive either a lump-sum distribution or to transfer benefits to a third-party annuity provider. A handful of missing participants were also transferred to the Pension Guarantee Benefit Corporation. As a result of the settlement, LPCH was relieved of any further obligations under the pension plan. During the year ended August 31, 2022, pension settlement charges totaling $1.9 million were recognized, consisting of unrecognized actuarial losses previously included in the adjustment for minimum pension liability. No cash contributions were required during the fiscal year in connection with the plan termination.

The change in the Plans' assets, the related change in benefit obligations and the amounts recognized in the financial statements, in thousands of dollars, are as follows:

	STAFF PENSION PLAN	PRMB	LPCH FROZEN PENSION PLAN
2022			
Fair value of plan assets, beginning of year	$ 213,366	$ —	$ 7,501
Change in plan assets:			
Actual return on plan assets	(37,941)	—	(246)
Employer contributions	—	6,244	—
Plan participants' contributions	—	1,489	—
Benefits and plan expenses paid	(10,831)	(7,733) *	(530)
Plan settlements	—	—	(6,712)
FAIR VALUE OF PLAN ASSETS, END OF YEAR	**164,594**	**—**	**13**
Benefit obligation, beginning of year	213,136	116,620	7,502
Change in projected benefit obligation:			
Service cost	1,104	5,156	150
Interest cost	5,097	2,700	44
Plan participants' contributions	—	1,489	—
Actuarial gain	(41,489)	(23,211)	(454)
Benefits and plan expenses paid	(10,831)	(7,733) *	(530)
Plan amendments	—	22,245	—
Plan settlements	—	—	(6,712)
BENEFIT OBLIGATION, END OF YEAR	**167,017**	**117,266**	**—**
NET ASSET (LIABILITY) RECOGNIZED IN THE *STATEMENTS OF FINANCIAL POSITION*	**$ (2,423)**	**$ (117,266)**	**$ 13**
* *Net of Medicare subsidy of $98 thousand*			
2021			
Fair value of plan assets, beginning of year	$ 210,752	$ —	$ 8,319
Change in plan assets:			
Actual return on plan assets	13,438	—	(219)
Employer contributions	—	5,632	—
Plan participants' contributions	—	1,251	—
Benefits and plan expenses paid	(10,824)	(6,883) *	(599)
FAIR VALUE OF PLAN ASSETS, END OF YEAR	**213,366**	**—**	**7,501**
Benefit obligation, beginning of year	219,407	113,212	8,380
Change in projected benefit obligation:			
Service cost	1,083	4,829	—
Interest cost	4,978	2,388	176
Plan participants' contributions	—	1,251	—
Actuarial loss (gain)	(1,508)	1,823	(455)
Benefits and plan expenses paid	(10,824)	(6,883) *	(599)
BENEFIT OBLIGATION, END OF YEAR	**213,136**	**116,620**	**7,502**
NET ASSET (LIABILITY) RECOGNIZED IN THE STATEMENTS OF FINANCIAL POSITION	**$ 230**	**$ (116,620)**	**$ (1)**
* *Net of Medicare subsidy of $106 thousand*			

The net liability for the PRMB includes amounts for both SHC and LPCH employees and is recognized on the Hospitals' respective *Statements of Financial Position*. The table below presents the plan obligations for each entity as of August 31, 2022 and 2021, in thousands of dollars:

	2022	2021
SHC	$ 86,276	$ 86,856
LPCH	30,990	29,764
TOTAL	**$ 117,266**	**$ 116,620**

The accumulated benefit obligation for the Pension Plan and LPCH Frozen Pension Plan was $166.1 million and $211.3 million, and $0 and $7.5 million at August 31, 2022 and 2021, respectively.

CHANGES IN NET BENEFIT OBLIGATION

The Hospital's net benefit obligation decreased during fiscal year 2022 due to an increase in the discount rate from 2.46% to 4.68%.

Net periodic benefit cost and non-operating activities related to the Plans for the years ended August 31, 2022 and 2021, in thousands of dollars, includes the following components:

	STAFF PENSION PLAN	PRMB	LPCH FROZEN PENSION PLAN
2022			
Service cost	$ 1,104	$ 5,156	$ 150
PERIODIC BENEFIT EXPENSE	**1,104**	**5,156**	**150**
Non-operating:			
Interest cost	5,097	2,700	44
Expected return on plan assets	(7,627)	—	(54)
Amortization of:			
Prior service cost	—	2,415	—
Actuarial loss	2,027	167	45
Settlement loss	—	—	1,905
Non-operating net periodic benefit cost (income)	(503)	5,282	1,940
NET PERIODIC BENEFIT COST[1]	**601**	**10,438**	**2,090**
Non-operating net periodic benefit cost	(503)	5,282	1,940
Net actuarial loss (gain)	4,079	(23,211)	(189)
New prior service cost	—	22,245	—
Amortization of:			
Prior service cost	—	(2,415)	—
Actuarial loss	(2,027)	(167)	(45)
Settlement loss	—	—	(1,905)
TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES	**$ 1,549**	**$ 1,734**	**$ (199)**
2021			
Service cost	$ 1,083	$ 4,829	$ —
PERIODIC BENEFIT EXPENSE	**1,083**	**4,829**	**—**
Non-operating:			
Interest cost	4,978	2,388	176
Expected return on plan assets	(9,270)	—	(239)
Amortization of:			
Prior service cost	—	2,976	—
Actuarial loss	2,408	68	112
Non-operating net periodic benefit cost (income)	(1,884)	5,432	49
NET PERIODIC BENEFIT COST[1]	**(801)**	**10,261**	**49**
Non-operating net periodic benefit cost (income)	(1,884)	5,432	49
Net actuarial loss (gain)	(5,676)	1,823	3
Amortization of:			
Prior service cost	—	(2,976)	—
Actuarial loss	(2,408)	(68)	(112)
TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES	**$ (9,968)**	**$ 4,211**	**$ (60)**

[1]The components of net periodic benefit cost other than service cost are included in "Pension and other postemployment benefit related changes other than service cost" in the Statements of Activities.

The net periodic benefit cost and amounts recognized in non-operating activities for the PRMB include amounts for both SHC and LPCH employees and is recognized on the Hospitals' respective *Statements of Activities*. The table below presents the amount for each entity as of August 31, 2022 and 2021, in thousands of dollars:

	SHC	LPCH	TOTAL
2022			
Net periodic benefit cost	$ 7,497	$ 2,941	$ 10,438
Amounts recognized in non-operating activities	(3,746)	198	(3,548)
TOTAL AMOUNT RECOGNIZED IN NET PERIODIC BENEFIT COST AND NON-OPERATING ACTIVITIES	**$ 3,751**	**$ 3,139**	**$ 6,890**
2021			
Net periodic benefit cost	$ 7,359	$ 2,902	$ 10,261
Amounts recognized in non-operating activities	(1,312)	91	(1,221)
TOTAL AMOUNT RECOGNIZED IN NET PERIODIC BENEFIT COST AND NON-OPERATING ACTIVITIES	**$ 6,047**	**$ 2,993**	**$ 9,040**

Cumulative amounts recognized in non-operating activities, but not yet recognized in net periodic benefit cost in the *Consolidated Statements of Activities*, are presented in the following table for the years ended August 31, 2022 and 2021, in thousands of dollars:

	STAFF PENSION PLAN	PRMB	LPCH FROZEN PENSION PLAN
2022			
Prior service cost	$ —	$ 37,146	$ —
Net actuarial loss (gain)	52,677	(20,517)	—
ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST	**$ 52,677**	**$ 16,629**	**$ —**
2021			
Prior service cost	$ —	$ 17,316	$ —
Net actuarial loss	50,625	2,861	2,095
ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST	**$ 50,625**	**$ 20,177**	**$ 2,095**

ACTUARIAL ASSUMPTIONS

The weighted average assumptions used to determine the benefit obligations and net periodic benefit cost for the Plans are shown below:

	STAFF PENSION PLAN		PRMB		LPCH FROZEN PENSION PLAN	
	2022	2021	2022	2021	2022	2021
BENEFIT OBLIGATIONS						
Discount rate	4.68%	2.46%	4.69%	2.39%	N/A	2.34 %
Covered payroll growth rate	3.00%	3.00%	N/A	N/A	N/A	N/A
NET PERIODIC BENEFIT COST						
Discount rate	2.46%	2.33%	2.39%	2.18%	2.34%	2.19 %
Expected return on plan assets	4.00%	5.00%	N/A	N/A	3.00%	3.00 %
Covered payroll growth rate	3.00%	3.00%	N/A	N/A	N/A	N/A

The expected long-term rate of return on asset assumptions for the Pension Plan and LPCH Frozen Pension Plan are 4.00% and 3.00%, respectively. The assumption is used in determining the expected returns on plan assets, a component of net periodic benefit expense (income), representing the expected return for the upcoming fiscal year on plan assets based on the calculated market-related value of plan assets. This assumption is developed based on future expectations for returns in each asset class, as well as the target asset allocation of the portfolios. The use of expected long-term returns on plan assets may result in income that is greater or less than the actual returns of those plan assets in any given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns, and therefore result in a pattern of income and cost recognition that more closely matches the pattern of the services provided by the employees. Differences between actual and expected returns are recognized as a component of non-operating activities and amortized as a component of net periodic benefit expense (income) over the service or life expectancy of the plan participants, depending on the plan, provided such amounts exceed the accounting standards threshold.

To determine the accumulated PRMB obligation at August 31, 2022, a 5.60% for Medical Pre-65 and 7.15% for Medical Post-65 annual rates of increase in the per capita cost of covered health care were assumed for calendar year 2022, declining gradually to 4.00% by 2038 and remaining at this rate thereafter.

EXPECTED CONTRIBUTIONS

SHC expects to contribute $5.7 million to the PRMB and does not expect to contribute to the Pension Plan during the fiscal year ending August 31, 2023.

EXPECTED BENEFIT PAYMENTS

The following benefit payments, which reflect expected future service, are expected to be paid for the fiscal years ending August 31, in thousands of dollars:

		PRMB	
YEAR ENDING AUGUST 31	STAFF PENSION PLAN	EXCLUDING MEDICARE SUBSIDY	EXPECTED MEDICARE PART D SUBSIDY
2023	$ 12,103	$ 7,802	$ 235
2024	12,296	8,045	107
2025	12,449	8,398	101
2026	12,543	8,732	95
2027	12,528	9,051	89
2028 - 2032	60,732	50,345	340

INVESTMENT STRATEGY

SHC's and LPCH's investment strategies for the Pension Plan is to maximize the total rate of return (income and appreciation) within the limits of prudent risk taking and Section 404 of ERISA. The funds are diversified across asset classes to achieve an optimal balance between risk and return and between income and capital appreciation. Because the liabilities of each of the plans are long-term, the investment horizon is primarily long-term, with adequate liquidity to meet short-term benefit payment obligations. As of August 31, 2022, the LPCH Frozen Pension Plan was terminated.

CONCENTRATION OF RISK

SHC and LPCH manage a variety of risks, including market, credit, and liquidity risks, across its plan assets. Concentration of risk is defined as an undiversified exposure to one of the above-mentioned risks that increases the exposure of the loss of plan assets unnecessarily. Risk is minimized by diversifying the Hospitals' exposure to such risks across a variety of instruments, markets, and counterparties. As of August 31, 2022, the Hospitals did not have concentrations of risk in any single entity, counterparty, sector, industry or country.

PLAN ASSETS AND ALLOCATIONS

Current U.S. GAAP defines a hierarchy of valuation inputs for the determination of the fair value of plan assets as described in *Note 6*. The Plans' assets measured at fair value at August 31, 2022 and 2021, are all categorized as Level 1 investments. The fair value of plan assets by asset category, in thousands of dollars, at August 31, 2022 and 2021 and actual allocations and weighted-average target allocations at August 31, 2022 are as follows:

	2022	2021	2022 ACTUAL ALLOCATION	2022 TARGET ALLOCATION
STAFF PENSION PLAN:				
Cash and cash equivalents	$ 430	$ 426	<1%	—%
Public equities	16,406	21,335	10%	10%
Fixed income	147,758	191,605	90%	90%
PLAN ASSETS AT FAIR VALUE	**$ 164,594**	**$ 213,366**	**100%**	**100%**
LPCH FROZEN PENSION PLAN:				
Cash and cash equivalents	$ 13	$ 1,376	100%	—%
Fixed income	—	6,125	—%	—%
PLAN ASSETS AT FAIR VALUE	**$ 13**	**$ 7,501**	**100%**	**—%**

17. Leases

LESSEE

Stanford leases research and development facilities, office spaces, buses, and equipment under operating and finance leases expiring through November 2057. Under the accounting standard for leases, a lease conveys the right to control the use of an identified asset for a period of time in exchange for consideration. On the *Consolidated Statements of Financial Position*, "Right-of-use assets" represent Stanford's right to use an underlying asset for the lease term and "Lease liabilities" represent Stanford's obligation to make lease payments arising from the lease based on the present value of lease payments over the lease term. Lease liabilities do not include lease payments that were not fixed at commencement or lease modification. The lease terms may include options to extend or terminate the lease when it is reasonably certain that Stanford will exercise that option. The exercise of lease renewal options is at Stanford's sole discretion. Stanford uses an incremental borrowing rate for discounting leases, as applicable. Lease costs are included in "Other operating expenses" on the *Consolidated Statements of Activities*.

Supplemental information related to leases, in thousands of dollars, except lease term and discount rate, is as follows:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2022					
Operating lease	$ 472,211	$ 247,560	$ 207,491	$ (129,930)	$ 797,332
Finance lease	241,040	12	—	—	241,052
TOTAL LEASE RIGHT-OF-USE ASSETS	**$ 713,251**	**$ 247,572**	**$ 207,491**	**$ (129,930)**	**$ 1,038,384**
Operating lease	$ 493,923	$ 261,321	$ 219,402	$ (129,930)	$ 844,716
Finance lease	249,257	13	—	—	249,270
TOTAL LEASE LIABILITY	**$ 743,180**	**$ 261,334**	**$ 219,402**	**$ (129,930)**	**$ 1,093,986**

Weighted-average remaining lease term:			
Operating lease	22.98 years	5.57 years	7.87 years
Finance lease	26.55 years	0.17 years	N/A
Weighted-average discount rate:			
Operating lease	2.38%	2.14%	2.19%
Finance lease	2.59%	1.79%	N/A

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2021					
Operating lease	$ 451,023	$ 292,506	$ 231,215	$ (146,081)	$ 828,663
Finance lease	170,768	82	—	—	170,850
TOTAL LEASE RIGHT-OF-USE ASSETS	**$ 621,791**	**$ 292,588**	**$ 231,215**	**$ (146,081)**	**$ 999,513**
Operating lease	$ 466,300	$ 312,210	$ 241,194	$ (146,081)	$ 873,623
Finance lease	173,906	89	—	—	173,995
TOTAL LEASE LIABILITY	**$ 640,206**	**$ 312,299**	**$ 241,194**	**$ (146,081)**	**$ 1,047,618**

Weighted-average remaining lease term:			
Operating lease	22.77 years	5.73 years	8.63 years
Finance lease	22.66 years	1.17 years	N/A
Weighted-average discount rate:			
Operating lease	2.24 %	2.02%	2.15 %
Finance lease	2.45 %	1.79%	N/A

The components of lease expenses, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2022				
Operating lease cost	$ 56,698	$ 78,618	$ 37,589	$ 172,905
Finance lease cost:				
Amortization of leased assets	13,809	70	—	13,879
Interest on lease liabilities	4,715	1	—	4,716
Variable lease cost	4,287	10,936	6,784	22,007
Short-term lease cost	22,411	10,624	781	33,816
Sublease income	(11,936)	(2,801)	(6,808)	(21,545)
TOTAL LEASE COST	**$ 89,984**	**$ 97,448**	**$ 38,346**	**$ 225,778**
2021				
Operating lease cost	$ 60,129	$ 85,098	$ 36,578	$ 181,805
Finance lease cost:				
Amortization of leased assets	10,292	70	—	10,362
Interest on lease liabilities	3,326	2	—	3,328
Variable lease cost	3,392	16,023	6,194	25,609
Short-term lease cost	22,187	11,864	626	34,677
Sublease income	(7,775)	(5,323)	(6,931)	(20,029)
TOTAL LEASE COST	**$ 91,551**	**$ 107,734**	**$ 36,467**	**$ 235,752**

Supplemental cash flow information related to leases, in thousands of dollars, is as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2022				
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash flows from operating leases	$ 50,263	$ 83,180	$ 36,123	$ 169,566
Operating cash flows from finance leases	4,715	1	—	4,716
Financing cash flows from finance leases	8,729	76	—	8,805
Obtaining right-of-use assets in exchange for lease liabilities:				
Operating leases	$ 51,339	$ 27,892	$ 9,479	$ 88,710
Finance leases	84,126	—	—	84,126
2021				
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash flows from operating leases	$ 44,572	$ 86,352	$ 34,119	$ 165,043
Operating cash flows from finance leases	3,326	2	—	3,328
Financing cash flows from finance leases	7,749	75	—	7,824
Obtaining right-of-use assets in exchange for lease liabilities:				
Operating leases	$ 1,257	$ 30,858	$ 30,976	$ 63,091
Finance leases	3,443	—	—	3,443

Maturities of lease liabilities for periods subsequent to August 31, 2022, in thousands of dollars, are as follows:

	MATURITY OF LEASE LIABILITIES				
YEAR ENDING AUGUST 31	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2023	$ 67,834	$ 78,497	$ 35,965	$ (18,493)	$ 163,803
2024	62,565	56,305	32,699	(18,917)	132,652
2025	54,300	39,507	28,997	(18,329)	104,475
2026	53,359	29,080	27,190	(17,465)	92,164
2027	53,451	21,935	23,089	(15,119)	83,356
Thereafter	808,524	53,783	92,147	(60,285)	894,169
TOTAL LEASE PAYMENTS	**1,100,033**	**279,107**	**240,087**	**(148,608)**	**1,470,619**
LESS IMPUTED INTEREST	**(356,853)**	**(17,773)**	**(20,685)**	**18,678**	**(376,633)**
TOTAL	**$ 743,180**	**$ 261,334**	**$ 219,402**	**$ (129,930)**	**$ 1,093,986**

LESSOR

Stanford holds investment properties that it leases to external parties under non-cancellable operating leases. Stanford receives minimum rental income over the life of the lease; however, certain of the leases include variable rental payments that are based on a percentage of the tenant sales in excess of contractual amount. Certain leases include options for lessee to extend or terminate the lease. The residual value from the underlying asset following the end of the lease term is based on independent appraisals and internal models that are based on discounted cash flows and market data, if available.

Rental income is recognized over time in accordance with the contractual term of the related lease agreements. Total rental income under these leases for the years ended August 31, 2022 and 2021 was $216.1 million and $183.5 million for the University, $2.8 million and $5.3 million for SHC, and $1.4 million and $1.6 million for LPCH, respectively.

18. Related Party Transactions

Members of the University, SHC, and LPCH boards and senior management may, from time to time, be associated, either directly or indirectly, with companies doing business with Stanford.

The University, SHC and LPCH have separate written conflict of interest policies that require, among other items, that no member of their respective board can participate in any decision in which he or she (or an immediate family member) has a material financial interest. Each board member is required to certify compliance with his or her respective entity's conflict of interest policy on an annual basis and indicate whether his or her respective entity does business with any entity in which the board member has a material financial interest. When such relationships exist, measures are taken to mitigate any actual or perceived conflict, including requiring that such transactions be conducted at arm's length, for good and sufficient consideration, based on terms that are fair and reasonable to and for the benefit of the respective entity, and in accordance with applicable conflict of interest laws and policies. No such associations are considered to be significant.

The University, SHC, and LPCH each requires its senior management to disclose annually any significant financial interests in, or employment or consulting relationships with, entities doing business with it. These annual disclosures cover both senior management and their immediate family members. When such relationships exist, measures are taken to appropriately manage the actual or perceived conflict in the best interests of the relevant entity. No such associations are considered to be significant.

19. Commitments and Contingencies

Management is of the opinion that none of the following commitments and contingencies will have a material adverse effect on Stanford's consolidated financial position.

SPONSORED SUPPORT

As described in *Note 1*, costs recovered by the University as sponsored support are subject to audit and adjustment. Fringe benefit costs for the fiscal years ended August 31, 2016 to 2022 are subject to audit. The University does not anticipate any material adjustments to the *Consolidated Financial Statements*.

HEALTH CARE

As described in *Note 12*, cost reports filed under the Medicare program for services based upon cost reimbursement are subject to audit. The estimated amounts due to or from the program are reviewed and adjusted annually based upon the status of such audits and subsequent appeals.

The health care industry is subject to numerous laws and regulations of federal, state and local governments. Compliance with these laws and regulations can be subject to future government review and interpretation, as well as to regulatory actions unknown or unasserted at this time. Government activity with respect to investigations and allegations concerning possible violations of regulations by health care providers could result in the imposition of significant fines and penalties, as well as significant repayments for patient services previously billed. SHC and LPCH are subject to similar regulatory reviews, and while such reviews may result in repayments and civil remedies that could have a material effect on their respective financial results of operations in a given period, SHC's and LPCH's management believes that such repayments and civil remedies would not have a material effect on the financial position of SHC and LPCH, respectively.

INFORMATION PRIVACY AND SECURITY

As with many medical centers and universities across the country, information privacy and security is a significant enterprise risk area, owing to persistent and pervasive cyber threats along with expanding regulatory compliance obligations and enforcement. The University, SHC and LPCH have programs in place to safeguard important systems and protected information, yet significant incidents have occurred in the past and may occur in the future involving potential or actual disclosure of such information (including, for example, personally identifiable information relating to employees, students, patients or research participants). In most cases, there has been no evidence of unauthorized access to, or use/disclosure of, such information, yet privacy laws may require reporting to potentially affected individuals as well as federal, state and international governmental agencies. Governmental agencies have the authority to investigate and request further information about an incident or safeguards, to cite the University, SHC or LPCH for a deficiency or regulatory violation, and/or require payment of fines, corrective action, or both. California law also allows a private right to sue for a breach of medical information. To date, the cost of such possible consequences has not been material to the University, SHC or LPCH, and management does not believe that any future consequences of these identified incidents will be material to the *Consolidated Financial Statements*.

LABOR AGREEMENTS

Approximately 7% of the University's, 33% of SHC's and 43% of LPCH's employees are covered under union contract arrangements and are, therefore, subject to labor stoppages when contracts expire. The University's agreement with the Service Employees International Union (SEIU) will expire in 2024 and the agreement with the Stanford Deputy Sheriffs' Association will expire in 2026. SHC's and LPCH's agreements with SEIU will expire in 2023 and the agreements with the Committee for Recognition of Nursing Achievement (CRONA) will expire in 2025.

GUARANTEES AND INDEMNIFICATIONS

Stanford enters into indemnification agreements with third parties in the normal course of business. The impact of these agreements, individually or in the aggregate, is not expected to be material to the *Consolidated Financial Statements*. As a result, no liabilities related to guarantees and indemnifications have been recorded at August 31, 2022.

LITIGATION

The University, SHC and LPCH are defendants in a number of legal actions. While the final outcome cannot be determined at this time, management is of the opinion that the liability, if any, resulting from these legal actions will not have a material adverse effect on the consolidated financial position.

CONTRACTUAL COMMITMENTS

At August 31, 2022, the University had contractual obligations of approximately $377.3 million in connection with major construction projects. Remaining expenditures on construction in progress are estimated to be $887.5 million, which will be financed with certain unexpended plant funds, gifts and debt. Commitments on construction contracts, including the construction and remodeling of Hospital facilities, were approximately $145.0 million for SHC and $49.3 million for LPCH at August 31, 2022.

Over the course of the next several years, SHC will complete renovations to enable the relocation of inpatient units that remain in the 1959-era portion of the hospital, and fulfill the seismic safety mandate to have all inpatient beds located in compliant structures. As of August 31, 2022, approximately $261 million, which was primarily for design and construction, was recorded to construction in progress. Estimated cost of the renewal program is approximately $1.6 billion.

The University executed two 25-year agreements with two solar electricity developers and operators in 2015 and 2018 to purchase the output from their solar photovoltaic facilities and battery storage. The first facility was placed in service in December 2016 and the second facility began operation in April 2022. The University's total unpaid commitment under the agreements over the life of the agreements, undiscounted, is $316.2 million.

In addition, as described in *Note 6*, the University is obligated under certain alternative investment agreements to advance additional funding up to specified levels over a period of years.

COVID-19

The global COVID-19 pandemic has continued to cause disruptions to our nation's higher education and healthcare systems, including Stanford. Earlier this year, the global economy began reopening and robust economic activity supported a continued recovery. However, the emergence of COVID-19 variants and related surges in COVID-19 cases have contributed to certain setbacks to reopening and could trigger the reinstatement of restrictions, including mandatory business shut-downs, travel restrictions, reduced business operations and social distancing requirements. Patient volumes and the related revenues for most of SHC's and LPCH's health care services were impacted by the pandemic. Also, broad economic factors including unemployment rates, adjusted consumer spending, and supply chain interruptions impacted patient volumes, service mix and payor mix.

On March 27, 2020 the Federal Government passed the Coronavirus Aid, Relief, and Economic Stimulus Act (CARES Act) which made funds available to Stanford through various provisions of the legislation. For the years ended August 31, 2022 and 2021, SHC received CARES Act provider relief funding of $202.9 million and $392.8 million, respectively and LPCH received $2.1 million and $6.7 million, respectively, reported as "Special program fees and other income" on the *Consolidated Statements of Activities.* Stanford recognized revenue related to the CARES Act provider relief fund based on information contained in laws and regulations, as well as interpretations issued by the Department of Health and Human Services ("DHHS"), governing the funding that was publicly available at August 31, 2022 and August 31, 2021. CARES Act provider relief funding is subject to future audit adjustments based on compliance audits and potential changes to statutes.

Furthermore, the CARES Act provides for deferred payment of the employer portion of social security taxes between March 27, 2020 and December 31, 2020, with 50% of the deferred amount due December 31, 2021 and the remaining 50% due December 31, 2022. As of August 31, 2022, the University, SHC, and LPCH deferred payments of $43.9 million, $21.1 million, and $11.0 million, respectively. As of August 31, 2021, the University, SHC, and LPCH deferred payments of $87.8 million, $56.0 million, and $24.8 million, respectively, and these amounts are reported as "Accounts payable and accrued expenses" on the *Consolidated Statements of Financial Positio*n.

Under the CARES Act, SHC also received $397.0 million in advanced payments from the Centers for Medicare & Medicaid Services (CMS) in fiscal year 2020 which was on the *Consolidated Statements of Financial Position* as of August 31, 2020. CMS had indicated that it would begin recouping these advance payments against future Medicare claims for services that are provided during the recoupment period. By August 31, 2021, $397.0 million in advance payments were recouped by CMS.

Stanford is monitoring legislative developments, including future relief funding opportunities, and directives from federal, state, and local officials to determine additional precautions and procedures that may need to be implemented.

20. Subsequent Events

Stanford has evaluated subsequent events for the period from August 31, 2022 through December 6, 2022, the date the *Consolidated Financial Statements* were issued.

In September 2022, a Stanford affiliate acquired the leasehold on the Oak Creek Apartments, a 759-unit multifamily residential complex located on University lands for the purchase price of $519.0 million. The acquisition is a unique opportunity for Stanford to add a significant amount of housing for eligible university affiliates very close to where they work and learn.

21. Consolidating Entity Statements

The pages which follow present consolidating statements of financial position as of August 31, 2022 and 2021 and consolidating statements of activities and cash flows for the years then ended, in thousands of dollars. The information has been prepared in a manner consistent with GAAP and was derived from and relates directly to the underlying accounting and other records used to prepare the *Consolidated Financial Statements*. The consolidating information is presented only for purposes of additional analysis and not as a presentation of the financial position and results of the individual entities.

CONSOLIDATING STATEMENTS OF FINANCIAL POSITION

At August 31, 2022 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
ASSETS					
Cash and cash equivalents	$ 1,355,180	$ 536,803	$ 461,814	$ (7,425)	$ 2,346,372
Accounts receivable, net	296,138	1,111,913	599,587	—	2,007,638
Receivables (payables) from SHC and LPCH, net	31,379	—	29,148	(60,527)	—
Prepaid expenses and other assets	94,164	447,207	118,989	(148,172)	512,188
Pledges receivable, net	1,986,880	41,877	245,973	(72,994)	2,201,736
Student loans receivable, net	37,524	—	—	—	37,524
Faculty and staff mortgages and other loans receivable, net	984,106	—	—	—	984,106
Assets limited as to use	397,926	—	—	—	397,926
Investments at fair value	46,473,800	4,403,691	1,295,496	7,425	52,180,412
Right-of-use assets	713,251	247,572	207,491	(129,930)	1,038,384
Plant facilities, net of accumulated depreciation	7,903,923	3,725,488	1,748,023	—	13,377,434
Works of art and special collections	—	—	—	—	—
TOTAL ASSETS	**$ 60,274,271**	**$ 10,514,551**	**$ 4,706,521**	**$ (411,623)**	**$ 75,083,720**
LIABILITIES AND NET ASSETS					
LIABILITIES:					
Accounts payable and accrued expenses	$ 983,033	$ 1,532,708	$ 353,814	$ (63,798)	$ 2,805,757
Liabilities associated with investments	863,746	—	—	—	863,746
Lease liabilities	743,180	261,334	219,402	(129,930)	1,093,986
Deferred income and other obligations	1,680,817	218,615	91,828	—	1,991,260
Accrued pension and postretirement benefit obligations	442,820	88,699	30,977	—	562,496
Notes and bonds payable	5,153,838	2,295,337	821,831	—	8,271,006
TOTAL LIABILITIES	**9,867,434**	**4,396,693**	**1,517,852**	**(193,728)**	**15,588,251**
NET ASSETS:					
Without donor restrictions, including non-controlling interest of $144,901	27,378,445	5,972,760	2,339,730	(171,641)	35,519,294
With donor restrictions	23,028,392	145,098	848,939	(46,254)	23,976,175
TOTAL NET ASSETS	**50,406,837**	**6,117,858**	**3,188,669**	**(217,895)**	**59,495,469**
TOTAL LIABILITIES AND NET ASSETS	**$ 60,274,271**	**$ 10,514,551**	**$ 4,706,521**	**$ (411,623)**	**$ 75,083,720**

CONSOLIDATING STATEMENTS OF FINANCIAL POSITION

At August 31, 2021 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
ASSETS					
Cash and cash equivalents	$ 874,943	$ 407,044	$ 398,194	$ (7,392)	$ 1,672,789
Accounts receivable, net	241,706	894,521	617,783	—	1,754,010
Receivables (payables) from SHC and LPCH, net	42,841	—	13,059	(55,900)	—
Prepaid expenses and other assets	91,075	420,219	122,790	(123,594)	510,490
Pledges receivable, net	1,550,314	48,860	153,096	(51,745)	1,700,525
Student loans receivable, net	42,699	—	—	—	42,699
Faculty and staff mortgages and other loans receivable, net	892,098	—	—	—	892,098
Assets limited as to use	453,452	—	—	—	453,452
Investments at fair value	48,001,081	4,662,740	1,368,332	7,392	54,039,545
Right of use assets	621,791	292,588	231,215	(146,081)	999,513
Plant facilities, net of accumulated depreciation	7,683,172	3,619,451	1,776,007	—	13,078,630
Works of art and special collections	—	—	—	—	—
TOTAL ASSETS	**$ 60,495,172**	**$ 10,345,423**	**$ 4,680,476**	**$ (377,320)**	**$ 75,143,751**
LIABILITIES AND NET ASSETS					
LIABILITIES:					
Accounts payable and accrued expenses	$ 985,760	$ 1,538,150	$ 303,479	$ (21,028)	$ 2,806,361
Liabilities associated with investments	974,756	—	—	—	974,756
Lease liabilities	640,206	312,299	241,194	(146,081)	1,047,618
Deferred income and other obligations	1,620,905	245,077	122,135	—	1,988,117
Accrued pension and postretirement benefit obligations	513,460	86,626	29,765	—	629,851
Notes and bonds payable	5,143,849	2,318,780	839,961	—	8,302,590
TOTAL LIABILITIES	**9,878,936**	**4,500,932**	**1,536,534**	**(167,109)**	**15,749,293**
NET ASSETS:					
Without donor restrictions, including non-controlling interest attributable to SHC of $120,215	27,502,213	5,693,158	2,375,992	(119,039)	35,452,324
With donor restrictions	23,114,023	151,333	767,950	(91,172)	23,942,134
TOTAL NET ASSETS	**50,616,236**	**5,844,491**	**3,143,942**	**(210,211)**	**59,394,458**
TOTAL LIABILITIES AND NET ASSETS	**$ 60,495,172**	**$ 10,345,423**	**$ 4,680,476**	**$ (377,320)**	**$ 75,143,751**

CONSOLIDATING STATEMENTS OF ACTIVITIES

For the year ended August 31, 2022 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
NET ASSETS WITHOUT DONOR RESTRICTIONS					
OPERATING REVENUES:					
TOTAL STUDENT INCOME, NET	**$ 715,465**	**$ —**	**$ —**	**$ —**	**$ 715,465**
Sponsored support:					
Direct costs - University	959,202	12,051	—	—	971,253
Direct costs - SLAC National Accelerator Laboratory	524,943	—	—	—	524,943
Indirect costs	315,562	—	—	—	315,562
TOTAL SPONSORED SUPPORT	**1,799,707**	**12,051**	**—**	**—**	**1,811,758**
Health care services:					
Net patient service revenue	—	6,922,468	2,241,891	(44,258)	9,120,101
Premium revenue	—	75,310	—	—	75,310
Physicians' services and support - SHC and LPCH, net	1,440,263	—	—	(1,440,263)	—
Physicians' services and support - other facilities, net	45,924	—	—	(9,306)	36,618
TOTAL HEALTH CARE SERVICES	**1,486,187**	**6,997,778**	**2,241,891**	**(1,493,827)**	**9,232,029**
TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS	**272,812**	**247**	**5,442**	**—**	**278,501**
Net assets released from restrictions:					
Payments received on pledges	223,148	1,029	—	—	224,177
Prior year gifts released from donor restrictions	71,514	5,138	4,750	—	81,402
TOTAL NET ASSETS RELEASED FROM RESTRICTIONS	**294,662**	**6,167**	**4,750**	**—**	**305,579**
Investment income distributed for operations:					
Endowment	1,465,657	384	9,370	—	1,475,411
Expendable funds pools and other investment income	276,518	222	—	—	276,740
TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS	**1,742,175**	**606**	**9,370**	**—**	**1,752,151**
TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME	**539,338**	**395,618**	**101,722**	**—**	**1,036,678**
TOTAL OPERATING REVENUES	**6,850,346**	**7,412,467**	**2,363,175**	**(1,493,827)**	**15,132,161**
OPERATING EXPENSES:					
Salaries and benefits	4,373,184	3,344,920	1,163,765	—	8,881,869
Depreciation	487,509	269,883	94,426	—	851,818
Other operating expenses	1,978,379	3,279,571	1,099,632	(1,493,827)	4,863,755
TOTAL OPERATING EXPENSES	**6,839,072**	**6,894,374**	**2,357,823**	**(1,493,827)**	**14,597,442**
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 11,274**	**$ 518,093**	**$ 5,352**	**$ —**	**$ 534,719**

CONSOLIDATING STATEMENTS OF ACTIVITIES, Continued

For the year ended August 31, 2022 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
NET ASSETS WITHOUT DONOR RESTRICTIONS (continued)					
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 11,274**	**$ 518,093**	**$ 5,352**	**$ —**	**$ 534,719**
NON-OPERATING ACTIVITIES:					
Decrease in reinvested gains	(449,755)	(264,528)	(29,655)	—	(743,938)
Donor advised funds, net	34,611	—	—	—	34,611
Current year gifts not included in operations	5,053	—	—	—	5,053
Equity and fund transfers, net	182,342	(112,528)	(102,429)	32,615	—
Capital and other gifts released from restrictions	30,230	11,759	29,111	—	71,100
Pension and other postemployment benefit related changes other than service cost	92,527	(1,549)	(1,474)	—	89,504
Transfer from (to) net assets with donor restrictions, net	(70,233)	—	60,531	(60,531)	(70,233)
Swap interest and change in value of swap agreements	18,542	120,324	—	—	138,866
Gain on extinguishment of debt	—	—	6,947	—	6,947
Non-controlling interest	26,893	—	—	(24,686)	2,207
Other	(5,252)	8,031	(4,645)	—	(1,866)
NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS	**(123,768)**	**279,602**	**(36,262)**	**(52,602)**	**66,970**
NET ASSETS WITH DONOR RESTRICTIONS					
Gifts and pledges, net	1,437,387	9,178	215,571	17,002	1,679,138
Increase (decrease) in reinvested gains	(1,243,613)	238	(12,396)	—	(1,255,771)
Change in value of split-interest agreements, net	(59,444)	—	(3,867)	—	(63,311)
Net assets released to operations	(294,662)	(7,020)	(19,562)	—	(321,244)
Capital and other gifts released to net assets without donor restrictions	(30,230)	(11,759)	(29,111)	—	(71,100)
Gift transfers, net	38,435	3,295	(9,115)	(32,615)	—
Transfer from (to) net assets without donor restrictions, net	70,233	—	(60,531)	60,531	70,233
Other	(3,737)	(167)	—	—	(3,904)
NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS	**(85,631)**	**(6,235)**	**80,989**	**44,918**	**34,041**
NET CHANGE IN TOTAL NET ASSETS	**(209,399)**	**273,367**	**44,727**	**(7,684)**	**101,011**
Total net assets, beginning of year	50,616,236	5,844,491	3,143,942	(210,211)	59,394,458
TOTAL NET ASSETS, END OF YEAR	**$50,406,837**	**$6,117,858**	**$3,188,669**	**$ (217,895)**	**$ 59,495,469**

CONSOLIDATING STATEMENTS OF ACTIVITIES

For the year ended August 31, 2021 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
NET ASSETS WITHOUT DONOR RESTRICTIONS					
OPERATING REVENUES:					
TOTAL STUDENT INCOME, NET	**$ 507,923**	**$ —**	**$ —**	**$ —**	**$ 507,923**
Sponsored support:					
Direct costs - University	893,874	6,761	—	—	900,635
Direct costs - SLAC National Accelerator Laboratory	489,872	—	—	—	489,872
Indirect costs	297,514	—	—	—	297,514
TOTAL SPONSORED SUPPORT	**1,681,260**	**6,761**	**—**	**—**	**1,688,021**
Health care services:					
Net patient service revenue	—	6,052,048	2,138,716	(41,296)	8,149,468
Premium revenue	—	118,741	—	—	118,741
Physicians' services and support - SHC and LPCH, net	1,334,418	—	—	(1,334,418)	—
Physicians' services and support - other facilities, net	44,601	—	—	(11,254)	33,347
TOTAL HEALTH CARE SERVICES	**1,379,019**	**6,170,789**	**2,138,716**	**(1,386,968)**	**8,301,556**
TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS	**288,110**	**204**	**5,401**	**—**	**293,715**
Net assets released from restrictions:					
Payments received on pledges	244,646	1,227	—	—	245,873
Prior year gifts released from donor restrictions	85,281	8,964	5,107	—	99,352
TOTAL NET ASSETS RELEASED FROM RESTRICTIONS	**329,927**	**10,191**	**5,107**	**—**	**345,225**
Investment income distributed for operations:					
Endowment	1,330,153	492	18,799	—	1,349,444
Expendable funds pools and other investment income	401,235	603	—	—	401,838
TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS	**1,731,388**	**1,095**	**18,799**	**—**	**1,751,282**
TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME	**386,138**	**583,168**	**91,195**	**(9,209)**	**1,051,292**
TOTAL OPERATING REVENUES	**6,303,765**	**6,772,208**	**2,259,218**	**(1,396,177)**	**13,939,014**
OPERATING EXPENSES:					
Salaries and benefits	4,041,029	2,813,222	1,023,210	—	7,877,461
Depreciation	470,184	287,150	109,341	—	866,675
Other operating expenses	1,689,090	3,008,492	1,048,027	(1,396,177)	4,349,432
TOTAL OPERATING EXPENSES	**6,200,303**	**6,108,864**	**2,180,578**	**(1,396,177)**	**13,093,568**
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 103,462**	**$ 663,344**	**$ 78,640**	**$ —**	**$ 845,446**

CONSOLIDATING STATEMENTS OF ACTIVITIES, Continued

For the year ended August 31, 2021 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
NET ASSETS WITHOUT DONOR RESTRICTIONS (continued)					
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 103,462**	**$ 663,344**	**$ 78,640**	**$ —**	**$ 845,446**
NON-OPERATING ACTIVITIES:					
Increase in reinvested gains	4,468,169	871,876	208,623	—	5,548,668
Donor advised funds, net	3,395	—	—	—	3,395
Current year gifts not included in operations	408	—	—	—	408
Equity and fund transfers, net	150,027	(101,957)	(147,603)	99,533	—
Capital and other gifts released from restrictions	42,188	19,240	10,270	—	71,698
Pension and other postemployment benefit related changes other than net periodic benefit expense	101,474	7,436	(1,731)	—	107,179
Transfer from (to) net assets with donor restrictions, net	(75,080)	—	99,533	(99,533)	(75,080)
Swap interest and change in value of swap agreements	7,077	46,274	—	—	53,351
Loss on extinguishment of debt	—	(2,558)	—	—	(2,558)
Non-controlling interest attributable to SHC	19,056	—	—	(19,056)	—
Other	(3,257)	(4,402)	701	—	(6,958)
NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS	**4,816,919**	**1,499,253**	**248,433**	**(19,056)**	**6,545,549**
NET ASSETS WITH DONOR RESTRICTIONS					
Gifts and pledges, net	998,134	34,860	154,780	(83,697)	1,104,077
Increase in reinvested gains	4,676,143	12,307	129,446	—	4,817,896
Change in value of split-interest agreements, net	119,227	—	3,326	—	122,553
Net assets released to operations	(329,927)	(11,490)	(29,307)	—	(370,724)
Capital and other gifts released to net assets without donor restrictions	(42,188)	(19,240)	(10,270)	—	(71,698)
Gift transfers, net	(3,050)	3,030	20	—	—
Transfer from (to) net assets without donor restrictions, net	75,080	—	(99,533)	99,533	75,080
Other	516	(1,677)	27	—	(1,134)
NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS	**5,493,935**	**17,790**	**148,489**	**15,836**	**5,676,050**
NET CHANGE IN TOTAL NET ASSETS	**10,310,854**	**1,517,043**	**396,922**	**(3,220)**	**12,221,599**
Total net assets, beginning of year	40,305,382	4,327,448	2,747,020	(206,991)	47,172,859
TOTAL NET ASSETS, END OF YEAR	**$ 50,616,236**	**$ 5,844,491**	**$ 3,143,942**	**$ (210,211)**	**$ 59,394,458**

CONSOLIDATING STATEMENTS OF CASH FLOWS

For the year ended August 31, 2022 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
CASH FLOW FROM OPERATING ACTIVITIES					
Change in net assets	$ (209,399)	$ 273,367	$ 44,727	$ (7,684)	$ 101,011
Adjustments to reconcile change in net assets to net cash provided by (used for) operating activities:					
Depreciation	487,509	269,883	94,731	—	852,123
Amortization of bond premiums, discounts and other	39,453	(7,934)	(2,882)	—	28,637
Net losses on investments	438,840	377,508	67,881	—	884,229
Change in fair value of interest rate swaps	(21,707)	(139,748)	—	—	(161,455)
Change in split-interest agreements	(32,199)	—	4,026	—	(28,173)
Change in deferred tax asset and liability	(23,182)	—	—	—	(23,182)
Investment expense for restricted purposes	(15,275)	(33)	(33,265)	—	(48,573)
Gifts restricted for long-term investments	(625,598)	(11,117)	(119,370)	—	(756,085)
Equity and fund transfers, net	(220,777)	109,233	55,937	55,607	—
Gifts of securities and properties	(22,698)	—	—	—	(22,698)
Other	59,307	—	(28,267)	—	31,040
Gain on extinguishment of debt	—	—	(6,947)	—	(6,947)
Changes in operating assets and liabilities:					
Accounts receivable	(36,102)	(225,014)	18,226	—	(242,890)
Pledges receivable, net	(338,686)	6,983	2,819	(17,002)	(345,886)
Prepaid expenses and other assets	(16,544)	(76,145)	4,572	—	(88,117)
Accounts payable and accrued expenses	3,670	169,342	40,006	—	213,018
Accrued pension and postretirement benefit obligations	(70,640)	2,073	1,212	—	(67,355)
Lease liabilities	(39,219)	(5,873)	1,932	—	(43,160)
Deferred income and other obligations	23,367	(26,462)	(30,307)	—	(33,402)
NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES	**(619,880)**	**716,063**	**115,031**	**30,921**	**242,135**
CASH FLOW FROM INVESTING ACTIVITIES					
Additions to plant facilities, net	(490,801)	(365,946)	(68,273)	—	(925,020)
Student, faculty and other loans:					
New loans made	(179,632)	—	—	—	(179,632)
Principal collected	77,393	—	—	—	77,393
Purchases of investments	(16,501,253)	(955,577)	(34,246)	24,653	(17,466,423)
Sales and maturities of investments	17,444,318	861,076	31,422	—	18,336,816
Change associated with short term investments	111,202	—	—	—	111,202
Swap settlement payments, net	—	(19,811)	—	—	(19,811)
NET CASH PROVIDED BY (USED FOR) INVESTING ACTIVITIES	**461,227**	**(480,258)**	**(71,097)**	**24,653**	**(65,475)**
CASH FLOW FROM FINANCING ACTIVITIES					
Gifts and reinvested income for restricted purposes	531,865	10,272	85,232	—	627,369
Equity and fund transfers from Hospitals	212,307	(100,733)	(55,967)	(55,607)	—
Proceeds from borrowing	37,953	—	230,594	—	268,547
Repayment of notes and bonds payable	(7,898)	(15,581)	(239,898)	—	(263,377)
Bond issuance costs and interest rate swaps	(39)	(4)	(2,182)	—	(2,225)
Contributions received for split-interest agreements	17,676	—	—	—	17,676
Payments made under split-interest agreements	(57,515)	—	—	—	(57,515)
Securities lending collateral received, net	(7,696)	—	—	—	(7,696)
Other	(7,176)	—	1,907	—	(5,269)
NET CASH PROVIDED BY (USED FOR) FINANCING ACTIVITIES	**719,477**	**(106,046)**	**19,686**	**(55,607)**	**577,510**
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	**560,824**	**129,759**	**63,620**	**(33)**	**754,170**
Cash and cash equivalents, beginning of year	1,067,879	407,044	398,194	(7,392)	1,865,725
CASH AND CASH EQUIVALENTS, END OF YEAR	**$ 1,628,703**	**$ 536,803**	**$461,814**	**$ (7,425)**	**$ 2,619,895**
SUPPLEMENTAL DATA:					
Cash and cash equivalents as shown in the *Statements of Financial Position*	$ 1,355,180	$ 536,803	$ 461,814	$ (7,425)	$ 2,346,372
Restricted cash included in assets limited as to use	81,946	—	—	—	81,946
Restricted cash included in other assets	12,382	—	—	—	12,382
Cash and restricted cash included in investments	179,195	—	—	—	179,195
TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE STATEMENTS OF CASH FLOWS	**$ 1,628,703**	**$ 536,803**	**$461,814**	**$ (7,425)**	**$ 2,619,895**
Interest paid, net of capitalized interest	$ 177,281	$ 79,701	$ 29,235	$ —	$ 286,217
Change in payables for plant facilities	$ 17,556	$ 10,624	$ (2,880)	$ —	$ 25,300
Right-of-use assets obtained in exchange for lease liabilities	$ 135,465	$ 27,892	$ 9,479	$ —	$ 172,836

CONSOLIDATING STATEMENTS OF CASH FLOWS

For the year ended August 31, 2021 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
CASH FLOW FROM OPERATING ACTIVITIES					
Change in net assets	$ 10,310,854	$1,517,043	$ 396,922	$ (3,220)	$ 12,221,599
Adjustments to reconcile change in net assets to net cash provided by (used for) operating activities:					
Depreciation	470,184	287,150	109,341	—	866,675
Amortization of bond premiums, discounts and other	30,455	(8,271)	(2,615)	—	19,569
Net gains on investments	(11,093,768)	(812,347)	(324,599)	—	(12,230,714)
Change in fair value of interest rate swaps	(10,557)	(67,638)	—	—	(78,195)
Change in split-interest agreements	158,814	—	—	—	158,814
Change in deferred tax asset and liability	129,127	—	—	—	129,127
Investment income (expense) for restricted purposes	(8,763)	(34)	107,895	—	99,098
Gifts restricted for long-term investments	(645,872)	(25,161)	(192,398)	—	(863,431)
Equity and fund transfers, net	(146,977)	98,927	48,050	—	—
Gifts of securities and properties	(30,509)	—	—	—	(30,509)
Other	36,280	2,558	10,738	(15,836)	33,740
Premiums received from bond issuance	79,544	17,287	—	—	96,831
Changes in operating assets and liabilities:					
Accounts receivable	19,548	(160,066)	(104,486)	—	(245,004)
Pledges receivable, net	(3,294)	(1,464)	(10,540)	—	(15,298)
Prepaid expenses and other assets	(3,969)	(40,735)	(18,352)	—	(63,056)
Accounts payable and accrued expenses	75,280	(215,280)	41,104	—	(98,896)
Accrued pension and postretirement benefit obligations	(84,491)	(6,801)	1,264	—	(90,028)
Lease liabilities	(38,773)	(1,822)	2,348		(38,247)
Deferred income and other obligations	131,961	74,331	53,081	—	259,373
NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES	**(624,926)**	**657,677**	**117,753**	**(19,056)**	**131,448**
CASH FLOW FROM INVESTING ACTIVITIES					
Additions to plant facilities, net	(493,332)	(262,522)	(35,005)	—	(790,859)
Student, faculty and other loans:					
New loans made	(178,342)	—	—	—	(178,342)
Principal collected	105,835	—	—	—	105,835
Purchases of investments	(18,702,507)	(1,605,006)	(28,195)	19,055	(20,316,653)
Sales and maturities of investments	18,318,948	44,129	24,777	—	18,387,854
Change associated with short term investments	437,983	—	—	—	437,983
Swap settlement payments, net	—	(21,420)	—	—	(21,420)
NET CASH PROVIDED BY (USED FOR) INVESTING ACTIVITIES	**(511,415)**	**(1,844,819**	**(38,423)**	**19,055**	**(2,375,602)**
CASH FLOW FROM FINANCING ACTIVITIES					
Gifts and reinvested income for restricted purposes	472,287	25,164	51,392	—	548,843
Equity and fund transfers from Hospitals	88,266	(40,216)	(48,050)	—	—
Proceeds from borrowing	504,656	522,815	—	—	1,027,471
Repayment of notes and bonds payable	(421,637)	(552,615)	(38,635)	—	(1,012,887)
Bond issuance costs and interest rate swaps	(1,446)	(3,966)	—	—	(5,412)
Contributions received for split-interest agreements	19,709	—	—	—	19,709
Payments made under split-interest agreements	(51,186)	—	—	—	(51,186)
Securities lending collateral sold, net	9,393	—	—	—	9,393
Other	(4,907)	—	—	—	(4,907)
NET CASH PROVIDED BY (USED FOR) FINANCING ACTIVITIES	**615,135**	**(48,818)**	**(35,293)**	**—**	**531,024**
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	**(521,206)**	**(1,235,960**	**44,037**	**(1)**	**(1,713,130)**
Cash and cash equivalents, beginning of year	1,589,085	1,643,004	354,157	(7,391)	3,578,855
CASH AND CASH EQUIVALENTS, END OF YEAR	**$ 1,067,879**	**$ 407,044**	**$ 398,194**	**$ (7,392)**	**$ 1,865,725**
SUPPLEMENTAL DATA:					
Cash and cash equivalents as shown in the *Statements of Financial Position*	$ 874,943	$ 407,044	$ 398,194	$ (7,392)	$ 1,672,789
Restricted cash and cash equivalents included in assets limited as to use	117,179	—	—	—	117,179
Restricted cash included in other assets	28,432	—	—	—	28,432
Cash and restricted cash included in investments	47,325	—	—	—	47,325
TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE STATEMENTS OF CASH FLOWS	**$ 1,067,879**	**$ 407,044**	**$ 398,194**	**$ (7,392)**	**$ 1,865,725**
Interest paid, net of capitalized interest	$ 177,937	$ 81,580	$ 34,644	$ —	$ 294,161
Change in payables for plant facilities	$ (27,359)	$ (1,636)	$ 1,087	$ —	$ (27,908)
Right-of-use assets obtained in exchange for lease liabilities	$ 4,700	$ 30,858	$ 30,976	$ —	$ 66,534

Schedule of Expenditures of Federal Awards
Part A, Award Expenditures by Federal Program

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
Research and Development Cluster					**$862,628,065**
Department of Agriculture					**$758,380**
10.001	Title: Investigating Risk Factors of Rift Valley Fever Virus Direct Transmission in Kenya			$15,000	$68,217
10.025	Differential Phase Contrast X-ray Imagin				$135,847
10.310	229749_USDA_W.Cody_Fellowship - Tobamovirus Delivered Pooled Perturbation Libraries For Single Cell Functional Genetics				$53,283
10.310	231393_NIFA(USDA)_SattelyGut microbiota processing of dietary small molecules and impact on host biology				$172,779
10.310	NRI: FND: COLLAB: Multi-Vehicle Systems for Collecting Shadow-Free Imagery in Precision Agriculture				$53,133
10.310	Sustainability of Groundwater and Irrigated Agriculture in the Western United States under a Changing Climate	University of California, Davis	A22-1253-S003/2021-68012-35914		$55,121
10.604	Chlorate MRL barrier to EU export of California tree nuts and dried fruits.	DFA of California	TASC-101-Sl		$90,450
10.604	Preserving sulfuryl fluoride for dried fruit exports to the European Union	California Prune Board	PN 22-08		$129,550
Department of Commerce					**$397,944**
11.022	Wait, that forecast changed? Assessing how publics consume and process changing tropical cyclone forecasts over time				$8,274
11.417	Advancing an early warning system for California beach water quality with forecasting and nowcasting at data poor beaches	University of Southern California	129407615/PO10888075		$62,166
11.472	FY20 NEFSC- Sanctuary acoustic data project: Quantifying marine sanctuary soundscapes to build effective management and outreach tools				$12,568
11.472	Improving Estimates of Natural Mortality of Atlantic Bluefin Tuna with Electronic Tags	Ocean Foundation	138979		$2,165
11.609	155842_Science and Technology Enabling MEMS Vapor-Cells with Molecular Iodine				$19,183
11.609	A Taxonomy of AI Risk			$90,734	$153,828
11.609	Seismic Assessment, Retrofit Strategies and Policy Implications for Vulnerable Existing Steel Buildings				$63
11.RD	JIMB at Stanford: Training and Research in Biometrology	Stanford Linear Accelerator	IUA #205781		$139,697
Department of Defense					**$75,308,771**
12.300	134160-Gratta-ONR Rotation of Optically Levitated Microspheres	Yale University	GR102722 CON-80001233		$206,104
12.300	20-000000470 HYPERVIPER: Broadband Hyperspectral Imaging System				$73,585
12.300	214982 ONR Nortrh Pacific - Thomas - Competing energy cascades associated with seasonally-varying submesocale turbulence in the North Pacific Subtropical Countercurrent				$15,327
12.300	A CyberOctopus that Learns, Evolves, and Adapts	University of Illinois at Urbana Champaign	095643-17469		$554,588
12.300	A proposal to study the effect of unsteady wall boundary conditions on turbulent boundary layers				$64,068
12.300	Accessible Machine Learning for Misinformation and Influence Operation Analysis				$15,020
12.300	Accountable Protocol Customization				$176,625
12.300	Advanced multi-length characterization of inherently safe lithium-ion battery				$10,563
12.300	AI for Education: Designing Conversational Teaching Agents				$34,341
12.300	AI Nets: Predicting Actions and Inferring Intentions of Groups of Targets with a Network of Surveillance Robots			$47,860	$185,627
12.300	Analysis and Design of Optical-Acoustic Techniques to Approach Fundamental Limits of Detection across Dynamic Air-Water Interfaces				$134,958
12.300	Application of Macroscopic Forcing Method in quantification of Eddy Diffusivity fields in Subsurface and Near-surface Turbulent Wakes				$35,881
12.300	Camera Relocalization using 3D Point Clouds for Enhanced Underwater Situational Awareness				$47,761
12.300	Can specific interactions, such as covalent bonds between donor-acceptor molecules or hydrogen bonds, generate self-assembled surfactants to stabilize the D-A interface?	Pennsylvania State University	6118-SU-ONR-2453		$581,789
12.300	Center for Turbulence Research Summer Program 2020				$82,878
12.300	Compositional Scene Understanding with Self-Supervised Object-Centric Dorso-Ventral Neural Networks	University of California, Berkeley	00010802 / PO BB01580828		$223,478
12.300	COVID-19 ViroMeter: A portable health assessment device for viral transmission control				$155,459
12.300	Design of Optimal Loss Functions for Statistical Estimation				$20,753
12.300	Determination of a RANS Model Form for Incompressible Wall-bounded Turbulent Flows using the Macroscopic Forcing Method and Validation on a Prolate Sphere				$141,492
12.300	Developing next generation AI vision systems by characterizing and exploiting untapped primate visual processing circuit motifs	Massachusetts Institute of Technology	S5122/PO#496218		$271,772
12.300	Development of GaN and AlGaN growth platform for achieving 3.3-20kV power devices				$206,149
12.300	Development of Multi-functional Composite UAV Structures for Urban Operations				$171,475
12.300	Diffusion and Learning Models				$49,263
12.300	Discovering and Modeling Turbulence and Chemistry Interactions in High Speed Reactive Flows	University of Michigan	SUBK00014012 / PO 3006515445		$283,055
12.300	Dissecting the causal role of neural dynamics in supporting computation and behavior				$4,071
12.300	Dissipative quantum dynamics and error-correction with quantum acoustics				$81,339
12.300	Elements of Causal Learning: Basic Concepts, Theory, Methods, Algorithms and Applications	Temple University	264443-SU P0592977		$96,650
12.300	Engineering Functionality in Emergent Oxide Thin Film Materials Systems				-$1,601
12.300	Enhancing Mechanical and Combustion Properties of Boron/Polymer Composites via Engineered Interfacial Chemistry				$190,560
12.300	Establishing Gordian Knot Center at Stanford University				$961,807
12.300	Extraordinary Electronic Switching of Thermal Transport	University of Texas at Austin	UTA21-000335		$153,908
12.300	Facilities and Instrumentation for Study of Turbulence-Chemistry Interactions in High-Speed, Compressible Flows				$92,559
12.300	Flexible Vision-Based Robotic Manipulation via Meta-Learning and Deep Reinforcement Learning				$169,881
12.300	Frugal, Lifelong-Learning Control Systems with Execution Guarantees	University of California, Berkeley	00010920/N00014-22-1-2121		$53,770
12.300	Fundamental studies and applications of spin-orbit interactions of light	Boston University	4500003519		$161,066
12.300	Game-theoretic mechanisms for group decision making			$28,034	$194,902
12.300	Getting More from Less: Optimal Estimation and Learning, For Sparse, High Dimensional, or Untrusted Data				-$8,112
12.300	Hacking for Defense 2.0 for ONR NEPTUNE and NURP Programs				$732,606
12.300	Harnessing Human Intelligence for Adaptive Human-Robot Collaboration			$25,740	$88,544
12.300	High-Assurance Cryptography			$820,083	$997,924
12.300	High-fidelity numerical simulation to understand the physics of surface/internal gravity wave interactions				$138,833
12.300	Identity Signals for Enabling Participatory Governance			$422	$65,935
12.300	Improving Neural Networks with (and for) Computational Physics				$99,088
12.300	Integrated Harvesting and Storage of Oxygen from Seawater Using Efficient Bipolar Membrane Electrolysis, Impurity Tolerant Electrocatalysts, and Designer Metal Organic Frameworks	University of Oregon	234640A		$253,991
12.300	Interpretable End-to-End Streaming Inference in Multi-Agent Environments				$96,659
12.300	Investigating Magnetic Flux Rope Emergence as the Source of Flaring Activity in Delta-Spot Active Regions				$68,679
12.300	Investigation of Deep Learning for Solid and Fluid Simulations				$71,278
12.300	JTO MRI: Power Scalable Electrically Driven Monolithic IR Surface Emitting Lasers	University of Texas at Arlington	126060159062		$113,197
12.300	Laser propagation in heterogeneous media and applications to off-axis reconstructions				$12,186
12.300	Laser-cooled Atomic Clock -- Time Measurement System				$190,020
12.300	Learning for Dynamics, and Control (L4DC)				$38,756
12.300	Learning with domain knowledge: an implicit probabilistic models approach				$95.473
12.300	Measuring Heart Rate to Assess the Stress Response in Large Whales			$91,853	$198,820

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
12.300	Millimeter-Wave Cavity-QED for Scalable Quantum Gates with Rydberg Atoms				$199,657
12.300	Multi-channel spectrum analyzer for component characterization with fast and accurate noise figure measurements				$334,050
12.300	Multiphase Detonation of Liquid Aeropropulsion Fuels				$9,757
12.300	Navigating the Space of Chemical Reactions From First Principles				$237,525
12.300	Neuromorphics: Programmable Analog Computation				$1,486
12.300	Next generation near infrared interference coatings with ultra-low stress and losses for deformable mirror applications	Colorado State University	G-01705-01		$154,891
12.300	Non-reciprocal photonic gauge potential and non-equilibrium thermal metaphotonics for the control of light and heat				$692,676
12.300	N-Polar GaN CAVETs for higher power densities at mm-wave operations				$21,608
12.300	N-Polar Nitride Vertical devices for RF application				$109,504
12.300	Numerical Simulation of Hypervelocity Impact Induced Phenomena				$119,128
12.300	One- or Two-Laser Yb Optical Atomic Clock				$34,853
12.300	Operationalizing Machine Learning for Navy Analysts with Data Programming				$89,955
12.300	Optimizing Confocal Line-of-sight and Non-Line-of-sight Imaging	University of Wisconsin-Madison	831K751		$20
12.300	PCP@Xtreme 4 Predictive Chemistry & Physics at Extreme Temperature and Pressure molecules,crystals and microstructures	Purdue University	13000469-018		$35,172
12.300	Photoacoustic Airborne Sonar for Non-Contact Detection Under Water				$144,977
12.300	Photomechanical Material Systems: From Molecules to Devices	University of Massachusetts Amherst	18-010467 D 02		$343,770
12.300	Physically Robust Metasurfaces for High Power Optoelectronics Applications				$71,904
12.300	Practical Optimality Guarantees in Estimation and Learning				$41,397
12.300	Quantum-limited sensing				$195,516
12.300	Rapid-Tuning Laser Systems for Spectrally-Resolved Diagnostics of High-Enthalpy Flows				$47,509
12.300	Real-time state awareness via nerve-like sensing system for autonomous fly-by-feel aerial vehicle				$44,842
12.300	Robot Learning from Internet-Scale Data				$20,829
12.300	Rocky shores eXperiments and simulations	University of California, San Diego	KR 704624		$47,285
12.300	Scalable generation and control of large quantum states of light and matter in engineered semiconductor materials				$55
12.300	Sensing quantum vacuum fluctuations from correlated materials				$194,009
12.300	Social Learning and the Diffusion of Information in Social Networks				$156,137
12.300	Spectrally-Resolved Laser Diagnostics for High-Enthalpy Flow Sensing				$229,731
12.300	Surface breakdown and plasma formation in cross-field high power microwave sources				$129,510
12.300	Synthesis Planning and Reaction Discovery For Photochemistry and Chemistry in Novel Environments			$275,881	$1,384,854
12.300	Synthetic Nucleic Acid Nanoparticles for RNA Structural & Synthetic Biology	Massachusetts Institute of Technology	S4989 PO #429177/N000142012084		$36,224
12.300	The role of mesoscale strain in the near-surface decay and propagation of high-mode near-inertial wave energy				$109,723
12.300	Top-Down And Bottom-Up Brain Mechanisms At Multiple Spatial And Temporal Scales: Experimental Investigation And Computational Modeling			$789,537	$1,081,516
12.300	Tracking, Diagnosing and Arresting Dielectric Breakdown Using Multiscale Characterization and Simulations	University of Connecticut	PO# 163166/KFS# 5641050		$248,445
12.300	Trusted Machine Learning: Statistical Tools for Making the Black Box Effective				$90,712
12.300	Uncertainty quantification in high dimension: Sampling and noisy debiasing				$127,630
12.300	Uncovering Complex Reaction Networks from First Principles				-$1,271
12.300	Understanding and Applying Non-Euclidean Geometry in Machine Learning				$177,888
12.300	Understanding Scenes and Events through Joint Parsing, Cognitive Reasoning and Lifelong Learning	University of California, Los Angeles	1015 G WA525		-$9,230
12.300	Vannevar Bush Faculty Fellowship (VBFF)				$368,413
12.300	Visual Reasoning via Spatio-temporal Scene Graphs				$99,576
12.300	W-Band GaN IMPATT Devices	QuinStar Technology, Inc.	PO 61685		$169,252
12.300	XASEM for Surface Chemical Imaging Approaching Atomic-Scale Precision				$134,132
12.330	20-000000630: Enhancing STEM educational experience in marine science and technology with a novel at-sea program			$87,294	$124,974
12.351	A basic research pipeline for discovery and early preclinical development of host-targeted antiviral strategies to combat encephalitic alphaviruses			$60,710	$557,715
12.351	Development of biologic countermeasures for saxitoxin (STX) poisoning	University of California, San Francisco	12762sc		$378,946
12.351	High-resolution characterization of saxitoxin (STX) recognition	University of California, San Francisco	11791sc		$236,270
12.420	1999739(Fan)- USAMRAA Utilizing the Immune Response to Tumor Neoantigens for Kidney Cancer Early Detection				$136,283
12.420	68Ga Bombesin PET/MRI in Patient				-$14,576
12.420	A Comprehensive Approach to Whole Eye Transplantation: Building a Scientific Foundation for New Therapies in Vision Restoration	University of Colorado Denver	FY21.1065.003 // 2-5-A9627		$41,617
12.420	A HyTEC Implantable Device That Enables Personalized, Sustained Release of Bioagent for Large Bone Defect Reconstruction and Limb Salvage				$47,592
12.420	A Modeling-Based Personalized Screening Strategy Combining Circulating Biomarker and Imaging Data for Breast Cancer Early Detection				$12,015
12.420	A Phase IIB, randomized, placebo-controlled, multicenter study of the comparative efficacy and safety of transendocardial injection of allogeneic mesenchymal stem cells versus placebo in patients with non-ischemic dilated cardiomyopathy (DC	University of Miami	OS00000030 // PO SPC-002510		$127,706
12.420	A Rapid Blood Test to Differentiate Latent Tuberculosis from Active Disease	University of California, San Diego	113394183 (S9002292)		$10,227
12.420	Abnormal Dynamic Visual Function and Associated Symptomatology in Mild Traumatic Brain Injury				$129,154
12.420	Aerosol Delivery of CPZEN-45 for Treatment of Nontuberculous Mycobacterial (NTMs) Infections	PAI Life Sciences Inc.	CPZEN-D-1_Stanford		$94,876
12.420	An Integrative Radiogenomic Framework for Predicting Treatment Failure in Children, Adolescents, and Young Adults with Hodgkin Lymphoma				$28,200
12.420	Artificial-intelligence aided findings detection models for diagnostic imaging in Prostate Cancer				-$2
12.420	Basis for visual impairment in multiple sclerosis: beyond retinal ganglion cells				$43,233
12.420	Battlefield-Ready Fully Handheld Anterior-Segment Optical Coherence Tomographty	Vanderbilt University	UNIV62140		$5,633
12.420	Biomarker driven targeted therapy for late-recurring ER-positive breast cancer				$92,162
12.420	Biomarker driven targeted therapy for late-recurring ER-positive breast cancer.				$314,020
12.420	Brain neuropeptide signaling and autism spectrum disorder				$359,690
12.420	Central lateral thalamic circuitry abnormalities in traumatic brain injury and Alzheimer's disease				$36,915
12.420	Coaxing Senescence in Retroperitoneal Liposarcomas				$63,084
12.420	Corticospinal neuron transplantation to repair chronic cervical spinal cord injury				$14,924
12.420	COVID-19 NAK Inhibitors for Combating Dengue, Ebola, COVID-19, and Other Emerging Viral Infections			$14,599	$295,102
12.420	COVID-19 Repurposing of Pan-ErbB Inhibitors to Protect from Coronaviral Infection, Inflammation and Lung Injury				$616
12.420	Defining the role of neuronal activity on the initiation of Neurofibromatosis Type I (NF1)-associated pediatric optic glioma				$20,085
12.420	Detecting Relapse Causing Populations at the time of Diagnosis in B-cell Progenitor Acute Lymphoblastic Leukemia				$227,966

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
12.420	Determining the Predictive Value, Functional Role, and Mechanisms of Action of NUSAP1 in Clear Cell Renal Cell Carcinoma				$12,412
12.420	Development and preclinical validation of an improved tissue engineered vascular graft for use in congenial heart surgery	Research Institute at Nationwide Children's Hospital	710049-0921-00/PO4602317-0-46		$14,586
12.420	Development of Non-Genotoxic Hematopoietic Stem Cell Transplantation Regimens for Fanconi Anemia				$272,969
12.420	Efficacy of Repetitive Transcranial Magnetic Stimulation for Improvement of Memory in Older Adults with TBI Problems in Complex TBI	Palo Alto Veterans Institute for Research	ADA0007-01; PO# ADA074575		$14,726
12.420	Elucidating early events in HGSC pathogenesis: A single cell multi-omics approach to robustly trace cell lineage, clonality and phenotypes of TP53-mutated cells				$10,818
12.420	Exosomes as a Reliable Noninvasive Method for Monitoring VCA Graft Rejection				$139,514
12.420	Exploring the role of Manganese and Mn-dependent Metabolic Pathways in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome.				$120,064
12.420	Ferroptosis induction is a novel therapeutic strategy for advanced prostate cancer				$46,927
12.420	High-Resolution Retinal Prosthesis for Restoring Sight to Patients Blinded by Retinal Injury or Degeneration				$97,448
12.420	Hybrid bone-tendon grafts for enhanced tendon healing				$152,724
12.420	Identification and Therapeutic Targeting of a Novel Cell Population in Rejection of Vascularized Composite Allotransplantation				$365,973
12.420	Identification of Siglec-9 ligand for T cell immunoevasion in advanced prostate cancer				$208,464
12.420	Identification, Characterization, and Correction of a Defect in Treg Function in SLE				$57,936
12.420	Imaging and Exosomal Genomics as An Early Identifier of Lung Cancer				$108,244
12.420	Imaging and Exosomal Genomics as An Early Identifier of Lung Cancer.				$155.373
12.420	Improving Voluntary Engagement for PTSD Treatment Among Soldiers	University Of Washington	UWSC11285; BPO 41961		$92,124
12.420	Intraocular Microdisplay Projection for Vision Restoration After Corneal Blindness				$227,747
12.420	Just-in-Time, Single-Dose, Universal Anti-Influenza A Virus Therapeutic				$2,181,710
12.420	Local and Systemic Analysis of Immune Responses in Pancreatitis Patients			$7,297	$95,254
12.420	Mechanisms and Treatment Development for Pancreatitis Resulting from Alcohol Abuse and Smoking	Cedars-Sinai Medical Center	0001621388		$353,108
12.420	Miniature Intracochlear Imaging Probe Based on Micro Optical Coherence Tomography for Cellular-Level Diagnosis and Therapy of Hearing Loss				$13
12.420	Multicenter Randomized Trial of Everolimus in Pediatric Heart Transplantation	Boston Children's Hospital	GENFD0002085519		$413,696
12.420	Multiplexed imaging to improve and define diagnosis and subsequent treatment for patient suffering from Gulf War Illness using CyTOF and Codex				$179,743
12.420	Nasal oxytocin for the treatment of post-TBI chronic headache: influence of estrogen				$128,191
12.420	Novel Strategies to Combat Post-Traumatic Osteoarthritis (PTOA)			$473,172	$1,467,927
12.420	Optimizing a Novel Intraductal Delivery of Calcineurin Inhibitors as a Radiocontrast Infusion Formulation to Prevent Post-ERCP Pancreatitis			$50,629	$1,331,739
12.420	Prospective, randomized, placebo-controlled phase 2 trial of aspirin for vestibular schwannomas	Massachusetts Eye and Ear Infirmary	16-0231 / 2300179		$26,996
12.420	Randomized Controlled Trial of Telehealth-Enabled Versus In-Person Parent-Mediated Behavioral Treatment for Challenging Behaviors in Autism Spectrum Disorder				$9,234
12.420	Relating the interplay of tumor function and host response to clinical outcome in triple negative breast cancer				$1,359,736
12.420	RSK3-mAKAP Targeting as a New Therapeutic Strategy for Heart Failure with Preserved Ejection Fraction in Women				$132,588
12.420	Selective inhibition of pathological mitochondrial fission to improve mitochondrial functionand inhibit neurodegeneration and neuroinflammation in ALS				$63,855
12.420	Targeting Circadian Control of Oligodendrocyte Lineage Cell Dynamics for Remyelination				$241,227
12.420	Targeting Metastatic Breast Cancer with Copper Trap Assembled in Situ				$45,458
12.420	Targeting the Plasmodium Proteasome for Prophylaxis and Treatment of Drug-Resistant Malaria in U.S. Military Personnel				$19,071
12.420	The REgenerative Medicine for EB and related DIseases at Stanford (REMEDIS) Center				$15,677
12.420	The Role of Nemolike Kinase in the Pathogenesis and Treatment of Diamond Blackfan Anemia				$58,614
12.420	Towards better understanding and predicting severe dengue.				$539,800
12.420	Tracking sarcoma response and resistance to radiation therapy				$65,430
12.420	Understanding and targeting pulmonary arteriovenous malformations using repurposed drugs				$548,500
12.420	Understanding the Prognostic Impact of NK Cell Heterogeneity in Melanoma				$136,484
12.431	3b: Investigation of Transient Contaminant Dispersion in Mock Urban Canopies				$34,948
12.431	3D Object and Scene Variation Synthesis for Learning Algorithms (Topic:k.Artificial Intelligence and Machine Learning)				$296,208
12.431	Biomimetic organic electronic transistors for characterizing host cell-pathogen interactions				-$2,253
12.431	Biomimetic organic electronic transistors for characterizing host cell-pathogen interactions			$128,320	$128,320
12.431	Dimension reduction for open quantum systems				$172,910
12.431	Efficient, Robust and Reliable Neural Networks for Multimodal and Synthetic Data: A Sparse Representation Perspective				$104,938
12.431	High Pressure Deformation Mechanisms in Lightweight Alloys				$62,166
12.431	Interactive Human-AI Teaming for AI Model Development, Debugging and Repair				$288,292
12.431	Kinetics Studies of ARO-Relevant Fuels using Shock Tube/Laser Absorption Methods				$62,198
12.431	Ladderene-Based Polymechanophores: From Understanding Mechanotransduction to Developing Materials with Amplified Force-Response				$507,551
12.431	Laser and Imaging Systems for the Study of High-Temperature Laminar Flames in Shock Tubes				$50,174
12.431	Learning Robust Classifiers from Small Data using Generative Models				$97,129
12.431	Models and algorithms for higher order network inference				$15,743
12.431	MURI TOPIC 14 Information Exchange Network Dynamics: A multilevel multimodal approach to network information dynamics	University of Illinois at Urbana Champaign	100440-17936		$514,173
12.431	Near-Field Radiative Heat Transfer and Energy Conversion in Nanogaps of Nano- and Meta-Structured Materials	University of Michigan	SUBK00010159 / PO 3005531165		$119,706
12.431	Optimizing Range and Velocity Sensing with Computational Single-photon Imaging				$207,133
12.431	PECASE W911NF-12-R-0012-04: Answering High-Level Questions on Low-Level Data				$224,147
12.431	Precision Measurements of Transverse Transport Coefficients by Torque Magnetometry				$18,436
12.431	Quantum Control of Cold Collisions Using Stark-Induced Adiabatic Raman Passage				-$131,719
12.431	Quantum neuromorphic computing and simulation with multimode cavity QED				$72,585
12.431	Quantum Simulation of Frustrated Magnets by Rydberg Dressing				$120,966
12.431	Quantum State Control of Molecular Collision Dynamics	University of Missouri	C00064278-5		$344,879
12.431	Recognizing and describing complex human activities from video sequences	University of Illinois	2015-05174-01		-$1
12.431	Reconfigurable functional materials				$197,679
12.431	Regaining Control in Reinforcement Learning			$55,141	$279,381
12.431	Resource Allocation in Slow Growing Methanogenic Archaea				$132,356
12.431	Robust Entanglement-Enhanced Metrology with Atoms and Solid-State Spins			$613,437	$1,086,653
12.431	SCAN: Socio-Cultural Attitudinal Networks	University of Maryland at College Park	38796-Z8424103		$127,435
12.431	Semantic Information Pursuit for Multimodal Data Analysis	Johns Hopkins University	2003514594		$147,970
12.431	Single cell Analysis for Forensic Epigenetics (SAFE)	Salk Institute for Biological Studies	PO P1032821		-$4,317
12.431	STIR: Toward the exploration of the quantum vacuum optics of metamaterials with the SQCRAMscope				$51,072
12.431	Topics II.A.2.a and II.A.2.c: Photonic and Phononic Technologies for Superconducting Quantum Information Systems	California Institute of Technology	S387326		$95,823

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
12.431	W911NF-12-R-0011-04: Towards a process-based understanding of sediment degassing and ramifications for the mechanical stability of permafrost, Earth Material and Processes				$33,132
12.599	Using Geographic Variations to Improve Quality and Reduce Costs in the Military Health System	Dartmouth College	R1361		$17,223
12.630	Building a self-sustaining microgrid for remote communities and military bases				$140,028
12.630	Human-Centered Design and Control				$40,012
12.630	IoBT	University of Illinois	088831-18416		$212,847
12.750	Center for Global Health Engagement Research: Comparing Hospital Hand Hygiene in Liberia: Soap, Alcohol & Hyochlorite	Henry M Jackson Foundation for the Advancement of Military Medicine	CON000573 // PO 1037020		$12,188
12.750	Comparing hospital hand hygiene in Liberia: soap, alcohol, and hypochlorite	Henry M Jackson Foundation for the Advancement of Military Medicine	4058 // PO 927761		$127,493
12.800	(DURIP) High Framing Rate Camera and Superconducting Magnet for the Study of Magnetized Plasmas				$326,373
12.800	(YIP) Engineering Biomolecular Actuators from Ion-Responsive Repeat Proteins				$27,205
12.800	A Robust Multi-Physics Design Analysis and Optimization Framework for Hypersonic Systems Grounded in Rigorous Model Reduction			$111,636	$599,834
12.800	Adaptive Conventions for Trustworthy Human-Robot Interaction				$51,313
12.800	Advanced diagnostics for detonation waves in small tubes and nano carbon formation at high pressures				$6,574
12.800	AFOSR_Robustness, simulation and error correction for quantum dynamics				$109,261
12.800	AirForce Learning for Dynamics, and Control (L4DC)				$11,800
12.800	An Architecture for Normative, Explainable, and Justified Agency				$149,454
12.800	ANSRE: ANalysis and Synthesis of Rare Events			$945,716	$1,259,353
12.800	Atomically-thin systems that unforld, interact and communicate at the cellular scale	Cornell University	76123-10600		$14
12.800	Autonomous Distributed Angles-Only Orbit Determination using Multiple Observers				$137,605
12.800	Avian-Inspired Multifunctional Morphing Vehicles	University of Michigan	3003832414		$35,229
12.800	Brain-Inspired Networks for Multi-functional Intelligent Systems in Aerial Vehicles	University of California, Los Angeles	0205 G XA211		$79,899
12.800	Cavity Tweezers for Quantum Information Science and Simulation				$102,818
12.800	Characterizing microdroplets to understand their unique chemistry				$67,688
12.800	Chemistry with Microdroplets				-$41,016
12.800	Complexity-theoretic foundations of quantum advantage experiments				$37,106
12.800	Dynamical optical lattices of dysprosium				$1,230
12.800	Effects of disorder on electronic properties near nematic quantum phase transitions: model systems to explore fundamental physics relevant to the discovery of new superconducting phases				$165,075
12.800	Embedded Boundary Methods with Stability, Accuracy, and Smoothness Guarantees for Multidisciplinary Design, Analysis and Optimization				$248,894
12.800	Energy-Efficient Nanophotonic Neuromorphic Computing	University of California, Davis	A18-0583-S001		$4,343
12.800	Engineering light-mediated interactions in dysprosium for quantum many-body physics				$248,530
12.800	Evaluation of Aerothermochemistry Models Through Sensitivity Analysis and LowUncertainty Experiments	University of Colorado, Boulder	1560116 // PO 1001441567		$163,425
12.800	Exploiting Extreme Molecular-Confinement in Hybrids for Enhanced Mechanical and Thermal Behavior				$329,500
12.800	Exploring Ultra-Narrow Photon Emission in the keV regime				$15,007
12.800	Extrapolating ground test data of Hall effect thrusters to in-space operation				$33,906
12.800	Field-Deployable Mid-Infrared TDLAS Sensor for NASA EAST				$166,633
12.800	Fundamental Aspects of NO IR Spectroscopy in High T and P Air				$18,787
12.800	Fundamental Spectroscopy of Oxygen at High Temperatures and Pressures in Support of Quantitative Sensing for Hypersonic Air Flows				$108,428
12.800	Hierarchical Strategy for Supporting Validation of Combustion Simulations				$203,717
12.800	High-resolution 3-Dimensional Optoelectronic Neural Interface for Restoration of Sight				$260,882
12.800	Hot Magnetized Plasma Acceleration Devices and Modes for Agile Plasma Thrusters				$144,673
12.800	Hybrid-Materials Valley Optoelectronics for Photon Spin Communication	Cornell University	FA9550-18-1-0480		$193,673
12.800	Implementation of data assimilation strategies in modeling acoustically excited flames	Jacobs Technology Inc.	RAPT1-0000001326		$41,415
12.800	Information-Geometric Approach for Data-Driven Multiscale Simulations				$7,172
12.800	Information-Geometry of statistical manifolds and Data Assimilation				$184,834
12.800	Internal Cooling of Fiber, and Disc lasers by Radiation Balancing and other Optical or Phonon Processed	University of Illinois at Urbana Champaign	084272-16070		$148,561
12.800	In-Vivo Validation of Analyte Partitioning Mechanisms for Peripheral Biochemical Monitoring	University of Cincinnati	013176-00006	$11,819	$88,817
12.800	Learning and MetaLearning of Partial Differential Equations via PhysicsInformed Neural Networks: Theory, Algorithms, and Applications	Brown University	00001656		$334,891
12.800	Low-Power, Ultrafast, Integrated Nano-Optoelectronics	University of Texas at Austin	UTA16-001253		$469,013
12.800	Low-Temperature Recondensing Magnet System with Dilution Refrigerator Insert for Research in Electronic Properties Near Quantum Phase Transitions and in Topological Materials.				$490,863
12.800	Magnet-Free Non-Reciprocal Metamaterials Based on Spatio-Temporal Modulation	Research Foundation, The City University of New York	CM00001531-00		$381,804
12.800	Mechanistic Studies of Microdroplet Chemistry				$793,531
12.800	Mesoscopically Structured Ionic Materials: RTIL Thin Films and Perovskite White Light Emitters				$218,848
12.800	Meta-imaging: Sensing, Processing and Computing with Dynamic Metasurfaces	Duke University	313-1121		$342,558
12.800	Multiscale Stochastic Modeling, Conditioning, and Simulation of Rare Events	University of Southern California	138557016 / PO-10936691		$258,565
12.800	Nanophotonic neural networks with nonlinear, reconfigurable metasurfaces				$278,925
12.800	Next Generation Mid-Infrared Laser Diagnostics for Hypersonics and High-Enthalphy Test Facilities				$44,542
12.800	Optimal PRN Codes and Receiver Design for More Robust and Secure Satellite Navigation				$14,108
12.800	Optophysiology: interferometric imaging of the intrinsic neural signaling				$202,466
12.800	PECASE: New material and design approaches for integrated nano-optical systems				$138,774
12.800	Plasma-Based Reconfigurable Photonic Crystals and Metamaterials			$1,574	$66,370
12.800	Quantum Codes, Tensor Networks, and Quantum Spacetime	University of California, Santa Barbara	KK2015		$3,429
12.800	Quantum Optimization with Rydberg Atoms				$232,996
12.800	R&D to Improve the Integrity and Safety of the PNT Solution Using Current and Future SatNav signals				$533,359
12.800	Real-Time Battery Health Monitoring with Built-in Ultrasonic Techniques for Electric Aerial Vehicles				$8,293
12.800	Semantics, Formal Reasoning, and Tool Support for Quantum Programming	Tulane University	TUL-SCC-553955		$378,753
12.800	Sensitizing Reaction Chemistry in Detonation				-$5,469
12.800	Sensitizing Reaction Chemistry in Detonation - Chemical Kinetics				$362,359
12.800	Space surveillance with correlation based radar			$12,050	$27,134
12.800	Spectroscopic Imaging of Defects Using Radiation-Actuated Scanning Electron Microscopy				$85,594
12.800	Spectroscopic Measurements and Nonequilibrium Modeling for High-Enthalpy Air	California Institute of Technology	S437969		$221,115
12.800	Stretchable Polymer Semiconductors				$178,397
12.800	Supermaneuverable Autonomous Pursuit: Peregrine Falcon Versus Pigeon Inspired UAVs				$17,401

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
12.800	Theoretical Characterization of Electron Transport in Partially Magnetized Plasmas	Texas Engineering Experiment Station	M2000703		$49,030
12.800	TIMELIGHT: Explainability in Time Series				$277,030
12.800	Topological Phenomena in Magnetized Plasma Structures and their Applications for Extreme Control of Electromagnetic Waves			$565,584	$998,318
12.800	Towards Dissipation-less Conduction in Oxide Topological Insulators				$198,378
12.800	Towards Enhanced Seismic Monitoring with Distributed Acoustic Sensing (DAS)			$117,285	$288,790
12.800	Tunneling Phenomena in Interface Superconductors	Harvard University	134400-5122157		$135,704
12.800	Understanding PAH Clustering Facilitated by Metal Cations at High Temperatures	University of Utah	10052440-S1// PO U000197139		$36,198
12.800	UV and IR Laser systems for spectrally-resolved reacting flow diagnostics				$158,480
12.800	Variational Methods for Information Processing and Learning				$230,795
12.901	Extracting Information from Rich Video Streams: An Agile Software/Hardware Approach				$142,298
12.901	Upscale: Scaling up formal tools for POSH Open Source Hardware			$394,866	$1,013,350
12.910	A General and Ultra-high-performance Platform for Nonlinear Photonics				$157,579
12.910	Biased agonists as rapidly acting neuropsychiatric drugs	University of North Carolina at Chapel Hill	5124424 / HR00112020029 PHASE2		$1,048,298
12.910	BIGMAPS: Brain Imaging for Global Motifs of Activity Pattern and Structure NeuroFAST				-$354
12.910	Electrogenic Regulation of Sleep Biomolecules for Circadian Cycle Adjustment			$995,152	$1,712,340
12.910	Engineering native human skin commensals to eliminate attractants and introduce repellents and mosquito tracking using millisecond device apparati			$1,703,102	$2,717,301
12.910	Excitonic circuitry enables nightglow upconversion			$113,561	$309,673
12.910	Floquet Phases - A New Resource for Quantum Devices	Princeton University	SUB0000345		$99,982
12.910	High-Speed DACs for Digital Arrays in Digital Process Technology				$152,643
12.910	Multi-modal Open World Grounded Learning and Inference (MOWGLI)	University of Southern California	125037483		$499,683
12.910	Nonlinear Nanophotonics for Visible-Emission Lasers (NOVEL)	University of Colorado, Boulder	1559924 / PO # 1001522176		$1,011,855
12.910	PIPES	University Of Pennsylvania	Sub 577443/PO 4724447/583232		$214,467
12.910	Resonant Beam Accelerometer				-$8,059
12.910	Rewriting the Rules of Thermal Emission via Parametric Microphotonic Design	University of Southern California	108725131/PO10724755		$192,967
12.910	Structure-guided drug discovery of allosteric modulators for cannabinoid receptors with therapeutic efficacy for PTSD and traumatic neuronal injury			$97,770	$1,336,290
12.RD	Revolutionizing Computing Systems through Dense and Fine-grained Monolithic 3D Integration	Massachusetts Institute of Technology	S4632-007/PO216909		-$42,540
12.RD	Aberration-correcting Topologically Optimized Metasurface (ATOM)	Physical Sciences, Inc.	SC 8082-170221-008-46		$153,307
12.RD	Applications and Systems driven Center for Energy-Efficient Integrated NanoTechnologies (ASCENT)	University of Notre Dame	203278SU-POP		$284,559
12.RD	APPRAISE Validation Study	Applied Research Associates, Inc.	S-200412-D00154-Stanford		$40,873
12.RD	Architecture and Analysis for High-Assurance Autonomy	Rockwell Collins	PO-4506642848		$510,823
12.RD	Building machine common sense the human way	International Business Machines Corporation	CW3013548 / PO #4700221071		$263,746
12.RD	ComSenTer: A Center for Converged TeraHertz Communications and Sensing	University of California Santa Barbara	KK1842		$611,244
12.RD	Control of Disease Models over Realistic Contact Networks	MIT-Lincoln Laboratory (DOD)	7000490817		$2,940
12.RD	Deep Learning Probabilistic Regression for Onset Time Determination (PA-04) Task Order 01	Applied Research Associates, Inc.	S-D00243-12-TO-01-STANFORD		$23,542
12.RD	Design of HIgh CONfidence LEARNing-Enabled Systems (HICON-LEARN)	University of California, Berkeley	00010131 / PO BB01368465		$221,005
12.RD	Development of a Rapidly-acting Preventive Therapy for Influenza	DNARx, LLC	HR0011940279		-$841
12.RD	Earthquake Signal Characterization Using Deep-Residual Convolutional-Recurrent Networks				$150,579
12.RD	EMKAB: Establishment of Mutual Knowledge, Assumptions & Beliefs	Perceptronics Solutions, Inc.	240063		$46,885
12.RD	End-to-end Machinery for Proving Highly Sensitive Application-oriented Statements In ZEro-knowledge (EMPHASIZE)	SRI International	47137		$129,338
12.RD	Entangled short wave infrared (En-SWIR) photon source	Sivananthan Laboratories	0961-21-SSU-0001		$67,018
12.RD	Exploring new topological materials and interfaces for advanced SOT-MRAM	University of Notre Dame	203278SU-Wang		$380,639
12.RD	Galois Verified Application	Galois, Inc.	2017-010		$6,298
12.RD	High-Speed Aero-Propulsion Integration Technology Development	ARCTOS Technology Solutions, LLC	212014.03.00.2019.00.05-C1		$159,724
12.RD	Human Intent Aware Decision- Making Planning	MIT-Lincoln Laboratory (DOD)	7100441073/7000441073		$88,890
12.RD	Humanitarian Notification Systems for Deconfliction: Stanford subaward	MIT-Lincoln Laboratory (DOD)	PO 7000530428		$110,382
12.RD	Integrated and Rapid Bacterial	Johns Hopkins University	12503 (PO: 2004336856)		$55,778
12.RD	JUMP ASCENT: 3D Integration of Non-volatile Memory for Memory-Intensive Computing	University of Notre Dame	203278SU-Wong		$234,888
12.RD	Modular State-Adaptive Landmark Tracking (SALT)	Centauri, LLC	NTG0002850 / 10578-2850-0511		$89,449
12.RD	MP-Pro: Rapid Prototyping Platform for Specialized Multi-Physics Simulation Software	Palo Alto Research Center, Inc.	P315877		$4,117
12.RD	Multi-Component, Co-Deposition of Patterned Films and Nanoparticles	Surfx Technologies LLC	SFX-01-2021		$85,755
12.RD	Natural language Engagement of Malicious Entities through a Social Interaction Service (NEMESIS)	SRI International	PO41532		-$11,918
12.RD	Natural language Engagement of Malicious Entities through a Social Interaction Service (NEMESIS)	SRI International	PO41532	$8,559	$8,559
12.RD	Network on Chip (NoC) Design	Northrop Grumman Systems Corporation	5300027712		$249,780
12.RD	Optimizing hip, knee and ankle exoskeleton assistance during walking and running at various speeds, grades and loads				$22,004
12.RD	Phase Adaptation for Estimating Optical Nexs (PAEON)	Princeton University	SUB0000438		$81,076
12.RD	Preservation and Restoration of Vision In Optic Neuropathies: Porcine traumatic model for advancing neuroprotective and regenerative therapies towards human testing.	Medical Technology Enterprise Consortium	MTEC1802OpticNerve0005		-$181,146
12.RD	Preservation and Restoration of Vision In Optic Neuropathies: Porcine traumatic model for advancing neuroprotective and regenerative therapies towards human testing.	Medical Technology Enterprise Consortium	MTEC1802OpticNerve0005	$211,840	$211,840
12.RD	Prevention of Sediment Recontamination by Improved BMPs to Remove Organic and Metal Contaminants from Stormwater Runoff			$250,045	$285,660
12.RD	Reinforcement Learning for Temporal Graphs: Solving Combinatorial Optimization with Homomorphic MDP Networks	MIT-Lincoln Laboratory (DOD)	7000538803		$58,818
12.RD	Research Project in Applied Statistics				$258,359
12.RD	Seafloor Cable Disturbance Detection Spanning Ocean Basins	University Of Washington	UWSC11926 / BPO 48663		$59,080
12.RD	Securing our National Internet Infrastructure: Using measurement, control, and verification for closed-loop control networks			$6,395,319	$7,289,946
12.RD	SPO 134787 The Broad Band Receiver (BBR) Instrument on the Demonstrations and Science Experiments (DSX) Spacecraft				$180,446
12.RD	STR IARPA Subcontract	Systems & Technology Research, LLC	2020-0072 / 2021-2011000004		$265,701
12.RD	The Development of Best Practice Penetrating TBI Guidelines for Military and Civilian Patients	Henry M Jackson Foundation for the Advancement of Military Medicine	1039446		$132,233
12.RD	Tourniquet Master Training System for Junctional and Inguinal Hemorrhage Control Devices (TMT)	Charles River Analytics Inc.	SC1701903		$10

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
12.RD	Towards Effective Regional Arrival Time Measurement and Phase Association (PA-04) (Task Order 02)	Applied Research Associates, Inc.	S-D00243-12-TO-02-STANFORD		$25,799
12.RD	Unmanned Aircraft Collision Avoidance: Coordination Strategies and Policy Representation	MIT-Lincoln Laboratory (DOD)	7100335010		$39,323
12.RD	WMD ECHO Detector	Icahn School of Medicine at Mount Sinai	0258-A061-4609		$82,588
Department of Education					**$3,085,232**
84.022	Fulbright-Hays Doctoral Dissertation Research Grant Abroad Fellowship Title 'Black Youth Activism and Violence in Colombia's Paradise', Student Jameelah Morris				$24,332
84.022	Fullbright-Hays Doctoral Dissertation Research Abroad Fellowship Student: Angela Leocata - 'Navigating Aspirational Trajectories - Underemployment in Minas Gerais'				$20,860
84.022A	Fullbright-Hays Doctoral Dissertation Research Abroad Fellowship				$101,416
84.022A	When entrepreneurship becomes a national enterprise: the case of the Arab Gulf				$30,254
84.305	A behavioral intervention to increase degree attainment among near completers	University of Virginia	GM10155 PO #2108287		$21,167
84.305A	A Scalable Growth Mindset Intervention to Raise Achievement and Persistence in Community College				$97,846
84.305A	Evaluating the Efficacy of the CLAVES Intervention: An Intervention Focused on Comprehension, Academic Language, and Vocabulary for English Learner Students			$100,591	$728,426
84.305A	Linking Inequities in Educational Opportunities to Inequality in Educational Outcomes: An Exploratory Analysis in New York State				$5,275
84.305A	Peer-assisted writing strategies: Efficacy (PAWS: Efficacy).	Georgia State University	SP00013807-01		$246,735
84.305A	Uprooting children: The risks and rewards of mobility for vulnerable students in California's public schools	University of California, Riverside	S-001183		$12,267
84.324A	An Efficacy Trial to Evaluate Supporting Paraprofessionals by Advancing Reading Intervention Knowledge and Skill (SPARK)			$555,910	$654,834
84.325D	Leadership in Research and Teacher Preparation for System-wide Inclusive Education			$112,582	$311,105
84.326M	A Design Thinking Approach_173161_DBI			$410,444	$743,374
84.367A	Stanford World Language Project ESSA 2020-2021	University of California Office of the President	ESSA21-CWLP-STANFORD		$87,341
Department of Energy					**$33,295,664**
81.019	Superconducting Quantum Materials and Systems				$436,794
81.036	Energy Modeling Forum				$91,423
81.049	152053 Merced DOE Applying Deep Learning Methods to Develop New Models of Charge Transfer, Nonadiabatic Dynamics, and Nonlinear Spectroscopy in the Condensed Phase	University of California, Merced	UCMP00023644		$296,761
81.049	A Complete Machine-Learning-Based Workflow to Illuminate Earthquake Processes				$162,487
81.049	A Multi-Model, Multi-Scale Research Program in Stressors, Responses, and Coupled Systems Dynamics at the Energy-Water-Land Nexus			$1,801,081	$2,147,122
81.049	AARDVARC- Advanced ASoC Rapid Digitizer, Variable Adaptive Readout Chip	Nalu Scientific, LLC	RA-180435		$82,269
81.049	Anomalous Retrograde Drifts in Obstructed Magnetron Microdischarges: a Consequence of a Field Reversal in the Anode Sheath?				$33,862
81.049	Atom-defect Hybrid Quantum Systems_SPO226435	University of California, Santa Barbara	KK2229		$21,654
81.049	Carbonate Management to Enable Energy- and Carbon-Efficient CO_2 Electrolysis				$678,507
81.049	Carbonate-Catalyzed CO_2 Insertion Into Hydrocarbon C-H Bonds				-$32,766
81.049	Center for Mechanistic Control of Water-Hydrocarbon-Rock Interactions in Unconventional and Tight Oil Formations			$972,915	$2,245,710
81.049	Characterizing the limits of nonequilibrium control for dissipative self-assembly				$14,953
81.049	Collaborative Research: Unraveling the Physics Associated with the Production of Extremely Dense Plasma States of Microscale Nanosecond-pulsed Discharges				$100,069
81.049	Complex quantum systems and the quantum universe	University Of Pennsylvania	578218 / PO 4746738		$35,026
81.049	Conformational and Chemical Dynamics of Single Proteins in Solution by Suppression of Brownian Motion				$248,983
81.049	Controlled synthesis of solid-state quantum emitter arrays for quantum computing and simulation			$795,024	$1,320,248
81.049	Deciphering controls on metal migration within floodplains: The critical role of redox environments on metal-organic complexes			$118,529	$147,881
81.049	Defining the Minimal Set of Microbial Genes Required for Valorization of Lignin Biomass				-$503
81.049	Deformation of Nano-Metallic Glasses Made using Colloidal Synthesis				$138,114
81.049	Design of Multifunctional Composites for Electrical Automobile Applications	Acellent Technologies Inc.	DE-SC0020714, 2021		$9,762
81.049	Development of a molecularly informed biogeochemical framework for reactive transport modeling of subsurface carbon inventories, transformations and fluxes				$96,394
81.049	Development of high-throughput light-sheet fluorescence lifetime microscopy for 3D functional imaging of metabolic pathways in plants and microorganisms				$260,051
81.049	Discovering innovations in stress tolerance through comparative gene regulatory network analysis and cell-type specific expression maps			$455,309	$810,676
81.049	Distributed and Heterogeneous Tensor Algebra COmpiler (TACO)	Extreme Scale Solutions, LLC	208591		$48,894
81.049	DOE Phase II SBIR Topic 22(d) - Numerical Model Development for Supercritical CO_2 Oxy- Combustion	Combustion Science & Engineering Inc	173197		$87,528
81.049	Duality and quantum information theory as a window into strongly interacting systems	University of California, Riverside	S-001217		$43,263
81.049	Early Career DOE: Quantum Black Holes and Wormholes				$114,968
81.049	Experiment Study of Neutrino Properties				$478,246
81.049	Frontiers in Quantum Metrology and Transduction				$786,560
81.049	Fundamental aspects of Spacetime and Quantum Fields				$135,827
81.049	HEP Consortium for Advanced Training	University of California, Davis	A22-1532-S002		$24,018
81.049	HEP IC Design Apprenticeship Program				$89,892
81.049	High-Pressure Shock Tube Ignition Delay Time Experiments	Combustion Science & Engineering Inc	139501		$2
81.049	Integrated Data-driven Methods for Scientific Discovery of Non-equilibrium Thermochemical Processes in Complex Environments from Ultrafast X-ray Measurements at LCLS				$288,217
81.049	Kinetic effects on self-organization in low-temperature magnetized plasmas				$242,376
81.049	Metal Encapsulation Strategies to Optimize and Minimize PGE Use in Heterogeneous Catalysts				$286,525
81.049	Moire excitons for quantum information science			$78,837	$344,468
81.049	Multiscale dynamics of reactive fronts in the subsurface				$200,818
81.049	Nanophotonics-Enhanced Solar Cells				$177,427
81.049	Non-destructive, three-dimensional imaging of processes in the rhizosphere utilizing high energy photons	University of California, Santa Cruz	A22-0274-S001		$360,897
81.049	PhILMs: Collaboratory on Mathematics and Physics-Informed Learning Machines for Multiscale and Multiphysics Problems				$353,216
81.049	Photoinduced Electron Transfer and Electronic Exci				$225,189
81.049	Photonics at Thermodynamic Limits			$1,471,203	$2,690,853
81.049	Probing Strong-field Effects in QED on FACET-II				$141,239
81.049	Probing Supercritical Phase Transition using Ultrafast X-ray Diagnostics				$181,344
81.049	Response of subsurface nitrogen-cycling microbial communities to environmental fluctuations				$121,014
81.049	Searching for Strongly Interacting Dark Sectors with Electron Beams				$110,367
81.049	Selective Catalytic Oxidations: Opportunities and Challenges for Selective Conversion of Renewable Resources				-$42
81.049	Simulations of Hypervelocity Impact Plasmas				$122,779
81.049	Spin Functionality Through Complex Oxide Heteroepitaxy				$201,588
81.049	Studies of High Energy Density Discharge and Laser-Driven Deflagrating Plasma Stagnations				$75,594

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
81.049	Studies of surface reaction mechanisms in atomic layer deposition				$405,069
81.049	Task I: DARK MATTER SEARCH EXPERIMENTS: SuperCDMS Soudan and SuperCDMS SNOLAB Task II: EXPERIMENTAL STUDY OF NEUTRINO PROPERTIES: EXO-200 and nEXO				$66,532
81.049	The Center for Enhanced Nanofluidic Transport (CENT)	Massachusetts Institute of Technology	S4687 - PO 242245		$133,109
81.049	The Geometry and Flow of Quantum Information: From Quantum Gravity to Quantum Technology	University of California, Berkeley	00010057; DE-SC0019380		$107,945
81.049	The Non-Equilibrium Quantum Frontier.				$149,447
81.049	Thermal Activation in Dislocation Dynamics of Face-Centered Cubic Metals				$160,996
81.049	Tough Errors Are no Match (TEAM): Optimizing the quantum compiler for noise resilience				$141,462
81.049	Tuning Organic Semiconductor Packing and Morphology through Non-equilibrium Solution Processing				$136,038
81.049	Ultra Materials for a Resilient, Smart Electricity Grid	Arizona State University	ASUB00000682		$419,194
81.049	Understanding Multi-Stressor and Multi-Scale Drivers of Feedbacks, Cascading Failures, and Risk Management Pathways within Complex MSD Systems	Pennsylvania State University	S002350-USDOE		$110,092
81.049	Unraveling the links between molecular structure, microstructure, delocalization and charge transport in new high-performance semiconducting polymers	University Of Washington	UWSC11264 / BPO #41613		$79,676
81.049	Using Systems Approaches to Improve Photosynthesis and Water Use Efficiency in Sorghum	Donald Danforth Plant Science Center	23207-S		$485,672
81.057	Trace Element Sampling and Partitioning Modeling to Estimate Wastewater Composition and Treatment Performance at Coal Generators				$48,098
81.086	Development of High-Fidelity and Efficient Modeling Capabilities for Enabling Co-Optimization of Fuels and Multi-Mode Engines			$16,946	$230,894
81.086	Energy Services through INtegrated FLexible Operation of Wastewater System (ENERGY-INFLOWS)				$131,668
81.086	Toward Drilling a Perfect Geothermal Well	Oregon State University	G0182A-D		$13,792
81.087	Accelerated Scaling to Rapid Open-Air Fabrication of Durable Perovskite Solar Modules				$84,947
81.087	Low Cost Desalination Using Nanophotonics Enhanced Direct Solar Membrane Distillation	Rice University	R1A124		$159,925
81.087	Machine Learning Accelerates Innovation in Perovskite Manufacturing Scale-up	Massachusetts Institute of Technology	s5419, PO #631651		$135,305
81.087	Machine-Learning-Based Mapping and Modeling of Solar Energy with Ultra-High Spatiotemporal Granularity				$290,657
81.087	Novel chalcopyrites for advanced photoelectrochemical water-splitting	University of Nevada, Las Vegas	GR06925/DE-EE0008085		$7,058
81.087	Open-Air Manufacturing of Efficient Large-Area Perovskite Solar Cells to Meet Stability and Cost Targets				$346,540
81.087	Protective catalyst systems on III-V and Si-based Semiconductors for Efficient, Durable Photoelectrochemical Water Splitting Devices				$28,839
81.087	UC/CHINA Clean Energy Research Center for Water-Energy Solutions and Technologies (CERC WET)	University of California, Irvine	2019-1245		$2,054
81.087	Wellbore Fracture Imaging Using Inflow Detection Measurements	University of Utah	10039612-Stanford-3-2418-AF1	$459,751	$681,328
81.089	A Field Study of the Stimulated Reservoir Volume, Detailed Fracture Characteristics, and EOR Potential in the Eagle Ford Shale Formation.	Texas A&M University	M1802544		$58,895
81.089	AOI-2a: A Modular System for Direct Conversion of Methane into Methanol via Photocatalysis			$135,583	$340,178
81.089	CarbonSAFE Illinois Corridor Phase III	University of Illinois at Urbana Champaign	101914-18189		$120,374
81.089	Western States Regional CCUS Deployment	New Mexico Institute of Mining and Technology	P0019857- 01		$154,848
81.122	TrustDER: Trusted, Private and Scalable Coordination of Distributed Energy Resources				$671,762
81.124	Center for micromorphic multiphysics porous and particulate materials simulations within exascale computing workflows	University of Colorado, Boulder	1559907/PO1001466527		$110,617
81.124	INSIEME: INtegrated Simulations using Exascale Multiphysics Ensembles			$410,379	$2,753,331
81.135	20 KV Gallium Nitride PN Diode Electro-Magnetic Pulse Arrestor for Grid Reliability				$541,251
81.135	236993_ARPAe_W.Gu - Additive Manufacturing of Amorphous Metal Soft Magnetic Composites				$96,174
81.135	CARBONHOUSE: A scalable all-carbon building logic derived from hydrocarbon resources	Massachusetts Institute of Technology	S5082 - PO486618		$3,295
81.135	Context-Aware Learning for Inverse Design in Photovoltaics	Iowa State University	022218B		$63,012
81.135	Co-synthesis of Hydrogen and High-value Carbon Products from Methane Pyrolysis				$566,362
81.135	Disruptive Technology for Carbon Negative Commodity Biochemicals			$293,322	$831,381
81.135	Energy efficient integrated photonic systems based on inverse design				$472,691
81.135	Exploring the Limits of Cooling for Extreme Heat Flux Applications:Data Centers and Power Electronics			$92,190	$312,942
81.135	Machine learning based well design to enhance unconventional energy production (2107-1504)	Julia Computing, Inc.	DE-AR0001202-003		$28,000
81.135	Open and Scalable Distributed Energy Resource Networks				-$8,218
81.135	Performance enhancement of hydrokinetic arrays using reliable, low-cost dynamic components	Emrgy Inc.	SPO 201927		$7,545
81.135	Robust Multifunctional Battery Chassis System				$646,001
81.135	Thermoacoustic Root Imaging, Biomass Analysis, and Characterization				$136,947
81.RD	228729_LLNL_Okamura Multi-sensor Fusion for Nuclear	Lawrence Berkeley National Laboratory	7588724		$334,608
81.RD	Advanced deep neural network architectures for high-dimensional data sets with applications to turbulence modeling.	Sandia National Laboratories	PO 2317633 // Master 1918121,		$58,243
81.RD	BP1-2: CFD modeling and operando measurements of multiscale heat and mass transfer for membrane module customization	Lawrence Berkeley National Laboratory	Subcontract No.7610479		$57,430
81.RD	Causal machine learning for drug repurposing to impact ALS treatment	Lawrence Livermore National Security, LLC	B647765		$16,366
81.RD	Center for Computational Study of Excited-State Phenomena in Energy Materials (C2SEPEM)	Lawrence Berkeley National Laboratory	7581670		$223,260
81.RD	Characterization of turbulence in the ocean atmospheric boundary layer for offshore wind energy production	Lawrence Livermore National Security, LLC	B643364		$98,877
81.RD	Climate Specific EVA Adhesion Degradation Model	National Renewable Energy Laboratory	XDC-9-92244-01		$129,637
81.RD	Combining Domain Expertise and Machine Learning to Enable Practical, Low-Cost Infrared Imaging with Compressive Sensing				-$15,941
81.RD	Continuation of nEXO R&D by the Stanford Physics Dept. Group	Lawrence Livermore National Security, LLC	B647311		$111,830
81.RD	Demand response potential from the agricultural sector in India	Lawrence Berkeley National Laboratory	7571271		$12,956
81.RD	Determining Exact RANS Operators with the Macroscopic Forcing Method	Lawrence Livermore National Security, LLC	B645258		$120,006
81.RD	Developing Structure-Property Relationships in Sterically Controlled Polypyrroles for Tunable and Colorless Electrochromic Devices				$6,341
81.RD	Developing Surrogate Models for Reactive Transport Models	Lawrence Berkeley National Laboratory	7556178		$70,798
81.RD	Development and Implementation of Eulerian Strength Model for Multi-Material Elastic-Plastic Flow	Lawrence Livermore National Security, LLC	B625957		$156,578
81.RD	DOE's Exascale Computing Project (ECP)	Triad National Security, LLC	626908		$157,400
81.RD	DOE-LBNL Support for Kitware SBIR Phase I OASIS	Lawrence Berkeley National Laboratory	7614896		$32,846
81.RD	Electro-thermal properties of transition metal dichalcogenides	Sandia National Laboratories	PO# 2358425		$97,832
81.RD	Exascale Computing Project (ECP) ExaSGD: Optimizing Stochastic Grid Dynamics at Exascale.	Pacific Northwest National Laboratory	500958		$95,574
81.RD	Fundamental physics of hypersonic laminar-turbulent transition	Sandia National Laboratories	PO 1987733 // Master 1918121		$38,148

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
81.RD	Large Scale Two-Photon 3D Printing Enabled by Metaoptics	Lawrence Livermore National Security, LLC	B649819		$83,494
81.RD	Legion Applications	Triad National Security, LLC	502266		$24,170
81.RD	Low-Cost High-Reliability Thermoelectrics for Waste Heat Conversion	Lawrence Berkeley National Laboratory	7466483		$431,880
81.RD	Measuring Toxin Activity and Pathogens in Unknown Samples	Pacific Northwest National Laboratory	543042		$167,244
81.RD	Modular Microbial Electromethanogenesis Flow Reactor for Biogas Upgrading eXCHANGE Control Number: L045-1517	Lawrence Livermore National Security, LLC	B631127		$30,381
81.RD	NAWI - Energy Innovation Hub	Lawrence Berkeley National Laboratory	7539834		$105,084
81.RD	NAWI Task 6.8 techno-economic modeling of electrochemical oxyanion treatment	Lawrence Berkeley National Laboratory	7631032		$13,557
81.RD	Potential Plasma Diagnostics for Dense Plasmas: Optical Spectroscopy and X-ray Imaging	Lawrence Livermore National Security, LLC	B644426		$91,598
81.RD	Scalable Integrated Infrastructure Planning APUP	National Renewable Energy Laboratory	UGA-0-41028-09		$15,297
81.RD	Super Emitters of Methane detection using Aircraft, Towers, and In situ Observational Network (SUMMATION)	Lawrence Berkeley National Laboratory	7532774		$320,904
81.RD	Thermal flow testing for SIGMA-V	Lawrence Berkeley National Laboratory	7348695		-$2,944
81.RD	Uncertainty estimation for BHR predictions of variable density flows	Triad National Security, LLC	536415		$140,577
81.RD	Uncommon Dialogue Phase II-US Hydropower: Climate Solution and Conservation Challenge	Battelle Memorial Institute	574972		$204,899
81.RD	Variable Property Mixing in Transitional and Turbulent Regimes	Los Alamos National Laboratories, University of California	518570		$73,830
81.RD	Wet Cooling Tower Water Consumption During Off-Design Operation -	KeyLogic Systems, Inc.	5000-410-001		$50,635
Department of Health & Human Services					**$644,845,573**
93.073	California center of BD-STEPS II - finding causes and preventives of birth defects				$1,040,442
93.077	Countering E-cigarette Marketing in the Retail Environment among Adolescents and Young Adults				$168,765
93.077	Integrated Health, Behavioral and Economic Research on Current and Emerging Tobacc	University of California, San Francisco	10984sc / U54 HL147127		$248,748
93.080	CDC Community Counts Bleeding Disorders Surveillance Project	Center for Inherited Blood Disorders (CIBD)	CIBDIX2020CDC-STAN-02		$25,037
93.084	Investigating climate adaptation for improved Aedes sierrensis control	University of California, Riverside	S-001455		$24,987
93.103	Assessment of Patient Tolerance for Risk Associated with High Intensity Focused Ultrasound (HIFU) for the Ablation of Prostate Tissue (PI: Geoffrey Sonn)	University of California, San Francisco	TO 12154sc // Master 9803sc		$711
93.103	Characterizing Risk-Benefit Tradeoff in Opioid-based Chronic Pain Treatment	University of California, San Francisco	TO 11676sc // Master 9803sc		$5,789
93.103	Creating a Framework for a National Adaptive Platform Trial to Evaluate Pediatric Medical Devices (PI: Christopher Almond)	University of California, San Francisco	12292sc // Master 9803sc		$4,573
93.103	Enhancing FDA's opioids systems modeling efforts to more comprehensively address fentanyl, stimulants, polysubstance use, and associated outcomes	Massachusetts General Hospital	Subaward 239789		$9,793
93.103	Phase 2 Study of Siidenafil for the Treatment of Lymphatic Malformations				-$1,201
93.103	Phase 3 Trial of DCA in PDC Deficiency IND 028,625 (02/04/2015)	University of Florida	SUB00002747		$23,214
93.103	Project #33 - Isolating Exosomes using a novel ExoTIC device from HIV-infected patient	University of California, San Francisco	Master 9803SC // TO 11292sc		$45,549
93.103	Project #38 - Development of New and Innovative Methods for Automated Reporting for CBER-Regulated Biological Products (PI: Tina Hernandez-Boussard)	University of California, San Francisco	11672sc		$15,651
93.103	Renal Impairment in New Drug Development (PI Timothy Meyer)	University of California, San Francisco	TO 12385sc // master 9803sc	$10,904	$10,904
93.103	Transcriptomic Atlas of Endothelial Injuries Induced by Cardiotoxic Drugs	Health and Environmental Sciences Institute	HESI-STANFORD-20201209		$25,373
93.103	UCSF-Stanford Center of Excellence in Regulatory Science	University of California, San Francisco	Master 9803sc // TO 9857sc		$28,194
93.103	UCSF-Stanford Center of Excellence in Regulatory Science and Innovation	University of California, San Francisco	13068sc		$1,176,025
93.103	UCSF-Stanford Pediatric Device Consortium	University of California, San Francisco	11168sc / P50 FD006424		$259,721
93.107	California Area Health Eduction Center (Federal AHEC)	University of California, San Francisco	10384sc		$35,988
93.110	Alliance for Innovation ion Maternal Health (AIM) ACOG	American College of Obstetricians and Gynecologists	140935/UC4MC28042		$8,716
93.110	Cooperative Agreements to Support Comprehensive Medical Care for Thalassemia	UCSF Benioff Children's Hospital Oakland	807958.Stanford.18.1		$2,543
93.110	Developmental-Behavioral Pediatrics Training Program				$186,310
93.110	Regional Pediatric Pandemic Network	University of California, San Francisco	13309sc		$42,282
93.110	Western States Regional Hemophilia Network	Center for Inherited Blood Disorders (CIBD)	CIBDIXHRSA2012 - STAN - 10		$42,348
93.113	COVID-19 Interaction between genetic, lifestyle and environmental factors determining circulating angiotensin converting enzyme 2 protein expression: implications for the severity of COVID-19infection			$41,614	$258,458
93.113	Data science tools to identify robust environmental exposure-phenotype associations for precision medicine	Harvard University	150620.5116041.0003		$87,395
93.113	Direct measurement of gene-environment interactions by high-throughput precision genome editing				$25,808
93.113	DNA Repair Phenotype the Missing Link in Breast Cancer Risk Assessment	Columbia University	2(GG014248-09)		$18,700
93.113	Early life exposure to agricultural pesticides and functional brain imaging in young adults	University of California, Berkeley	00010760/R21ES032592		$73,468
93.113	Immune Tolerance Dysfunction in Pregnancy due to Ambient Air Pollution Exposure			$98,710	$508,494
93.113	Integrating the Exposome into Longitudinal Multiomics Profiling				$230,219
93.113	Regulation of the DNA damage Response				$334,718
93.113	The Impact of Drought on Arsenic Exposure and Cardiometabolic Outcomes in a Rural Aging Population	University of Colorado Denver	FY22.659.005		$50,370
93.113	Wildfires and intentional biomass burning in California and Preterm Birth	University of California, San Francisco	13010sc		$11,602
93.121	Candida Genome Database				$444,884
93.121	Cellular and Mechanical Mechanisms Regulating Mandibular Distraction Osteogenesis				$241,825
93.121	Center for Dental, Oral, and Craniofacial Tissue and Organ Regeneration (C-DOCTOR)	University of Southern California	SCON-00002251 / U24 DE029463		$354,909
93.121	Characterizing head and neck tumor neoantigens and T cells: looking beyond the usual suspects				$266,598
93.121	Dissecting motor cortex circuits underyling chronic pain relief				$55,906
93.121	Emotion Dysregulation and Sleep-Time Masticatory Muscle Activity in Sleep Bruxism				$550,457
93.121	Genetic Predictors of Ameloblastoma Behavior			$28,534	$518,710
93.121	HB-EGF regeneration to treat oral aphthous ulcers	Auration Biotech, Inc.	SPO 174822		$112,749
93.121	Identifying the human skeletal stem cell				$389,931
93.121	Irradiated head and neck cancer soft tissue reconstruction by fat transfer				$375,631
93.121	Mechanisms of Regeneration: Facial Nerve Injury and Repair				$150,060
93.121	Microribbon scaffold-mediated Immunomodulation for Cranial Bone Repair				$507,374
93.121	NEXT-GEN Oral Test for Monitoring HIV/AIDS in Point-of-Care	Gaia Medical Institute	GAIA		-$2,013
93.121	Precision imaging for risk stratification and personalized therapy of oropharyngeal cancer				$36,346

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.121	Prevention of Scar Formation in the Skin using a Topical Focal Adhesion Kinase Inhibitor	University of Southern California	SCON-00002250 / U24 DE029463		$673,907
93.121	Reprogramming the Tumor-Immune Interface in Oral Cancer				$1,284,131
93.121	Salivary gland response to Desert hedgehog signaling as an antidote to damage from therapeutic radiation				$96,770
93.121	The Genetic Architecture of Human Facial Morphology	University of Pittsburgh	CNVA00055576 (134310-4)		$179,798
93.121	The role of Galectin-1 in shaping the immune suppressive landscape in head and neck cancer				$823,151
93.121	Transdermal deferoxamine to enhance fat graft retention for reconstruction of irradiated soft tissue defects	University of Southern California	SCON-00002249 / U24 DE029463		$395,544
93.143	UNM Metal Exposure Toxicity Assessment on Tribal Lands in the Southwest (METALS) Superfund Research Program (SRP)	University of New Mexico	3RDD9- 6		$23,328
93.157	Centers of Excellence				$548,378
93.172	169123 (Ji) Single Cell Transcriptomic and Genetic Diversity by Single Molecule Long Read Sequencing	University Of Pennsylvania	580616 PO 4830454		$177,985
93.172	A Comprehensive Genomic Community Resource of Transcriptional Regulation	University of Massachusetts Worcester	PO #WA01279714,SUB00000155		$42,291
93.172	A Data and Administrative Coordinating Center for the Impact of Genomic Variation on Function Consortium			$114,110	$2,514,590
93.172	A Data Coordinating Center for ENCODE				$2,370,547
93.172	A Pharmacogenomics Annotation Toolkit: PharmCAT	University Of Pennsylvania	PO: 4703474		$277,640
93.172	Actionable Genetic Risk through Genotype-to-Phenotype Prediction	Scripps Research Institute	5-54344 / R01 HG010881		$20,348
93.172	Alliance Central: A Platform for Sustainable development of next generation genome knowledgebases	California Institute of Technology	S454390		$733,822
93.172	Atlas of Regulatory Variants in Diseases (ARVID)				$733,533
93.172	Center for Personal Dynamic Regulomes				$2,704,682
93.172	Center for Sub-Cellular Genomics	University Of Pennsylvania	577453 / Prime #RM1 HG010023		$59,800
93.172	Clinical Genome ResourceCurrent Grant SPO#126378	Baylor College of Medicine	PO 7000001534 / U24 HG009649		$2,187,502
93.172	Clinical Pharmacogenetics Implementation Consortium (CPIC)	St. Jude Children's Research Hospital	112350040-8039807/U24 HG010135		$390,147
93.172	Comparative Functional Genomics of Yeast			$180,198	$560,510
93.172	Coordinating Center for the Undiagnosed Disease Network Phase II	Harvard University	153056.5112937.0706		$37,020
93.172	Decoding the regulatory architecture of the human genome across cell types, individuals and disease				$133,912
93.172	Deep tensor genomic imputation	University Of Washington	UWSC12630 BPO55233		$240,687
93.172	Development and application of new tools to identify repeat expansions in human diseases				$92,303
93.172	Developmental GTEx Laboratory, Data Analysis and Coordination Center	Broad Institute, Inc.	5001258-5500001635		$16,426
93.172	EDAC: ENCODE Data Analysis Center	University of Massachusetts	OSP2017188 / WA01069405		-$15,532
93.172	EDGE CMT: Dissecting complex traits in wild isolates of yeast by high-throughput genome editing				$176,179
93.172	ELSI Conference Grant (working title)	Columbia University	1(GG009216-03) SAPO G15909		$2,590
93.172	ELSI.hub: National Center for ELSI Resources and Analysis			$738,983	$1,380,833
93.172	Enhancing open data sharing for functional genomics experiments: Measures to quantify genomic information leakage & file formats for privacy preservation	Yale University	GR111094 (CON-80002636)		$103,300
93.172	GENCODE: comprehensive reference genome annotation for human and mouse	European Molecular Biology Lab	Stanford-4559-06		$229,200
93.172	Gene Ontology Consortium	University of Southern California	86275389; SCON-00002313		$185,341
93.172	Genome wide identification and functional analysis of chromatin regulatory RNAs				$250,765
93.172	Genomic Resource for the Yeast Saccharomyces				$1,981,997
93.172	Genomics Diversity Summer Program (GDSP) at Stanford				$117,640
93.172	High-throughput development and characterization of compact tools for transcriptional and chromatin perturbations				$965,616
93.172	High-throughput systematic characterization of regulatory element function				$161,677
93.172	Institutional Training Grant in Genome Science				$1,087,080
93.172	Integrated Clinical and Transcriptomic Profiling to Characterize Disease Phenotype				$203,615
93.172	Integrating Ethics into Machine Learning for Precision Medicine			$85,838	$430,199
93.172	Integration of functional data and GWAS to elucidate genetic basis of diseases			$534,687	$1,039,391
93.172	Investigating human cis-regulatory evolution with hybrid iPS cells				$122,412
93.172	K-mer indexing for pan genome reference annotation				$270,932
93.172	Mapping enhancer-gene regulation in single cells to connect genetic variants to target genes and cell types				$322,228
93.172	Multiplexed In Vivo DNA Assembly				$175,544
93.172	New methods for constructing and evaluating polygenic scores			$161,541	$702,167
93.172	New PharmGKB				$1,738,557
93.172	Omics information maximization in single-cell sequencing with hybrid molecular and computational approaches				$504,714
93.172	Orthocoding for Spatial Sequencing				$159,465
93.172	Population genetics for large-scale sequencing studies of diverse populations			$93,477	$93,689
93.172	Predicting context-specific molecular and phenotypic effects of genetic variation through the lens of the cis-regulatory code			$35,752	$553,334
93.172	Production Center for Mapping Regulatory Regions of the Human Genome			$247,761	$1,056,241
93.172	Quantitative and functional analysis platform for repetitive genes and gene isoforms in pluripotency regulation	Ohio State University	SPC # 1000006103 / GR #124697		$56,178
93.172	RegulomeDB: A Resource for the Human Regulome			$343,333	$699,381
93.172	Single-cell Mapping Center for Human Regulatory Elements and Gene Activity			$289,741	$1,022,961
93.172	Software for large-scale inference of the genetics of lifestyle measures, biomarkers, and common and rare diseases				$286,557
93.172	Stanford Center for Connecting DNA Variants to Function and Phenotype				$1,474,547
93.172	Stanford Mendelian Genomics Research Center/197973				$1,511,786
93.172	Stanford/Baylor Clinic Genome Resource			$236,764	$249,849
93.172	Statistical methods for gene regulatory analysis and single cell genomics				$396,144
93.172	Surfacing values in the economic evaluation of genomic sequencing for diagnosis of children with rare diseases				$201,271
93.172	Systematic identification of RNA sequences and protein components regulating circular RNA translation				$121,168
93.172	Systematic mapping and prediction of gene-enhancer connections				$415,242
93.172	The development and application of tools to characterize the level and function of RNA polymerase III transcription dynamics during cellular differentiation.				$13,093
93.172	The Ethics of Inclusion: Diversity in Precision Medicine Research	Columbia University	3(GG014890-01) / SAPO# G13771		$12,215
93.172	The pursuit of genetic causal mechanisms			$74,247	$366,169
93.172	The Stanford Training Program in ELSI Research				$309,306
93.172	Towards Robust Multiplex Genome Engineering Beyond CRISPR-Cas9				$842,520
93.172	Understanding the "flattening" of gene contributions to human complex trait habitability				$74,435
93.173	Assembly of the Central Olfactory Networks in Drosophila				$338,550
93.173	Clinician-scientist training program in otolaryngology				$56,595
93.173	CRCNS: US-Israeli Research Proposal: Deciphering reorganization of multi-regional activity following category learning				$6,236

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.173	Designing new aminoglycosides to alleviate inner ear toxicity				$172,415
93.173	Engaging new cognitive and motor signals to improve communication prostheses			$285,156	$809,073
93.173	Evaluating the role of epithelial basal cells in laryngeal homeostasis and disease				$35,080
93.173	Function of LOXHD1 in mechanosensory hair cells				$490,655
93.173	Genetic Regulation of Cochlear Development	Baylor College of Medicine	7000000816		$67,357
93.173	Hedgehog signaling in taste cell maintenance and regeneration				$433,217
93.173	High efficient AAV-transducible transgenic quails				$181,957
93.173	High-resolution localization of the hair cell mechanotransduction channel components by immunogold-scanning electronic microscopy				$288,164
93.173	Identifying new sensors for in vivo cochlear imaging				$22,565
93.173	Intuitive, complete neural control of tablet computers for communication	Brown University	00001517		$19,548
93.173	Live imaging of neuron circuit assembly in Drosophila olfactory system				$140,555
93.173	Mechanisms of sensorineural hearing loss: secreted factors				$201,494
93.173	Molecular analysis of Tmie in sensory hair cells				$64,835
93.173	Molecules and Mechanisms of Mammalian Hair Cell Mechanotransduction				$677,169
93.173	Mouse vestibular regeneration and function				$572,027
93.173	Neural defects in zebrafish auditory/vestibular mutants				$471,440
93.173	Neuroimaging Predictors of Pivotal Response Treatment in Young Children with Autism				$35,834
93.173	Otic Guidance				$153,777
93.173	Regenerative pathways in the avian cochlea				$202,472
93.173	Response of cochlear hair cells to pathological changes in the auditory system				$46,137
93.173	Signal transformations in the vestibulo-ocular circuit				$74,877
93.173	Single-neuron population dynamics in human speech motor cortex for a speech prosthesis				$76,387
93.173	Speaker-listener coupling and brain dynamics during naturalistic verbal communication in children with autism				$184,935
93.173	Stanford Clinician Scientist Training Program				$27,908
93.173	The role of macrophages in chronic suppurative otitis media associated sensory hearing loss				$560,890
93.173	Vestibular and Visual Control of Eye Movement			$87,824	$674,244
93.213	A Clinical Study of Latiglutenase as a Treatment for Symptom Reduction for Celiac Disease	ImmunogenX	SPO 242695		$20,019
93.213	A Feasibility Trial of a Group-Based Yoga Intervention for Chronic Pelvic Pain in Women	University of California, San Francisco	12407sc		$89,571
93.213	Defining and Reconstructing the Human Ancestral Microbiome				$974,198
93.213	Engineering Yeast for High Titer Production of Monoterpene Indole Alkaloid Natural Products	University of California, Los Angeles	0130 G WA210		$168,188
93.213	Feasibility of At Home Telehealth Yoga for Treating Chronic Pain	Palo Alto Veterans Institute for Research	BAY0006-01/PO# 082917		$40,011
93.213	HEAL Collaboratory Resource Coordinating Center: PRISM (U24)	Duke University	A03-2243		$10,195
93.213	Innate Immune Mechanisms Contributing to Cancer Growth in Obesity				$492,097
93.213	Microbiota-based probiotics to treat inborn errors in metabolism				$73,616
93.213	Multiomic Signatures of Microbial Metabolites Following Prebiotic Fiber Supplementation				$429,396
93.213	Ovarian Cancer Survival in African-American Women	Emory University	A359283 / R01 CA237318		$33,887
93.213	Single Session Pain Catastrophizing Treatment: Comparative Efficacy & Mechanisms				$82,809
93.213	Synthetic biology tools for scalable production of medicinal plant terpenes			$537,264	$704,329
93.225	Reducing Racial Disparities in Advance Care Planning within Neuro-Oncology				$46,743
93.225	Stanford Health Services Research				$514,809
93.226	Adaptation and pilot implementation of a validated, electronic real	Intermountain Healthcare	2020361 / R18 HS026886		$92,984
93.226	COVID-19 194943 AHRQ A Multi-Site Evaluation of Primary Care Accessibility and Utilization during COVID-19	MedStar Health Research Institute, Inc.	5002254336		$135,275
93.226	COVID-19 Developing an Evidence Base for Emergency Management in U.S. Hospitals	Harvard School of Public Health	115424-5119153		$13,456
93.226	Development and validation of a prediction model to address physician burnout				$137,340
93.226	Drug interactions and opioid-related emergency room visits and hospitalizations among older adults	Brigham and Women's Hospital	124148		$7,132
93.226	Effect of Regional Bypass Policies on Stroke Treatment in a National Sample of Medicare Beneficiaries.			$9,500	$395,849
93.226	Identifying Optimal Pain Management for Elders				$275,974
93.226	Impact of standardized communication on human performance during resuscitation				$78,078
93.226	Implementation and Evaluation of a Video-based Prospective Feedback Intervention to Improve Antimicrobial Stewardship in Neonatal Intensive Care Units	Rand Corporation	SCON-00000225		$57,817
93.226	Improving Opioid Use Disorder Treatment within the Veterans Health Administration				$171
93.226	Prescribing of opioids at hospital discharge and associated adverse patient outcomes	Harvard University	153487.5122957.0006		$17,943
93.226	Quantification of neonatal transport networks through network analysis: a new approach to studying neonatal regionalization	Beth Israel Deaconess Medical Center	01060852		$6,308
93.226	The Effects of Physician Organization on the Cost, Use and Outcomes of Health Care			$13,241	$25,666
93.233	Arousal circuitry and opiate-associated memories				$628,605
93.233	Fluorescent polysomnography and MCH neurogenetics				$731,009
93.233	Multi-Institutional Training in Genetic/Genomic Approaches to Sleep Disorders	University Of Pennsylvania	582550/580871/ 59383- 2022		$169,634
93.233	Neuropeptide Cortistatin: A potential neocortical regulator of sleep homeostasis				-$297
93.233	Stepped--caremanagement of insomnia co-occurring with sleep apnea	National Jewish Health	20107405_Stanford Sub		$219,393
93.2379	The Emergency Department Longitudinal Integrated Care (ED-LINC)Effectiveness Randomized Trial Targeting Opioid Use and Related Comorbidity from the ED	University Of Washington	UWSC13413/BPO 62461		$17,030
93.242	(FH) Functional Heterogeneity of Hypocretin neurons			$77,816	$478,740
93.242	1/2 Genetics at an extreme: an efficient genomic study of individuals with clinically severe major depression receiving ECT	National Network of Depression Centers	180107		$2,097
93.242	2/2-Mechanism of Antidepressant-Related Dysfunctional Arousal in High-Risk Youth				$66,971
93.242	A Big Data Approach Toward the Development of a New Quantitative Measure of Restricted and Repetitive Behaviors			$606	$120,608
93.242	A Biobehavioral Research Training Program				$353,794
93.242	A Latin American biobank for large-scale genetics research on severe mental illness	University of California, Los Angeles	2000 G YF850 / R01 MH123157		$63,713
93.242	A Mobile Intervention for Suicide Prevention For Middle-aged And Older Adults After a Suicide-Related Hospitalization	Weill Medical College of Cornell University - New York	213492-2		$11,662
93.242	A novel method to resolve the complex genome rearrangements of the large copy number variants (CNVs) associated with psychiatric disorders				$67,179
93.242	A Novel Neuromonitoring Guided Cognitive Intervention for Targeted Enhancement of Working Memory				$44,750
93.242	A Novel Role of Fragile-X Mental Retardation Protein in Mitochondrial Calcium Homeostasis				$43,431
93.242	A Novel Use of a Sleep Intervention to Target the Emotion Regulation Brain Network and Treat Depression and Anxiety			$33,933	$778,086
93.242	A Portable PET Insert System for Simultaneous TOF-PET and MR Brain Imaging	PETcoil, Inc.	001		$221,640
93.242	A Pragmatic Latent Variable Learning Approach Aligned with Clinical Practice			$44,356	$404,876
93.242	A Targeted Intervention of a Putative Striatal Subtype of Pharmacoresistant Depression				$191,651
93.242	A translational approach for novel molecular targets and mechanisms in the action of a new rTMS therapy	New York University	22-A0-00-1008079		$130,350
93.242	A Wearable Optical Imaging System for Daily Monitoring of Prefrontal Activity in ADHD			$95,174	$196,721
93.242	Advanced Assessment of Auditory-Vocal Affect in Autism with Speech and Music				$153,163

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.242	Affordable wireless neural recording for mice (SBIR II)	Jinga-hi, Inc.	Hugenard SBIR; SPO 134282		$18,030
93.242	An integrative framework of cognitive control and reward modulation in children with ADHD: from brain dynamics to clinical symptoms			$42,632	$525,188
93.242	BCI-DEF: Brain Computer Interfaces and Disability: Developing an Inclusive Ethical Framework				$16,394
93.242	Brain circuit mapping using light inducible recombinase systems				$498,217
93.242	BRAIN INITIATIVE RESOURCE: Development of a human NeuroElectroMagnetic data Archive and tools Resource (NEMAR)	University of California, San Diego	122375137,MP PO S9002551		$118,833
93.242	Brain-spanning and scale-crossing circuitry mediating drive function and dysfunction				$1,133,922
93.242	Channel structure-based tools for precise interrogation of circuitry and behavior				$536,848
93.242	Characterizing cognitive control networks using a precision neuroscience approach				$251,747
93.242	Chronic Axon Hypofunction in Maternal Immune Activation Models ofNeurodevelopmental Disorders				$263,909
93.242	Circuit Mechanisms Governing the Default Mode Network	University of North Carolina at Chapel Hill	5120592		$189,524
93.242	Computational and brain predictors of emotion cue integration			$3,978	$143,033
93.242	Computational ontology of brain systems across the human neuroimaging literature				$34,238
93.242	Confirming the efficacy/mechanism of an adaptive treatment for adolescent anorexia nervosa			$230,654	$611,687
93.242	Confirming the Efficacy/Mechanism of Family Therapy for Children with Low Weight Avoidant/Restrictive Food Intake Disorder (ARFID)				$520,463
93.242	Convergence of genetic and gestational immune mechanisms in 16p11.2-related ASD				$25,644
93.242	Convergence of genetic and gestational immune mechanisms in CHD8-related ASD				$190,744
93.242	COVID-19 UW Alacrity Center for Psychosocial Interventions	University Of Washington	UWSC11370; BPO 42808		$15,421
93.242	CRCNS US-France Research Proposal: Probing the Dorsolateral Prefrontal Cortex andCentral Executive Network for Improving Neuromodulation in Depression				$32,746
93.242	Cross modal integration of molecular and physiological networks in ASD 2/2				$735,215
93.242	Defining Cell Type Specific Contributions to fMRI Signals				$1,117,331
93.242	Determining structure and organization of neurofilaments in situ using cryo- electron tomography				$127,939
93.242	Developing a mechanistic neurobiological model of exposure therapy response based on fear extinction theory				$2,449
93.242	Developmental trajectory of anxiety, avoidance, and arousal in girls with the FMR1 full mutation				$620,258
93.242	Distinguishing Clinical and Genetic Risk of Suicidal Ideation from Attempts to Inform Prevention	Vanderbilt University Medical Center	VUMC78648 PO: 4022036248		-$15,352
93.242	Efficacy of biomarker-guided rTMS for treatment-resistant depression	Weill Cornell Medical College	211844		$264,416
93.242	Enabling ethical participation in innovative neuroscience on mental illness and addiction: towards a new screening tool enhancing informed consent for transformative research on the human brain				$148,298
93.242	Engineered AAV identification, validation, and dissemination pipeline for brain cell type-specific manipulation across species	California Institute of Technology	S539154		$1,704
93.242	Ethical, Legal and Social Implications in the Use of Digital Technology for Mental Health Applications				$114,525
93.242	Examining the hierarchical structure of the RDoC framework using large-scale data-driven computational approaches				$636,234
93.242	Foundations of MRI Corticography for Mesoscale Organization and Neuronal Circuitry	University of California, Berkeley	000009346/PO# BB00840113		$3,319
93.242	Function of Neurexins				$697,882
93.242	Gaining insight into psychiatric disease by engineering piece by piece the human brain in vitro.				$564,796
93.242	Gene expression profiling of IPSC derived neurons in Autism Spectrum Disorder			$348,639	$877,454
93.242	Genetics of Severe Mental Illness	University of California, Los Angeles	2000 G VF036 / R01 MH113078		$141,757
93.242	How is anxiety-related information relayed across hippocampal-prefrontal circuits	University of California, San Francisco	11465sc		$43,074
93.242	Identification of Epigenetics Correlates between Brain and Peripheral Tissues			$37,145	$583,884
93.242	Identification of metabolic alterations during cortical development in a human cellular model for 22q11.2 deletion syndrome				$280,870
93.242	Identifying causal genetic variants and molecular mechanisms impacting mental health				$622,690
93.242	Identifying mediators of sex hormone uptake and signaling				$63,571
93.242	Identifying prefrontal signatures of successful and dysfunctional attention				$81,132
93.242	Identifying the causal role of the amygdala in human approach-avoidance conflict behavior				-$6,364
93.242	Impact of Telemedicine on Medicare Beneficiaries with Mental Illness	Harvard University	153246.5117908.0003		$4,940
93.242	Implementation Support for Prevention Program Delivery by College Peer Educators.			$372,548	$596,088
93.242	Implementing Family-Based Treatment for Adolescent Anorexia Nervosa for Providers in Private Practice: A Feasibility Study			$138,701	$202,835
93.242	Improving Access and Treatment for Co-occurring Opioid Use Disorders and Mental Illness (3UF1MH121954-01S1)	Rand Corporation	SCON-00000415		$75,055
93.242	Improving Cognition via Exercise in Schizophrenia	Icahn School of Medicine at Mount Sinai	0255-3351-4609		$38,932
93.242	Induced neuronal cells: A novel tool to study neuropsychiatric diseases				$738,110
93.242	In-Home Sleep Monitoring to Detect Suicide Risk in Veterans	Palo Alto Veterans Institute for Research	WOS0023-01		$16,784
93.242	Integrated, cell type specific functional genomics analyses of regulatory sequence elements and their dynamic interaction networks in neuropsychiatric brain tissues				$2,170,651
93.242	Integration of markers across physiologic, behavioral, and self-report levels at baseline and in response to treatment to characterize novel subtypes in youth with ADHD				$174,635
93.242	Integrative computational models of latent behavioral and neural constructs in children: a longitudinal developmental big-data approach			$57,404	$532,883
93.242	Interrogation of network-wide neuronal dynamics during fear memory in mouse default mode network				$213,486
93.242	In-utero exposure to psychotropic medications and the risk of neurodevelopmental disorders	Brigham and Women's Hospital	119487		$35,646
93.242	Investigating the role of TCF4 in human interneuron function and dysfunction				$8,359
93.242	Large-scale image-based meta-analysis of functional MRI data	University of Texas at Austin	UTA19-000290		$198,111
93.242	Latrophilin Function in Synapse Formation: Relation to ADHD				$757,801
93.242	Learning and brain plasticity in children with autism: relation to cognitive inflexibility and restricted-repetitive behaviors				$269,343
93.242	Leveraging Routine Clinical Materials and Mobile Technology to Assess CBT Quality	Palo Alto Veterans Institute for Research	WIS0003-03		$18,467
93.242	Machine learning to distinguish HAND from Alzheimer's disease in HIV over age 60	University of California, San Francisco	11254sc		$244,301
93.242	Mapping connectomes for disordered emotional states				$126,614
93.242	Mechanistic circuit markers of transcranial magnetic stimulation outcomes in pharmacoresistant depression			$249,644	$734,449
93.242	mIQa: A Highly Scalable and Customizable Platform for Medical Image Quality Assessment - Phase II	Kitware, Inc.	K003016-00-S02		$113,676
93.242	Molecular dissection of prefrontal cortex circuit architecture				$60,399
93.242	Molecular Logic Sculpting Cell-Specific Contributions of Neurexin-1 at the Tripartite Synapse				$154,749
93.242	Molecular tools for labeling and manipulating functional brain circuits				$906,874
93.242	Multi-modal study of cognitive and neural differences in media multitaskers				-$102
93.242	Neural circuit mechanisms underlying hierarchical visual processing in Drosophila				$12,475
93.242	Neural circuits of frustration				$247,519

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.242	Neural Mechanisms of Navigational Decision Making				$84,111
93.242	Neural population dynamics in premotor cortex during decision making				$76,120
93.242	Neurobehavioral Trajectories of Pediatric Depression and Insulin Sensitivity				$277,130
93.242	Neurobiology and dynamics of Active Sensing	Columbia University	8(GG012936-05); SAPO G15914		$189,071
93.242	Neuropeptide S in arousal				$535,230
93.242	Neuroscience Research Training				$702,060
93.242	Next generation in-vivo diffusion imaging at submillimeter resolution			$277,839	$779,757
93.242	NIPreps: integrating neuroimaging preprocessing workflows across modalities, populations, and species			$173,235	$296,566
93.242	NMDAR Modulation As A Therapeutic Target and Probe of Neural Dysfunction in OCD			$8,795	$130,605
93.242	Noninvasive neuromodulation via focused ultrasonic drug uncaging				$26,876
93.242	Novel Quality Measures for Primary Care Management of Attention- Deficit/Hyperactivity Disorder				$5,836
93.242	Numbers in the Human Brain				$26
93.242	Octopus microscopy for imaging multiple brain areas concurrently				-$850
93.242	Only time will tell: a computational psychiatry approach to model temporal transitions in brain activity as a lens towards developing better diagnostic nosology for psychiatric illness				$617,904
93.242	OpenNeuro: An open archive for analysis and sharing of BRAIN Initiative data				$1,224,379
93.242	Precise neuromodulation for encoding reward in the hippocampus				$1,007
93.242	Psychobiological Mechanisms Underlying the Association Between Early Life Stress and Depression Across Adolescence				$634,780
93.242	Psychosis Risk Evaluation, Data Integration and Computational Technologies (PREDICT): Data Processing, Analysis, and Coordination Center	Brigham and Women's Hospital	124050		$195,103
93.242	Research Career Development Institute for Psychiatry (R25)	University of Pittsburgh	CNVA00049415 (128103-1)		$83,119
93.242	Research Training for Child Psychiatry and Neurodevelopment				$300,271
93.242	Revealing circuit control of neuronal excitation with next-generation voltage indicators				-$560
93.242	Robust 1H MRSI of GABA, Glutamate, Glutamine, and Glutathione				$114,361
93.242	Role of L-type Calcium Channels in Human Interneuron Migration and Integration				$394,402
93.242	SCH: Advancing Language-based Analyses of Social Media to Reliably Monitor Variation in Population Mental Health	Stony Brook University, State University of New York	90077/2/1165626		$155,457
93.242	Sex Chromosome GWAS of Post-Traumatic Stress Disorder (PTSD)				$82,235
93.242	Sex hormone effects on neurodevelopment: Controlled puberty in transgender adolescents				$485,414
93.242	Sex hormones and post-traumatic stress disorder (PTSD)			$104,339	$398,455
93.242	Single molecule studies of SNARE-induced vesicle fusion				$751,604
93.242	Single synapse analysis of synaptic plasticity by combining electrophysiology and array tomography				$113,143
93.242	Sleep Disturbance and Emotion Regulation Brain Dysfunction as Mechanisms of Neuropsychiatric Symptoms in Alzheimer's Dementia				$699,947
93.242	Small molecule regulation of endogenous transcription factors for circuit-specific neuromodulation				$423,811
93.242	Social factors in the mental health of young adults: Bridging psychological and network analysis				$1,129,091
93.242	Spatial Codes Across the Medial Entorhinal Cortex for Memory and Navigation				$104,413
93.242	Study of a PST-Trained Voice-Enabled Artificial Intelligence Counselor (SPEAC) for Adults with Emotional Distress	University of Illinois at Chicago	18059 / R61 MH119237		$25,693
93.242	SUicide Reduction In Schizophrenia via Exercise (SUnRISE)	Icahn School of Medicine at Mount Sinai	0255-3355-4609		$15,312
93.242	Systematic characterization of trans regulation of A-to-I RNA editing in neurons				$461,708
93.242	Target Engagement of a Novel Dissonance-Based Treatment for DSM-5 Eating Disorders R33 Phase			$394,676	$721,176
93.242	Telehealth 2.0: Evaluating effectiveness and engagement strategies for asynchronous texting based trauma focused therapy for PTSD			$43,196	$155,684
93.242	Teneurin-3 and Latrophilin-2 in circuit-wide topographic target selection of the extended hippocampal network				$34,892
93.242	Testing a computational model of neural responses in autism	University Of Washington	UWSC12592; BPO 54858		$32,151
93.242	Thalamic Circuits for Prosocial Behaviors in Mice				$366,915
93.242	The Dynamics of Neural Representations for Distinct Spatial Contexts and Memory Episodes				$25,995
93.242	The Effects of Early Life Stress on the Development of Brain Networks: Predicting Risk for Depression and Suicidal Ideation in Adolescence				$30,762
93.242	The Effects of Stanford Accelerated Intelligent Neuromodulation Therapy on Explicit and Implicit Suicidal Cognition				$183,516
93.242	The Neural Mechanism of Interval Timing in Drosophila				$79,682
93.242	The role of Myt1l in the developing and adult mouse brain				$548,902
93.242	The role of the septum in social memory				$117,676
93.242	The Roles of Inflammatory and Glutamatergic Processes in the Neurodevelopmental Mechanisms Underlying Adolescent Depression	University of California, San Francisco	Subaward 11706sc		$35,111
93.242	Tracking Changes in High-Dimensional Circuit Behaviors over Long-Term Neural Recordings				$22,242
93.242	Trans-synaptic bidirectional tracing tools for imaging and omics analysis				$23,202
93.242	Use of telemedicine in the treatment of mental illness	Harvard University	150824.5120894.0008		$13,860
93.242	Using game theory in primates to study the distributed neuronal and time-causal underpinnings of interactive social behavior	Massachusetts General Hospital	231064		$8,338
93.242	Utilizing changes in human brain connectivity to establish a dose-response relationship involved in the therapeutic actions of prefrontal brain stimulation on depression symptoms				$847,356
93.242	Validate a Shared Neural Circuit Underlying Multiple Neuropsychiatric Symptoms	University Of Rochester	SUB00000102 / GR532046		$54,986
93.242	What are we stimulating with transcranial ultrasound in Mice?				$335,559
93.242	Whole-Brain Oscillatory and Behavioral Responses to Noninvasive Local Ketamine Uncaging in the Medial Prefrontal Cortex				$28,979
93.243	Chekws: Hope for Tomorrow	Two Feathers Native American Family Services	158007		$67,421
93.243	Mental Health Technology Transfer Center (MHTTC) National Coordinating Center (NCC			$294,729	$1,059,515
93.243	Rates of substance use in a homeless health care setting.	American Academy of Addiction Psychiatry	MFG-2021-5		$44,570
93.262	Occupational Exposure to PM2.5 and Cardiovascular Disease(CVD)			$62,255	$84,307
93.273	A Pilot Trial to Prevent Intoxicated and Impaired Driving Among Adolescents			$3,488	$67,510
93.273	Alcohol disrupts the balance between dopamine and GABA co-released by midbrain dopamine neurons				$180,624
93.273	Alcohol: A Modifiable Risk Factor for Ataxia and Decline in MCI			$196,211	$695,324
93.273	Alcohol-related sleep disturbances and circuit dynamics of arousal neuropeptides				$220,695
93.273	Cerebellar Structure and Function in Alcoholism				-$7,498
93.273	Cerebellar Structure and Function in Alcoholism			$18,017	$18,017
93.273	CNS Deficits - Interaction of Age and Alcholism	SRI International	PO61769		$242,066
93.273	COMpAAAS Tripartite: ART-CC, KP, and VA	Yale University	GR111110 (CON-80002642);CON-80003259 (GR114482)		$110,442
93.273	Compounded Neuronal Damage in Comorbid Cigarette Smoking and Addiction	Indiana University	IN4687305SU / PO0511706		$270,611
93.273	COVID-19 Impact of the Coronavirus Pandemic on Alcohol Consumption and Mental Health in Young People	SRI International	PO51078		$45,961
93.273	Defining Phenotypes of Alcohol-Associated Liver Disease with Acute Hepatic Decompensation				$182,808
93.273	Effects of GABA Co-Release on Alcohol-Induced Synaptic Plasticity				$67,027

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.273	Ethanol and aldehyde dehydrogenases in health and disease				$700,134
93.273	Longitudinal Analysis of Diffusion Tensor Imaging to Discover Adolescent Alcohol Use Effect				$129,399
93.273	Mechanisms of change for an effective alcohol text message intervention	Rutgers University	1710; PO# 1426750		$81,112
93.273	NCANDA: Data Analysis Component	SRI International	PO15305		$280,268
93.273	Neural Basis of alcohol/substance use disorders and suicide in American Indians	Scripps Research Institute	5-53951		$38,164
93.273	Neuroimaging of Alcohol-Induced Neuroadaptation: Translation from Animals to Humans	SRI International	PO10259		$65,485
93.273	Personalized Integrated Alcohol and Sexual Assault Prevention among College Students	Georgia State University	SP00015075-03		$18,001
93.273	Sleep Stabilization and the Road to Recovery	HealthRhythms, Inc.	SPO 146381		$29,626
93.273	Testing the efficacy of a CBT-enhanced text message intervention to reduce symptom burden in individuals with post-traumatic stress disorder symptoms and co-occurring hazardous drinking	University Of Washington	UWSC13328,BPO 61190		$11,932
93.273	The Role of GABA Co-release from Dopamine Neurons in Ethanol Consumption				$20,353
93.273	Tracking HIV Infection and Alcohol Abuse CNS Comorbidity with Neuroimaging	SRI International	PO32128		$539,109
93.273	Understanding and testing recovery processes for PTSD and alcohol use following sexual assault	University Of Washington	UWSC11653; BPO 45799		$47,682
93.279	222564 Demidenko NIH F32 Improving the Measurement of Brain-Behavior Associations in Adolescence_46843172				$12,133
93.279	A comprehensive dissection of cell types, circuits and molecular adaptations during opioid use	University of North Carolina at Chapel Hill	5121156		$42,226
93.279	A Preliminary Investigation of Pre-Frontal repetitive Transcranial Magnetic Stimulation (rTMS) for the Treatment of Cannabis Use Disorder				$179,518
93.279	A Social Network AOD Intervention for Homeless Youth Transitioning to Housing	Rand Corporation	SCON-00000412		$34,106
93.279	Allosteric modulation of the mu-opioid receptor-Segment B	University of Michigan	SUBK00011171 // 3006153540		$100,094
93.279	Applying novel technologies and methods to inform the ontology of self-regulation	Dartmouth College	R1075		$418,896
93.279	Cannabis, Depression and Neurobiological Function in Transition-Age Youth				$17,607
93.279	Center for Dissemination and Implementation At Stanford (C-DIAS)				$41,466
93.279	Characterizing the role of fronto-striatal connectivity in value-based decision-making				$107,957
93.279	Collegiate recovery programming in the U.S.: An implementation science and mixed methods study				$61,699
93.279	Computational Methods for Identification of Genetic Factors Affecting the Response to Drug Abuse				$340,936
93.279	COVID-19 Making Better Decisions: Policy Modeling for AIDS and Drug Abuse			$268,089	$1,063,193
93.279	Effect of pain catastrophizing on prescription opioid craving				$143,948
93.279	Feasibility, acceptability and efficacy of the Cannabis Awareness and Prevention Toolkit				$206,373
93.279	Identification of cells and signaling mechanisms underlying opioid analgesia and side effects	University of North Carolina at Chapel Hill	5118966		$75,464
93.279	Identifying and Disseminating Substance, Treatment, Strategy (STS) recommendations to AIDS Service Organizations	Research Triangle Institute	7-312-0216621-65533L		$25,285
93.279	Imaging the behaviorally evoked neural ensemble dynamics of the locus coeruleus in healthy and addicted brains				-$11,366
93.279	Inhibitory synaptic transmission, stress, and drugs of abuse				$323,752
93.279	Interdisciplinary Research Training in Pain and Substance Use Disorders				$573,248
93.279	Interrogation of dopaminergic activity using non-invasive ultrasound				$44,522
93.279	Making the HIV-1 gp41 pocket amenable to small-molecule drug discovery				$203,253
93.279	Modulation of protracted opioid withdrawal by dorsal raphe dynorphin neurons				$13,218
93.279	Multivariate Machine Learning to Characterize Opioid-induced Alterations in the Brain in Chronic Pain				$167,489
93.279	Neural Circuit Dynamics of Drug Action				$2,298,966
93.279	Participatory System Dynamics vs Audit and Feedback: A Cluster Randomized Trial of Mechanisms of Implementation Change to Expand Reach of Evidence-based Addiction and Mental Health Care	Palo Alto Veterans Institute for Research	ZIM0002-01		$14,484
93.279	Psychological Risk Factors for Persistent Opioid Use and Prevention of Chronic Opioid Use and Misuse After Surgery: Postoperative Motivational Interviewing and Guided Opioid Weaning				$555,074
93.279	R01D Structural and molecular identification of circuitry underlying joint processing of motivation and aversion				$411,175
93.279	RCT of Woebot for Treating Substance Use Disorders	Woebot Health	RDA048712A		$83,395
93.279	Reducing racial disparities in the treatment of opioid use disorder using machine learning-based causal analysis				$187,103
93.279	Research and Mentoring in Innovative Patient Oriented Pain and Opioid Science				$126,153
93.279	Single Session Pain Catastrophizing Class: Efficacy & Mechanisms for Reducing Opioid Use Among Chronic Pain Patients				$166,871
93.279	Social Media Intervention to Promote Smoking Treatment Utilization and Cessation Among Alaska Native Smokers	Mayo Clinic	BOA-239893/PO #67268639		-$1,611
93.279	Stagewise Implementation-To-Target- Medications for Addiction Treatment (SITT-MAT)			$81,213	$479,576
93.279	Structural Basis of Opioid Receptor Function			$15,371	$16,106
93.279	Substance use and DNA methylation at the intersection of sex and gender.	University of California, San Francisco	12802sc		$57,208
93.279	Targeting natural killer cells to HIV in intravenous drug users				$676,627
93.279	Telemedicine for Treatment of Opioid Use Disorder	Harvard University	153367.5117905.0003		$34,049
93.279	Thalamic Circuits Underlying Opioid Seeking				$372,139
93.279	The Comparative Effectiveness and Safety of Pharmacotherapies for the Treatment of Opioid Use Disorder in Pregnancy	Brigham and Women's Hospital	123125		$89,008
93.279	The Epidemiology and Economics of Chronic Back Pain				$171,728
93.279	Validation and pharmacological profiling of a non-psychoactive THC analog, a novel and selective CB2 receptor agonist, in proof of concept studies using rodent models of heroin addiction				$67,342
93.279	Western States Node of the National Drug Abuse Treatment Clinical Trials Network	Oregon Health & Science University	1017225_STANFORD		$205,774
93.286	"Array-Compressed Parallel Transmission for High Resolution Neuroimaging at 7T"	Vanderbilt University	62239AM1/PO P22009266		$138,702
93.286	125287 UQ R01; Enabling reliable cardiovascular simulations via uncertainty quantification			$110,481	$121,392
93.286	A machine learning ultrasound beamformer based on realistic wave physics for high body mass index imaging	University of North Carolina at Chapel Hill	5121302 / R01 EB02919		$259,231
93.286	A New Direction to Achieve Ultra-Fast Timing for Positron Emission Tomography				$393,964
93.286	A Wireless, Implantable Microdevice for Closed-Loop Drug Delivery to Prevent the Morbidity of Diabetes Therapy-Induced Hypoglycemia				$285,317
93.286	Accessing the Neuronal Scale: Designing the Next Generation of Compact Ultra High Field MRI Technology for Order-of-Magnitude Sensitivity Increase in Non-Invasive Human Brain Mapping				$248,516
93.286	Anatomically Guided Sodium MRI: Accurately Monitoring Chronic Ion Pump Dysfunction in the Human Brain				$40,790
93.286	Assessment of Bone Metabolism After Localized Mechanical Loading				$126,795
93.286	Biocompatible strain sensors for continuous monitoring of tumor progression during immunotherapy treatments				$46,458
93.286	Center for Mesoscale Mapping Project 2: Acquisition technology for in vivo functional and structural MR imaging at the mesoscopic scale	Massachusetts General Hospital	237185 / P41 EB030006		$50,399
93.286	Cerebrovascular Reserve Imaging with Simultaneous PET/MRI Using Arterial Spin Labeling and Deep Learning				$558,689
93.286	Clutter Suppression in Echocardiography Using Short-Lag Spatial Coherence Imaging			$50,097	$234,396
93.286	CRCNS US-France-Israel Research Proposal: A personalized approach to brain stimulation				$163,878
93.286	CRCNS: Crossbeam Transcranial Ultrasound Technology to Stimulate the Deep Brain				$155,040
93.286	Development and Translation of Hyperpolarized C-13 Prostate Cancer MRI Methods	University of California, San Francisco	11361sc		$46,928
93.286	Development and Validation of Radiation-Free Pediatric Renal Function Quantification			$172,921	$537,713
93.286	Development of Molecular Microbubble Probes and Ultrasound-Guidance in Immunotherapeutic Strategies				$290,826

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.286	Dissecting distributed representations by advanced population activity analysis methods and modeling				$388,234
93.286	Dual orthogonal fluorescent protease sensors for image guided surgery				$173,057
93.286	Enabling the Next Generation of High Performance Pediatric Whole Body MR Imaging			$263,848	$803,243
93.286	Endovascular Interventional MRI: Optimizing Tools and Techniques at 3T	University of California, San Francisco	11070sc		$130,030
93.286	Engineered biomaterials to modulate cell-cell signaling for the robust expansion of stem cells				$447,757
93.286	Exosome separation and digital resolution detection of blood-based nucleic acid biomarkers for noninvasive therapeutic diagnostics in cancer	University of Illinois at Urbana Champaign	100817-18111 / R01 EB029805		$457,109
93.286	Flexible and Wireless Bioelectronics for Continuous Monitoring of Intracranial Pressure				$93,775
93.286	fMRI Technologies for Imaging at the Limit of Biological Spatiotemporal Resolution	Massachusetts General Hospital	236792 / R01 EB019437		$89,421
93.286	Focused kV X-ray Modulated Conformal Radiotherapy for Small Targets				$238,797
93.286	Generation of highly selective activity based probes using chemically modified phage				$269,320
93.286	High-Resolution Breast MRI at 3.0T				$702,285
93.286	Improving Liver Ultrasound Image Quality in Difficult-to-Image Patients			$24,393	$446,363
93.286	In vivo PET imaging of novel engineered AAVs informs capsid design			$263,555	$644,580
93.286	Injectable Hydrogels to Protect Transplanted Cells from Hypoxia			$52,058	$573,692
93.286	Low-cost, handheld light sheet microscope for guiding anal cancer diagnosis	University of Arizona	610659		$41,949
93.286	Mobilize Center: Models for Mobile Sensing and Precision Rehabilitation				$1,015,847
93.286	Molecular Imaging of Pyruvate Kinase M2				$31,174
93.286	MRI Corticography: Developing Next Generation Microscale Human Cortex MRI Scanner	University of California, Berkeley	00010552; PO# BB01432952		$145,021
93.286	Multi-Disciplinary Training Program in Cardiovascular Imaging at Stanford				$223,844
93.286	Neuronal Ensembles to Networks: Ultrahigh Resolution Imaging of Human Brain Function and Connectivity	University Of Minnesota	N006269301 / U01 EB025144		$235,245
93.286	New Statistical Methods for Medical Signals and Images				$547,039
93.286	New tools for tracking single cells in vivo			$45,423	$615,849
93.286	Novel Transducer Technology for Transcranial Ultrasound				$252,773
93.286	Osteoarthritis: Quantitative Evaluation of Whole Joint Disease with MRI				$611,262
93.286	Probing basophil function in microfluidic systems for allergic disease diagnosis				$160,778
93.286	PSMA activatable MRI contrast agents to improve the detection of prostate cancer				$111,237
93.286	Quantitative Assessment of Early Metabolic and Biochemical Changes in Osteoarthritis				$265,970
93.286	Radiogenomics framework for non-invasive personalized medicine				$2,008
93.286	Rapid MRI Acquisition for Pediatric Low-grade Gliomas				$80,143
93.286	Rapid Robust Pediatric MRI			$178,313	$365,728
93.286	SCH: A Virtual Surgery Simulator to Accelerate Medical Training in Cardiovascular Disease				$368,906
93.286	Single-Shot Quantitative X-Ray Imaging for Interventional Procedures				$240,338
93.286	Stanford Biodesign/Bioengineering Clinical Need Identification Bootcamp for Undergraduates				$9,510
93.286	Staphylococcus serine hydrolases as targets for therapeutic and imaging contrast agents				$232,854
93.286	Sub-Millimeter PET System Design	University of California, Santa Cruz	A20-0581-S002 / R01 EB028091		$8,642
93.286	Synthetic DNA-free Circuits for "Scarless" Programming of Mammalian Cells				$223,089
93.286	Translation and Validation of a Radiofrequency-Penetrable PET insert for Simultaneous PET/MRI imaging of Neurological Disorders				$4,985
93.286	Tumor-targeted delivery and cell internalization of theranostic gadolinium nanoparticles for image-guided nanoparticle-enhanced radiation therapy			$25,803	$162,823
93.286	Ultrasound-guided DNA delivery for regenerative medicine	Cedars-Sinai Medical Center	1458794		$226,272
93.286	YR2-Enhanced MR for morphological characterization of ligaments, tendons and bone	State University of New York at Buffalo	R1282440 / U01 EB023829		$78,250
93.307	Development and Cross-Validation of a Hospital Risk Screening Tool for Posttraumatic Psychological Disorder	Palo Alto Veterans Institute for Research	CAS0012-02		$57,119
93.307	Elucidating lung cancer etiology among Asian American female never smokers	University of California, San Francisco	11984sc		$10,666
93.307	FLWSHIP K.McNamara, PI C.Curtis-Quantifying patient-specific tumor evolutionary dynamics and resistance mechanisms in HER2-positive breast cancers treated with targeted therapy				$31,272
93.307	Hospital quality, Medicaid expansion and racial/ethnic disparities in maternal mortality and morbidity	University Of South Carolina	21-4270		$16,732
93.307	Identifying, refining, and testing sexual orientation and gender identity measures to detect and delineate sexual and gender minority populations for population research			$50,185	$247,311
93.307	Immigrant Families and Childrens Health: The Intergenerational Health Impact of Federal and State Immigration Policy			$48,855	$373,041
93.307	Preventing HIV among Native Americans through the treatment PTSD & substance use	University Of Washington	UWSC11400; BPO 43099/39894		$66,594
93.307	Race/Ethnicity, DNA Methylation, and Disparities in Cardiovascular Mortality: NHANES 1999-2002	University of Michigan	3004739345 / R01 MD011721		$94,614
93.307	Reducing Disparities for the Uninsured: Identifying Opportunities for Improved Coverage Through Emergency Medicaid Programs				$245,458
93.307	Stanford Precision Health for Ethnic and Racial Equity (SPHERE) Transdisciplinary Collaborative Center			$148,234	$664,644
93.310	COVID-19 Monitoring COVID-19 and Building Capacity with Northern Plains Tribes for the Future of Pandemics.			$683,770	$1,872,688
93.307	The ADELANTE Trial: Testing a multi-level approach for improving household food insecurity and glycemic control among Latinos with diabetes			$7,409	$156,375
93.307	Together We STRIDE (Strategizing Together Relevant Interventions for Diet and Exercise)	Fred Hutchinson Cancer Research Center	0001023716 / U01 MD010540		$13,732
93.307	Using census data linkages to study long-term impacts on disparities in DNA methylation				$42,699
93.310	4DN Interrogation of T Cell Exhaustion in Cancer				$414,114
93.310	A brain pacemaker for aging and longevity				$2,256,480
93.310	A complete map of the top 100 molecules from the gut microbiome				-$66,015
93.310	A single cell pooling framework for deciphering the regulatory wiring of allergy in pathophysiologic contexts				$211,419
93.310	All of Us Research Program National Sexual and Gender Minority Engagement Network			$306,965	$2,252,503
93.310	Blood bank community-listening sessions	Scripps Research Institute	5-54734		$3,941
93.310	Center for Undiagnosed Diseases at Stanford				$845,908
93.310	Chemical biology of innate immunity for treating cancer and autoimmunity				$129,966
93.310	Closing the loop: development of real-time, personalized brain stimulation				$344,049
93.310	Comparison study of myoelectric readings of the GI tract measured internally and externally in mini-pigs	G-Tech Medical, Inc.	137338 / OT2OD026577-01S1		$19,892
93.310	Comprehensive Structural and Functional Mapping of Mammalian Colonic Nervous System	University of California, Los Angeles	1556 G WA054		$39,976
93.310	COVID-19 Multi-Modal Wireless COVID Monitoring & Infection Alerts for Concentrated Populations			$63,367	$1,413,006
93.310	COVID-19 Testing and Prevention in Correctional Settings	Yale University	GR111820(CON-80002847)		$15,463
93.310	Creating a Catalog of Cancer Clonotype Drug Sensitivities with Single-Cell Genome Sequencing				$512,057
93.310	Creating high-resolution, epitope-focused vaccines			$5,443	$1,474,572
93.310	Cross-CFDE Semantic and Spatial Interoperability for Anatomy	Indiana University	8955-SJU		$950
93.310	Deep learning frameworks for regulatory genomics.				-$11,222
93.310	Developing approaches for universal organ transplantation				$390,042
93.310	Engineering and Imaging 3D genome structure-function dynamics across time scales	University Of Pennsylvania	582371/ PO 4717073		$213,690

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.310	Enhancing the RADx Hub for data FAIRness			$423,136	$1,229,746
93.310	Forecasting tumor evolution: Can the past reveal the future?				$951,642
93.310	Glioma Circuitry: Bridging Systems Neuroscience and Cancer				$1,149,203
93.310	High dimensional atlas of circulating neutrophils as reporters of solid organ functional status				$177,038
93.310	Hijacking the T cell machinery for logic-gated CAR T cell control				$412,670
93.310	Innovations and mechanisms in tumor subcellular metabolism				$191,797
93.310	Leveraging spectral encoding for high dimensional biological multiplexing				-$242
93.310	Live-cell multiplex super-resolution imaging of chromatin state transitions (U01 Clinical Trial Not Allowed)				$1,024,339
93.310	Machine Learning for Health Outcomes and Quality of Care in Low-IncomePopulations				$664,785
93.310	Multimodal histologic atlas of human bone marrow				$29,531
93.310	Next-Generation Genomic Imaging Technology				$265,129
93.310	OCT as a Platform for Non-Invasive Virtual H&E Biopsy				$169,413
93.310	Optogenetic Functional MRI to Mechanogenetic Functional Ultrasound				$661,675
93.310	Real-time biosensor for mapping the function of the pancreas			$158,797	$1,052,661
93.310	Role of Innate Immune Dysregulation in the Etiology of Dementia				$1,403,460
93.310	Semantic Technology for HuBMAP	Indiana University	PO0369109		$100,000
93.310	Stanford MoTrPAC Bioinformatics Core - Infrastructure, Integration and Analytics				$2,360,336
93.310	Stanford Tissue Mapping Center			$47,766	$1,451,389
93.310	Stanford/Salk MoTrPAC Site for Genomes, Epigenomes and Transcriptomes			$238,791	$2,899,190
93.310	Stanford-SLAC CryoET Specimen Preparation Service Center (SCSC)				$1,356,746
93.310	Targeted Advertising for Cancer Prevention				$1,079,312
93.310	The Stanford SLAC CryoEM Center				$4,495,005
93.310	Unraveling neuronal circuits and causal underpinnings of long time-scale social strategic behaviors				$214,934
93.323	COVID-19 CA-FACTS: Solano and Santa Clara County	Public Health Foundation Enterprises, Inc. DBA Heluna Health	SPO 219313		$268,656
93.323	COVID-19 CALSCOPE: Seroepidemiology survey for COVID with CDPH	Public Health Foundation Enterprises, Inc. DBA Heluna Health	SPO 212745		$110,550
93.349	Packaging and Spreading the Stanford Pediatric Weight Control Program - A Family-Based, Group, Behavioral Weight Control Program for Children with Obesity and their Families				$541,697
93.350	Collaborative care teams for hospitalized patients with opioid use disorders: Translating evidence into practice (START)	Cedars-Sinai Medical Center	0001959295		$28,407
93.350	Institutional Career Development Core (KL2)				$1,814,405
93.350	Joint Pain on a Chip: Mechanistic Analysis, Therapeutic Targets, and an Empirical Strategy for Personalized Pain Management	University of Pittsburgh	AWD00004800 (136874-2)		$122,912
93.350	Seg 2_Effect of Microgravity on Drug Responses Using Engineered Heart Tissues			$341,000	$699,586
93.350	Spectrum Stanford Center for clinical and Translational Research and Education				-$90
93.350	Stakeholder Guidance to Anticipate and Address Ethical Challenges in Applications of Machine Learning and Artificial Intelligence in Algorithmic Medicine: a Novel Empirical Approach				$424,930
93.350	Stanford Center for Clinical & Translational Education and Research (Spectrum)			$49,075	$8,664,786
93.350	Tissue Chip Modeling of Synovial Joint Pathologies: Effects of Inflammation and Adipose-Mediated Diabetic Complications	University of Pittsburgh	CNVA00056727 (136357-2)		$180,422
93.350	Understudied GPCRs connecting signaling in primary cilia to obesity and metabolic disease				$2,122
93.351	500 MHz NMR Spectrometer System with High Sensitivity Cryoprobe and Automated Sample Changer for Biochemical Research				$11,684
93.351	A Modern Flexible Mass Spectrometry Platform for Advancing Proteomics Research				$1,266,707
93.351	Acquisition of A Microfluidic Chip-Based System for Cluster Sorting and Dispensing				$451,787
93.351	Animal Research Equipment, Digital Cages & Metabolic, Avoidance, Fear Conditioning, Place Preference, Self-Administration, Open Field & Microdialysis Systems for Translational Neuroscience				$623,639
93.351	Bellymount: A platform for ultra-long term imaging of abdominal organs in live adult Drosophila				$122,901
93.351	Comparative Medicine Biosciences Training Program				$173,758
93.351	Frequent concatemeric insertions during AAV6/Cas9-mediated genome editing: Detection and Prevention				$154,839
93.351	Immunogenomics of susceptibility to tuberculosis (TB) among nonhuman primate species				$13,433
93.351	Nonhuman Primate Testing Center for Evaluation of Somatic Cell Genome Editing Tools	University of California, Davis	A19-2678-S001		$19,003
93.351	Research Opportunities in Comparative Medicine				$65,703
93.351	Selectable non-mosaic embryo editing				$219,090
93.351	The Chromium Connect, an integrated and robotic system to automate library preparation for single-cell RNA-Seq				$297,563
93.351	Understanding SHRF, an RNA exosome-linked disease with multi-organ involvement				$185,394
93.353	A population-based virtual solution to reduce gaps in genetic risk evaluation and management in families at high risk for hereditary cancer syndromes: The Georgia-California GeneLINK Trial	University of Michigan	SUBK00012496 PO: 3006688165		$163,396
93.353	Bay Area Team Against Resistance	University of California, San Francisco	12033sc		$372,425
93.353	Breast Pre-Cancer Atlas Center	Duke University	A030743 / U2C CA233254		$72,369
93.353	Cancer Immunotherapy Trials Network Central Operations and Statistical Center	Fred Hutchinson Cancer Research Center	0001090308		$316,697
93.353	Center for therapeutic targeting of the Fusion Oncoprotein of Fibrolamellar Hepatocellular Carcinoma	Rockefeller University	1U54CA243126-01 PI Dr. Simon		$200,998
93.353	Discovery and Development of Optimal Immunotherapeutic Strategies for Childhood Cancers	Children's Hospital of Philadelphia	Sub3201380619 PO20031499-RSUB		$377,601
93.353	Engineering synthetic helper cells that autonomously deliver orthogonal IL-2 to selectively promote therapeutic T cell proliferation in tumors	University of California, San Francisco	12696sc / U54 CA244438		$86,903
93.353	Engineering the next generation of T cells	University Of Pennsylvania	578222 // PO 4643723		$147,041
93.353	Human Tumor Atlas Network: Data Coordinating Center	Dana-Farber Cancer Institute (489)	1288401		$129,227
93.353	Immune Monitoring and Analysis of Cancer at Stanford (IMACS)				$2,112,338
93.353	Ped-CITN-03, "Phase 1 Trial of Hu5F9-G4 (magrolimab) combined with dinutuximab in children and young adults with relapsed and refractory neuroblastoma or relapsed osteosarcoma"	Fred Hutchinson Cancer Research Center	0001084767		$423
93.353	Precancer Atlas for Integrative Characterization of ductal carcinoma in situ (DCIS).	Duke University	A030740		$592,048
93.353	Precancer Atlas of Familial Adenomatous Polyposis				$1,941,713
93.353	Protein Kinase Therapeutic Targets for Non-Small Cell Lung Carcinoma (P01)	Dana-Farber Cancer Institute (489)	1244109		$415,360
93.353	The Cellular Geography of Therapeutic	Dana-Farber Cancer Institute (505)	1206304; 1206303		$166,679
93.353	The Center for Therapeutic Targeting of EWS-oncoproteins_46093281	Dana-Farber Cancer Institute (489)	1207104		$140,672
93.353	The Lung PCA: A Multi-Dimensional Atlas of Pulmonary Premalignancy	Boston University	4500003003		$126,463
93.394	COVID-19 The Lung PCA: A Multi-Dimensional Atlas of Pulmonary Premalignancy	Boston University	4500003813		$12,588
93.361	Biological and Psychosocial Mechanisms of Cancer Caregivers' Elevated Health Risk	University of Miami	PO# SPC-000420; OS00000412		$32,933
93.361	Building a causal pathway framework to identify interventions to eliminate racial/ethnic disparities in severe maternal morbidity			$58,502	$381,407
93.361	COVID-19 Transcending COVID-19 barriers to pain care in rural America: Pragmatic comparative effectiveness trial of evidence-based, on-demand, digital behavioral treatments for chronic pain	Cedars-Sinai Medical Center	0001896816		$10,161

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.361	NIH/NINR R01 NR015452B Targeting Autonomic Flexibility to Enhance Cognitive Training Outcomes in Older Adults with Mild Cognitive Impairment	University Of Rochester	SUB00000132/UR FAO GR531705		$130,585
93.361	Severe Maternal Morbidity: An Investigation of Racial-Ethnic Disparities, Social Disadvantage & Maternal Weight			$128,463	$661,201
93.361	The role of genomics in postoperative delirium and sedation	University of California, San Francisco	12965sc / R01 NR017622		$23,723
93.365	Sickle Cell Treatment Demonstration Program	Center for Inherited Blood Disorders (CIBD)	CIBDIX2014HRSA-STAN-08		$8,000
93.393	(PQ) Identifying and targeting human glioblastoma migrating in the peritumoral niche				$245,591
93.393	Active surveillance and patient reported outcomes in a diverse population of prostate cancer patients	University of California, San Francisco	10349sc		$46,126
93.393	Advancing Science & Policy in the Retail Environment (ASPiRE)	University of North Carolina at Chapel Hill	5112337	$382,052	$867,712
93.393	ATP-Dependent Chromatin Remodeling in Human Malignancy				$216,166
93.393	Characterizing germline and somatic alterations by glioma subtypes and clinical outcome			$615,066	$781,178
93.393	CIPN R01: Leveraging machine learning to improve risk prediction for chemotherapy induced neuropathy			$328,925	$535,381
93.393	Comparative modeling of gastric cancer disparities and prevention in the US and globally	Columbia University	3(GG015389-01)/SAPO G16180		$22,170
93.393	Comparative Modeling of Lung Cancer Prevention and Control Policies	University of Michigan	SUBK00012359 / PO #3006744964		$185,711
93.393	Comparative Modeling of Precision Breast Cancer Control Across the Translational Continuum	University of Wisconsin-Madison	0000001488 / U01 CA253911		$253,485
93.393	Comprehensive profiling of the tumor microenvironment to predict patient response to immunotherapy				$32,730
93.393	Discovery, Biology and Risk of Inherited Variants in Glioma			$648,658	$917,152
93.393	Epigenetic drivers of cancer progression	Johns Hopkins University	2004395797		$16,278
93.393	Evaluation of genetic, clinical and environmental risk factors to establish effective screening strategies for second primary lung cancer			$44,881	$578,515
93.393	Evaluation of the "Be Vape Free" Curriculum of the Tobacco Prevention Toolkit				$492,721
93.393	Focused Ultrasound and Multifunctional Nanoparticle Vaccines as Adjuvant Strategies for Cancer Immunotherapy				$6,766
93.393	Functional and Translational Epigenomics of Acute Lymphoblastic Leukemia				$456,778
93.393	Genetic testing, treatment use, and mortality after diagnosis of breast and ovarian cancer: The Georgia-California GeneLINK Initiative			$198,931	$264,058
93.393	Genomic and Morphologic Predictor of High-Risk DCIS			$9,111	$89,305
93.393	Histone deacetylation signaling in aging and cancer pathways	Palo Alto Veterans Institute for Research	CUA0006-01		$154,802
93.393	Impact of Affect Reactivity and Regulation on Breast Cancer Treatment Decisions				$17,879
93.393	Insights from Asian populations into disparities in breast cancer prognosis and outcomes	University of California, San Francisco	12260sc		$103,653
93.393	Integrative approaches to elucidate p53 transcriptional networks during carcinogenesis				$940,140
93.393	Leveraging Diversity in Cancer Epidemiology Cohorts and Novel Methods to Improve Polygenic Risk Scores	University of Southern California	SCON-00002308		$200,486
93.393	Leveraging gnotobiotic models to study the gut microbiota and anti-tumor immunity				$86,211
93.393	Leveraging Implementation Science to Promote Behavior Change and Reduce Cancer Health Disparities among American Indian and Alaska Native Older Adults				$85,923
93.393	LncRNA mechanisms in cancer				$901,597
93.393	Local Flavor Policies to Enhance Equity in Tobacco	University of Kentucky Research Foundation, The	PO: 7800006031		$94,874
93.393	Mary Beth Terry: Core Infrastructure and Methodological Research for Cancer Epidemiology Cohorts	Columbia University	5(GG013725-08)/PO#G15627		$277,107
93.393	Mechanism of Action of the TBX3 Gene in Breast Cancer				$81,194
93.393	Molecular and cellular mechanisms of SCLC initiation in mice and in humans				$475,075
93.393	Molecular pathoepidemiology of contralateral breast cancer	Sloan Kettering Institute for Cancer Research	BD526393B		$16,537
93.393	Multicenter Randomized Controlled Trial of Brief Behavioral Therapy for Cancer Related Insomnia			$32,200	$331,667
93.393	Organoid-Based Discovery of Oncogenic Drivers and Treatment Resistance Mechanisms				$907,817
93.393	Pancreatic cancer stem cells:PD2-mediated novel mechanistic link and metabolomic alterations				$83,688
93.393	Practical Implementation of an Ultra-rapid FLASH Radiation Therapy Linac Beamline	TibaRay, Inc.	NIHSBIR-2019-02 / R44 CA217607		$73,699
93.393	Precision Prostate Cancer Screening with Genetically Adjusted Prostate-Specific Antigen Levels			$18,481	$222,928
93.393	Predicting Long-Term Chemotherapy-Related Cognitive Impairment	University of Texas at Austin	UTA19-000489		$132,035
93.393	Project RESIST - Increasing Resistance to Tobacco Marketing Among Young Adult Sexual Minority Women Using Inoculation Message Approaches	University Of Pennsylvania	PO #4793972 / 580371		$39,408
93.393	Regulatory Impact on Vape Shops and Young Adults' Use of ENDS	George Washington University	19-M72		$96,138
93.393	Retail Environment for Tobacco and Marijuana in CA: Impact on College Student Use			$35,621	$327,062
93.393	Reversing Cellular immortality in cancer				$789,911
93.393	Role of long non-coding RNAs in sarcoma pathogenesis	University of California, San Francisco	10093SC		$26,214
93.393	Role of SETD5 in Chromatin Regulation and Tumorigenesis	University of Texas MD Anderson Cancer Center	3001326346		$107,345
93.393	Structural Cell Biology of DNA Repair Machines (Project 4 Fork Repair: Mechanisms and consequences of stalled replication fork processing)	Lawrence Berkeley National Laboratory	Subcontract No.7615089, 7336091		$54,388
93.393	Symptom Screening Linked to Care Pathways for Children with Cancer: a Cluster Randomized Trial (Aims 1 & 3)	Hospital for Sick Children	6610100234		$40,382
93.393	The mechanistic basis for constitutional MLH1 methylation (epimutation)	Cedars-Sinai Medical Center	0001625789		$123,595
93.393	The prognostic landscape of gender- and ethnicity-specific immune influences on cancer outcomes				$22,096
93.393	The regulation of innate immune sensors to control GVHD and GVL after allogeneic hematopoietic stem cell transplantation				$87,927
93.393	Theory and methods for mediation and interaction	Harvard University	117202-5120557		$60,744
93.393	Tobacco Retail Policy Innovation to Reduce Health Disparities	University of California, San Francisco	11572sc	$16,356	$99,627
93.393	Unraveling mechanisms of tumor suppression in lung cancer				$396,962
93.393	Using Functional Genomics to Inform Gene Environment Interactions for Colorectal Cancer	Fred Hutchinson Cancer Research Center	0001039476		$525
93.393	Very-long Term Neurocognitive Outcomes in Breast Cancer Survivors			$143,185	$358,727
93.393	Virally-induced tumorigenesis controlled by the microbiota	University of Chicago	FP068995-02 / R01 CA232882		$111,173
93.393	Youth perceptions and counter-messages to the e-cigarette retail environment	Washington University in St. Louis	WU-20-454		-$25
93.394	A Noninvasive Integrated Genomic Approach for Early Cancer Detection and Risk Stratification after Transplantation			$10,125	$674,479
93.394	A Novel Positron Emission Tomography Strategy for Early Detection and Treatment Monitoring of Graft-versus-host Disease				$90,042
93.394	A prospective, multi-center pivotal study of the LUM Imaging System for real-time, in vivo margin assessment in breast conserving surgery	Massachusetts General Hospital	231701		$118,828
93.394	Abbreviated Non-Contrast-Enhanced MRI for Breast Cancer Screening				$406,084
93.394	Advanced Development of the MasSpec Pen for Cancer Diagnosis and Surgical Margin Evaluation	University of Texas at Austin	UTA19-001060 / R33 CA229068		-$10,333
93.394	Advanced Imaging Tools to Assess Cancer Therapeutics in Pediatric Patients				$133,191
93.394	Alizadeh R01 CA233975				$498,711

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.394	Amy Herr - Treatment Resistance in Breast Cancer: Cellular-to-Molecular Profiling	University of California, Berkeley	00010696 BB01464994		$27,694
93.394	Analysis of urine tumor nucleic acids for detection and personalized surveillance of bladder cancer				$640,158
93.394	Changing brachytherapy with MRI remnant-tumor segmentation and active-catheter placement	Johns Hopkins University	2004786918		$24,200
93.394	Chemical Glycoproteomics				$330,915
93.394	Circulating Genomic Determinants of Treatment Failure in Hodgkin Lymphoma				$644,786
93.394	Citizen Science to Promote Sustained Physical Activity in Low-Income Communities				$19,290
93.394	Co-Clinical Research Resource for Imaging Tumor Associated Macrophages				$548,640
93.394	Copper-depleting nanotheranostics for treating triple negative breast cancer				$713,071
93.394	COVID-19 Mechanisms and Duration of Immunity to SARS-CoV-2			$15,858	$2,149,383
93.394	Directional sensor for radioluminescence microscopy of next-generation tumor models	Radiation Monitoring Devices, Inc.	RMD C22-05		$62,486
93.394	Distributed Learning of Deep Learning Models for Cancer Research			$203,925	$416,762
93.394	Dual Modality X-ray Luminescence CT for in vivo Cancer Imaging				$913,302
93.394	Early therapeutic monitoring of response to therapy with serial ultrasound in metastatic RCC				$55,108
93.394	EDRN Prostate MRI Biomarker Study and Reference Set	University of Michigan	SUBK00012223; PO 3006205541		$16,197
93.394	Evaluation of Patients with Low-Risk and Intermediate-Risk Prostate Cancer Scheduled for High-Dose Rate Brachytherapy Using 68Ga-RM2 PET, 68Ga-PSMA-11 PET and Multi Parametric MRI				$311,317
93.394	Exploring a promising design for the next generation time-of-flight PET detector				$515,592
93.394	Glycosylation and Immune Evasion in Urologic Tumors				$531,126
93.394	HIFU-immunotherapy in pancreatic cancer				$465,646
93.394	High Resolution Ultrasound in Interventional Radiology				$102,792
93.394	Identification of serum protein biomarkers by profiling N-glycoproteomes of patient-derived xenografts of clear cell renal cell carcinoma				$215,659
93.394	Image Analysis Tools for mpMRI Prostate Cancer Diagnosis Using PI-RADS	Eigen	SPO 162975		$29,739
93.394	Image-guided ultrasound therapy and drug delivery in pancreatic cancer				$460,768
93.394	Imaging and circulating DNA markers to assess early response and predict treatment failure patterns in lung cancer				$552,692
93.394	Imaging Biomarkers for Glioma Treatment Response				$296,844
93.394	Imaging Modulation of Immune Phenotype			$20,318	$532,484
93.394	Improving Diagnostic US for Reduction of Benign Breast Biopsis Using US-Guided Optical Tomography	Washington University in St. Louis	WU-21-40-MOD-2 / PO ST00000058		$35,608
93.394	Insonation of ultrasound microbubbles at low frequency to enhance image-guided therapy				$338,202
93.394	Intraoperative integration of artificial intelligence during cystoscopic surgery				$254,052
93.394	Large aperture and wideband modular ultrasound arrays for the diagnosis of liver cancer			$270,205	$382,326
93.394	Leveraging deep learning for markerless motion management in radiation therapy				$450,753
93.394	Molecular Imaging Methods for the Detection of Pancreatic Ductal Adenocarcinoma				$600,318
93.394	Molecularly-Targeted Ultrasound in Ovarian Cancer				$238,870
93.394	MR-Guided Focused Ultrasound Combined with Immunotherapy to Treat Malignant Brain Tumors				$528,755
93.394	MRI-Based Radiation Therapy Treatment Planning				$11,376
93.394	Multimodal iterative sequencing of cancer genomes and single tumor cells				$433,202
93.394	Multiregional imaging phenotypes and molecular correlates of aggressive versus indolent breast cancer				$430,538
93.394	Multi-scale modeling of glioma for the prediction of treatment response, treatment monitoring and treatment allocation				$602,933
93.394	Nanoparticle-based Triple Modality Imaging and Photothermal Therapy of Brain Tumors				$137,988
93.394	Next Generation Sentinel Node Mapping				$4,517
93.394	Optical Imaging to Improve Surgery & Targeted Therapy in Brain Tumors			$41,355	$611,693
93.394	Outcomes for CLL patients treated with novel therapy	Mayo Clinic Hospital-Rochester	LSJ-287002/PO #68219321		$35,328
93.394	Pancreatic Cancer Imaging Repository	University of Texas MD Anderson Cancer Center	3001529436		$473
93.394	Pathomic Predictors of Prostate Cancer Progression			$154,759	$531,606
93.394	Predicting Relapse at the Time of Diagnosis in Acute Lymphoblastic Leukemia			$10,565	$678,649
93.394	Prostate Cancer Active Surveillance Study (PASS) Cohort: Infrastructure Support for Cancer Research	Fred Hutchinson Cancer Research Center	001081781		$16,794
93.394	Qualification and Deployment of Imaging Biomarkers of Cancer Treatment Response			$9,291	$158,530
93.394	Quantitative volumetric ultrasonic and photoacoustic tomography				$215,471
93.394	Rad-pathomic deep learning models to assist radiologists in differentiating aggressive from indolent prostate cancer on MRI				$321,036
93.394	Rapid and affordable magneto-nanosensors for ctDNA-guided lung cancer management			$25,098	$489,986
93.394	San Antonio Center for Biomarkers of Risk for Prostate Cancer-Upgrading Reference Set Phase III	University of Texas Health Science Center ¿ San Antonio	169019/168546		-$4,502
93.394	Serial Ultrasound to Detect Early Response to Immunotherapy in Metastatic RCC				$51,295
93.394	SPO126349 NIH Automated Volumetric Molecular Ultrasound for Breast Cancer Imaging				$361,114
93.394	The Impact of FUS-Mediated Brain Cancer Therapy on BBB Transport, Cytokines, and Immunocyte Trafficking				$611,662
93.394	The Prognostic Significance and Mechanistic Determination of Chromatin Remodeling Biomarkers in Non-Functional Pancreatic Neuroendocrine Tumor	University of Pittsburgh	AWD00004384 (136403-1)		$31,588
93.394	Therapeutic miRNA Modulation of Hepatocellular Carcinoma Using Ultrasound Guided Drug Delivery				$306,567
93.394	Three-Dimensional Multi-Parametric Ultrasound for Monitoring Therapy of Liver Metastasis				$183,327
93.394	Ultrabright Theranostic SERRS Nanoparticles for Gastrointestinal Endoscopy				$411,367
93.394	Ultrasound-enhanced drug penetration for treatment of pancreatic cancer			$220,482	$509,748
93.394	Validation of Biomarkers for Early Diagnosis and Risk Prediction of Pancreatic Neoplasms	University of Pittsburgh	CNVA00047829 (135513-4)		$2,076
93.395	(PQ8) Biomarker identification by mass cytometry in peripheral blood of patients with renal cell carcinoma undergoing immune checkpoint therapy.				-$5,373
93.395	A Novel Paradigm for the Development of a Peptide Vaccine to Treat KRAS Mutant Cancers				$228,607
93.395	An artificial intelligence-driven distributed stereotactic radiosurgery strategy for multiple brain metastases management	University of Texas Southwestern Medical Center Dallas	GMO210506 PO 0000002339		$118,582
93.395	Bone Marrow Grafting for Leukemia and Lymphoma				$2,694,447
93.395	Cas13d-based screens to engineering exhaustion-resistant CAR T cells.				$134,335
93.395	Chemical manipulation of creatine kinases to treat acute myeloid leukemia	Dana-Farber Cancer Institute (489)	1318701		$32,952
93.395	Circadian regulation of cancer therapy-associated neuroinflammation				$15,865
93.395	COG - PATHOLOGY REVIEW: NIH National Clinical Trials Network (NCTN) Grant (2U10CA180886) Successor to NIH National Clinical Trials Network NCTN Grant (U10CA180886)	Children's Hospital of Philadelphia	PO# 20199259		$1
93.395	COG NCTN Committee Leadership - Kimberly Pyke-Grimm	Public Health Institute	AR03212/02749		$7,834
93.395	COG NCTN Integrated Translational Science Center for Hematopoietic Malignancies Support	Children's Hospital of Philadelphia	PO 20292363		$60,000
93.395	COG NCTN Network Group Operations Center - ANBL1531	Public Health Institute	AR03770; PO# 2993		$7,713
93.395	COG Scientific Council Member: NIH National Clinical Trials Network (NCTN) Grant	Public Health Institute	AR03197 / PO 2769		$15,665
93.395	COG: PEP-CTN Study Chair grant				$9,792
93.395	Degrading therapeutically important kinases using small molecules			$87,133	$619,816

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.395	Developing Safe and Effective GD2-CAR T Cell Therapy for Diffuse Midline Gliomas			$42,722	$531,118
93.395	Development of novel protein-based therapeutics for lung cancer	University of California, San Francisco	10721sc		$219,493
93.395	Discovering and exploiting mechanisms of neuroblastoma therapy resistance	Children's Hospital of Philadelphia	GRT-00000636 / PO# 20213670		$294,950
93.395	Discovery and optimization of novel mutant-selective allosteric inhibitors of EGFR T790M	Dana-Farber Cancer Institute (489)	1273107		$42,843
93.395	ECOG-ACRIN Operations Center - Administrative/ComboMATCH Supplement	ECOG-ACRIN Medical Research Foundation, Inc.	U10CA180820-06-STU2A		$49,690
93.395	Effects of FLASH Radiation on Cancer and the Immune Response				$466,184
93.395	Enhancing Cancer Immunotherapy: Targeting the Tumor and Targeting the Host				$848,774
93.395	Generating a Systemic Immune Response Using Localized Delivery ofChemotherapy in Brain Tumors				$275,371
93.395	Harnessing Continuous Liquid Interface 3D Printing to Improve Tumor-homing Stem Cell Therapy for Post-surgical Brain Cancer	University of North Carolina at Chapel Hill	5123951		$55,318
93.395	Identifying and targeting treatment-resistant AML subpopulations by high-dimensional functional profiling	Baylor College of Medicine	PO# 7000001194		$110,176
93.395	Immunotherapy Modeling in Organoids Co-preserving Tumor and Infiltrating Immune Compartments				$633,373
93.395	Increasing the therapeutic index of brain tumor treatment through innovative FLASH radiotherapy	University of California, Irvine	2020-1309 / P01 CA244091		$736,108
93.395	Innovative Cell Therapy for Pediatric Acute Myeloid Leukemia				$257,864
93.395	Integrated ligand and target discovery by chemical proteomics for glioblastoma treatment.			$76,402	$431,257
93.395	Mechanisms, Prevention and Treatment of Chronic Graft-vs.-Host Disease - Project 1	Dana-Farber Cancer Institute (489)	1153415		-$547
93.395	Molecular basis of tumor suppression by Cdk4/6 inhibition	University of California, Santa Cruz	A19-0344-S001-P0700755		$157,791
93.395	Molecularly-based outcome and toxicity prediction after radiotherapy for lung cancer			$35,083	$709,864
93.395	MYC activation in tumor progression of neuroblastoma	Texas Tech University Health Sciences Center	A19-0002-S001		$11,044
93.395	National Clinical Trials Network (NCTN) Grant	Public Health Institute	AR04564/0000003204		$7,519
93.395	New Materials to Deliver mRNA: Applications in Cancer Immunotherapy				$425,964
93.395	NIH National Clinical Trials Network (NCTN)	Public Health Institute	AR04542 / 0000003196		$26,411
93.395	NK Cells their receptors and cancer therapy	University Of Minnesota	P008703403		$43,031
93.395	Novel Mechano-Acoustic Enhancement of Immunotherapy				$51,706
93.395	Novel therapeutic approaches for enhancing anti-tumor immunity SCLC	University of Texas MD Anderson Cancer Center	3001826340		$141,054
93.395	NRG Oncology Network Group Operations Center	NRG Oncology Foundation, Inc.	NRG-Le-GY8 / U10 CA180868		$126,830
93.395	P2-TOPAS - nBIO, a Monte Carlo Tool for Radiation Biology Research	Massachusetts General Hospital	236149 / R01 CA187003		$96,640
93.395	Pathology Review: NIH National Clinical Trials Network (NCTN) Grant (2U10CA180886)	Public Health Institute	AR04544 / PO 0000003188		$95,681
93.395	Patient- and tumor-specific biomarkers and mechanisms that predict irAEs resulting from checkpoint inhibition	Vanderbilt University Medical Center	VUMC74848		$35,193
93.395	Pediatric Brain Tumor Consortium	St. Jude Children's Research Hospital	110068220-7999160, 11006823I-8080815- 4, PBTC-055		$50,618
93.395	Phase 1 and 2 Molecular and Clinical Pharmacodynamic Trials ETCTN	Beckman Research Institute Of The City Of Hope	PO 3000233120		$183,861
93.395	Phase one clinical trial of a novel small molecule EBNA1 inhibitor, VK-2019, in patients with Epstein-Barr positive nasopharyngeal cancer, with pharmacokinetic and pharmacodynamic correlative studies			$75,576	$842,959
93.395	QBS10072S for the Treatment of Brain Metastatic Triple-Negative Breast Cancer	Quadriga Biosciences, Inc.	SPO 183921		$45,626
93.395	Radiation-Induced Tumor Cell Migration				-$1,115
93.395	Radioluminescence dosimetry solution for precision radiation therapy			$275,992	$475,442
93.395	Randomized Controlled Trial of Virtual Reality for GI Cancer Pain to Improve Patient Reported Outcomes	Cedars-Sinai Medical Center	0001900521		$11,522
93.395	SCLC NYU- Year 5	New York University	17-A0-00-008395 M220526771		$93,524
93.395	Strategies for Receptor inhibition in immunotherapy			$12,905	$263,527
93.395	SWOG Network Group Operations Center of the NCTN	Oregon Health & Science University	1013080_STANFORD		$2,556
93.395	Synthetic Studies Related to Cancer Research/Treatment				$191,116
93.395	Targeting ALK through Degradation and Allosteric Inhibitors			$101,822	$277,676
93.395	Targeting AXL to overcome resistance to taxanes and platinum-based therapy in castrate resistant and neuroendocrine prostate cancer				$76,152
93.395	Targeting CDK7 in CCNE1-amplified Ovarian Cancer				$151,163
93.395	Targeting CNS complement cascade to ameliorate cranial radiation-induced cognitive deficits	University of California, Irvine	2021-1517 / R01 CA251110		$9,285
93.395	Targeting colorectal cancer stem cells with ALDH1B1 antagonists				$342,162
93.395	Targeting Dectin-2 on tumor-associated macrophages for the treatment of cancer				$262,540
93.395	The 4th Stat4Onc Annual Symposium				$11,460
93.395	The molecular basis of IMiD induced neo-substrate recruitment to the CRL4CRBN ubiquitin E3 ligase	Dana-Farber Cancer Institute (489)	1300006		$172
93.395	The TOPAS Tool for Particle Simulation, a Monte Carlo Simulation Tool for Physics, Biology and Clinical Research	University of California, San Francisco	10824SC / U24 CA215123		$278,883
93.396	(#6) A novel animal model for determining the role of circadian timing in breast cancer development				$582,287
93.396	(PQ4) Quantitative and multiplexed analysis of gene function in cancer in vivo				$351,435
93.396	A robust platform for multiplexed, subcellular proteomic imaging in human tissue				$563,374
93.396	Cellular Senescence Network: New Imaging Tools for Arthritis Imaging			$40,000	$324,677
93.396	Delineating developmental programs driving tumorigenesis in triple-negative breast cancer				$509,374
93.396	Determining and targeting mechanisms controlling cancer cell division				$445,357
93.396	Dissecting the interplay between aging, genotype and the microenvironment in lung cancer				$557,303
93.396	Effect of Radiotherapy on Dendritic Cell Subsets: Implications for Immunotherapy				$244,801
93.396	Elucidating the Role of Trop2 in Prostate Cancer			$2,527	$298,443
93.396	Elucidating the Role of UCHL1 in Aggressive Prostate Cancer			$18,346	$313,930
93.396	Epigenetic Mechanisms and Targeting in MLL Leukemia				$234,731
93.396	Epigenetic Regulators in Tumor Progression				$142,887
93.396	Genetic Determinants of Tumor Growth and Drug Sensitivity in EGFR Mutant Lung Cancer	Yale University	CON-80003286(GR113944)		$298,500
93.396	Genetic dissection of oncogenic Kras signaling				$431,817
93.396	High resolution dissection of oncogene enhancer networks via CRISPR screening and live-cell imaging.				$960
93.396	Human Acute Myeloid Leukemia Stem Cells				$450,538
93.396	Identifying and Targeting Mechanisms for Membrane Signaling in Human Cancer	University of California, San Francisco	12578sc		$225,588
93.396	Inferring the roots of metastases and their effects on patient survival				$10,785
93.396	Integrating Omics and quantitative imaging data in co-clinical trials to predict treatment response in triple negative breast cancer	Baylor College of Medicine	PO #7000001081 / U24 CA226110		$220,221
93.396	Investigating molecular and cellular mechanisms of SCLC development to identify novel therapeutic strategies			$1,202	$924,879
93.396	Investigating the roles of extracellular cGAMP and harnessing it for cancer treatment				$764,383
93.396	Macrophage phenotype polarization in clinical neoplasia				$486,077

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.396	Measuring and Modulating Oxidative DNA Damage Surveillance Pathways				$538,444
93.396	Metabolic imaging comparisons of patient-derived models of renal cell carcinoma	University of California, San Francisco	10450sc		$197,765
93.396	Molecular dissection of Lkb1-mediated tumor suppression				$224,363
93.396	Neural Niche in Promoting Brain Metastatic Tumor Progression	University of Notre Dame	204215SU		$89,389
93.396	Novel Therapeutics for Adult Glioblastoma (Project 3)	Brigham and Women's Hospital	126696		$866
93.396	Novel Therapeutics for Adult Glioblastoma (U19 Admin Core)	Brigham and Women's Hospital	126686		$18,535
93.396	Pancreatic Cancer Development: Genetic and Immune Regulation			$78,003	$2,017,039
93.396	Proliferation and Differentiation of Bladder Epithelial Cells in Regeneration and Malignancy				$637,385
93.396	Role of extracellular matrix malleability in mediating breast cancer cell invasion and migration			$35,770	$482,786
93.396	Role of the METTL13 Lysine Methyltransferase in Signaling and Cancer			$269,726	$518,796
93.396	Role of the microenvironment in ovarian cancer metastasis	Washington University in St. Louis	WU-20-208-MOD-3; PO ST00000306		$104,427
93.396	SCH: INT: Collaborative Research: Intelligent Information Sharing: Advancing Teamwork in Complex Care				$68,719
93.396	Software and algorithms for elucidating the structure, function, and evolution of extrachromosomal DNA	University of California, San Diego	704826		$72,750
93.396	Stem Cell Biology, Cancer Stem Cell Biology, and Cancer Immunotherapy				$1,003,139
93.396	Targeting Lymph Node Dependent Immune Tolerance in Cancer				$631,092
93.396	Targeting the cancer glycocalyx			$217,781	$456,761
93.396	Targeting the MYC Pathway for the Treatment of Cancer				$936,673
93.396	The Impact of Mitochondrial Repression and Lipid Accumulation of HIF on Tumor Growth.				$698,937
93.396	U01-Molecular and Cellular Characterization Laboratory (RFA-CA-14-010)				$174,422
93.396	Using Protein Interaction Networks and Combinatorial Screens to target KRAS driven cancer				-$27,327
93.397	Arizona Cancer and Evolution Center	Arizona State University	ASUB00000009		$27,779
93.397	Center for Cancer Nanotechnology Translational Diagnostics (CCNE-TD)				$59,932
93.397	Clinical Impact of Molecular Classification of Endometrial Carcinoma	University of Texas MD Anderson Cancer Center	3001524212		$26,739
93.397	Dana Farber/ Harvard Cancer Center SPORE in Gastrointestinal Cancer (SPORE FGFR degrader-Wolpin)	Dana-Farber Cancer Institute (489)	1220613		$58,551
93.397	Modeling the Role of Lymph Node Metastases in Tumor-Mediated Immunosupression				$677,531
93.397	Phenotype Heterogeneity and Dynamics in SCLC	Vanderbilt University	UNIV60169; P22052363		$104,307
93.397	Project 3: Deciphering Germline and Somatic Genomic Landscape of Gliomas in Black and Hispanic Minority Groups	University of Texas MD Anderson Cancer Center	3001851301 / P50 CA127001		$20,348
93.397	SPORE in Multiple Myeloma	Dana-Farber Cancer Institute (489)	1224818, 1224819		$18,160
93.397	Stanford Brain Metastasis Consortium				$1,160,169
93.397	Stanford Breast Metastasis Center			$9,346	$1,247,951
93.397	Stanford University Cancer Center				$3,917,414
93.397	Targeting microenvironmental dependencies for glioblastoma therapy (Project 4)	Brigham and Women's Hospital	122260		$92,803
93.398	Bioengineering programmable and drug-controllable synthetic receptors fortunable CAR-T cell behaviors				$78,770
93.398	Canary Cancer Research Education Summer Training (Canary Crest) Program				$225,868
93.398	Cancer Etiology, Prevention, Detection and Diagnosis				$470,590
93.398	Cancer immunotherapy using injectable hydrogels for precise and tunable multidrug delivery				$63,520
93.398	Cancer-Translational Nanotechnology Training Program (Cancer-TNT)				$12,918
93.398	Defining Pre-treatment Correlates of Patient GD2 CAR T Cell Exhaustion and Memory Using Multi-Dimensional Immune Profiling				$51,580
93.398	Defining the Medulloblastoma Cancer Stem Cell Lineage Hierarchy by Notch Family Signaling				$10,472
93.398	Development of microfluidic blood-brain tumor barrier model to screen chemotherapeutic strategies for breast cancer brain metastases				$122,657
93.398	Dissecting reciprocal interactions between cancer cells and endothelial cells in SCLC liver metastasis.				$52,608
93.398	Dissecting the Mechanism of Acute Myeloid Leukemia Induced Bone Marrow Failure to Identify Therapeutic Interventions				$165,116
93.398	Dissecting the Mechanism of Polycomb Eviction by the BAF Complex				$67,442
93.398	Dissecting the Roles and Requirements for RBM39 in Acute Myeloid Leukemia and Normal Hematopoiesis				$36,618
93.398	Do Tumor-Immune Interactions Prime Systemic Tolerance of Triple Negative Breast Cancer (TNBC) Breast-to-Brain Metastases?				$150,925
93.398	Dynamic Analysis of Tumor and Microenvironment in Patients Undergoing Immunotherapy				$180,023
93.398	Electrical integration of primary and secondary brain cancers into neural circuitry				$35,257
93.398	Elucidating the Role of the CLCF1-CNTFR Signaling Axis for Lung Cancer Treatment				$39,392
93.398	Engineering Brain Cancer in a Dish: Hydrogel-based 3D in vitro Models for Pediatric Brain Tumor				$42,401
93.398	F31: Spatial Transcriptomics through Celltowers				$2,964
93.398	Family-building After Cancer: Preferences, Decisions, and Planning for Young Female Survivors				$100,085
93.398	Functional characterization of novel oncogenic loci driving progression and immune response in gastrointestinal cancer				$142,537
93.398	Functional Proteomic Analysis and Biomarker Identification in a Novel Mouse Model of Metastatic Hepatocellular Carcinoma (HCC)				$227,548
93.398	Harnessing the innate immunotransmitter cGAMP for anti-cancer therapy				$1,484
93.398	Hijacking cancer driver to activate cell death by chemically induced proximity				$8,577
93.398	Identifying Mechanisms of Paracrine cGAMP Signaling in the Tumor Microenvironment				$40,572
93.398	Immune targeting of Non-Hodgkin Lymphoma through integrative Antigen Presentation Profiling				$153,016
93.398	Integrating Spatial Omics and Drug Imaging to Dissect the Role of Pancreatic Tumor Microenvironment in Drug Resistance				$11,015
93.398	Integrative subtyping to improve therapeutic options for metastatic hormone receptor-positive breast cancer				$221,785
93.398	Lymphoma Antigen Density and Circulating Tumor DNA Profiling As Determinants of Novel CAR Therapies				$232,691
93.398	Magnetic Particle Imaging (MPI) for Imaging and Magnetothermal Therapy of Brain Tumors				$214,035
93.398	Molecular Characterization and Personalized Approaches to Non-Hodgkin Lymphoma from Circulating Tumor DNA				$206,523
93.398	Molecular mechanisms of NFIB in small cell lung cancer metastasis				$40,539
93.398	Molecular pathways associated with BCC to SCC pathway switching				$79,404
93.398	Myc promoted changes to the glycocalyx in leukemia				$10,583
93.398	Noninvasive Risk Stratification of Prostate Cancer Using Cell-Free Nucleic Acids				$289,426
93.398	PRECISE - a PErsonalized Risk Score for gastrIc CancEr				$177,324
93.398	Predicting response to anti-PD-1 therapy in triple negative breast cancer by comprehensive profiling of the tumor microenvironment				$11,254
93.398	Psychobiological stress vulnerability, executive control, and depression in children and adolescents with cancer				$213,041
93.398	Raf-1 As a Regulator of Glutamine Metabolism				$31,314
93.398	Real-Time Freehand Ultrasound Molecular Imaging with Deep Learning				$84,747
93.398	Repurposing systemic therapies to improve clinical outcomes in advanced basal cell cancer				$169,156

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.398	Role of novel cis-acting long non-coding RNAs in DNA replication timing and chromosome stability in cancer				$57,408
93.398	Role of the candidate protein methyltransferase METTL18 in cancer biology				$25,672
93.398	Single cell characterization of human acute myeloid leukemia				$88,771
93.398	Single cell epigenomics in cancer immunity and immunotherapy				-$5,784
93.398	Stanford Cancer Imaging Training (SCIT) Program				$359,951
93.398	Stanford Molecular Imaging Scholars (SMIS) Program				$214,170
93.398	Systematic Discovery and Characterization of Novel Tumor Anti-Phagocytic Mechanisms				$49,556
93.398	Targeting casein kinase 1-alpha for cancer therapy				$112,343
93.398	Targeting ligand-independent CSF3R dimerization in chronic neutrophilic leukemia				$1,200
93.398	The role of DNMT3A in gene regulation and stem cell expansion				$88,544
93.398	The role of fallopian tube microbiome in ovarian carcinogenesis				$246,376
93.398	The role of membrane lipid remodeling in cancer cell ferroptosis sensitivity				$29,522
93.398	Therapeutic dissection of genotype-specific lung cancer vulnerabilities				$21,575
93.398	Transcription Factors in Intestinal Differentiation and Cancer				$450
93.398	Tumor and Immune Cell Dynamics during Immunotherapy and Cancer Progression				-$89
93.398	Uniting Mass Spectrometry and Glycoscience to Investigate Cancer Biology				$96,949
93.399	AALL1131 Supplemental PCR	Children's Hospital of Philadelphia	FP00034095_SUB17_01		$602
93.399	COG NCTN Per Case Reimbursement Master Grant	Public Health Institute	Grant 7UG1CA189955		$37,451
93.732	Addiction Medicine Fellowship				$589,120
93.788	State Opioid Response: Waiver Prescriber Support- Training and Technical Assistance	University of California, Los Angeles	No. 2000 S YF 767,A-1		$177,203
93.837	"Modeling Endothelial Dysfunction in LMNA-related Cardiomyopathy				-$22,084
93.837	A Critical Role for Leukotriene B4 in Lymphedema	Palo Alto Veterans Institute for Research	NIM0013-02		$186,595
93.837	A new framework for understanding the mechanisms of diastolic dysfunction	Palo Alto Veterans Institute for Research	ENN0001-01		$170,330
93.837	A protein traffic control system that regulates left-right patterning and heart development			$61,010	$441,584
93.837	A transcriptional network which governs smooth muscle transition is mediated by causal coronary artery disease gene PDGFD				$22,328
93.837	Aldehyde Dehydrogenase Activation for Treatment for Fanconi Anemia				$215,230
93.837	Aligned Nanofibrillar Scaffolds Enhance Angiogenesis and Viability in Ischemia				$199,143
93.837	Alpha-catenin function in cardiomyocyte adhesion and cytoskeletal organization	University of Pittsburgh	AWD00004587 (136701-1)		$91,281
93.837	American Heart Association Tobacco Center for Regulatory Science (A-TRAC) 2.0	American Heart Association	FX-ATRAC-5U54HL120163-SU-09		$43,323
93.837	An Automated System to Interpret Echocardiography to Predict Adverse Outcomes in Patients w/Right Ventricular Dysfunction in Daily Hospital Practice	mProbe Inc.	214447 / R41 HL160362		$153,652
93.837	An electrophysiology platform that enables robust, scalable and long-term intracellular recording of cardiomyocytes				$6,933
93.837	An evaluation of insomnia treatment to reduce cardiovascular risk in patients with posttraumatic stress disorder	Duke University	A034721		$8,468
93.837	Anastrozole in Pulmonary Arterial Hypertension: AIPH2	University Of Pennsylvania	581275 / PO 4820971		$22,804
93.837	Anchored Phosphatase and Transcription Factor Regulation in the Heart	University of Connecticut	UCHC7-98175577		$3,385
93.837	Angiogenic Bioengineered Systems to Optimize Post-Infarction Myocardial Recovery				$547,273
93.837	Applying statistical learning tools to personalize cardiovascular treatment				$699,196
93.837	Assessing Function and Performance of Population Sexual Orientation and Gender Identity (SOGI) Research Measures in a Racially Diverse HIV-Specific National Cohort	University of California, San Francisco	13192sc		$16,790
93.837	Biomechanical Optimization of Cardiac Valve Repair Operations				$652,777
93.837	Biomechanical Optimization of Mitral Valve Repair Operations for Mitral Regurgitation				$149,794
93.837	Biorepository of Human iPSCs for Studying Dilated and Hypertrophic Cardiomyopathy				-$1,619
93.837	Blood Stem Cell Transplantation as Immunotherapy			-$21,373	$734,636
93.837	Bridging the gap between mutation & cellular effects: Defining the mechanisms of hypertrophic cardiomyopathy				$141,183
93.837	Calcineurin compartmentation and regulation of pathological cardiac remodeling			$19,506	$479,906
93.837	Cardiomyocyte phenotype and mechanotransduction in Filamin C gene variants causing arrhythmogenic cardiomyopathy	University of Colorado Denver	FY20.217.001/2-5-A8857		$76,693
93.837	Cardioprotective Therapy for Doxorubicin Using iPSC Microtissue and CRISPR Screening				$405,842
93.837	Cardiovascular Disease Prevention Training Program				$7,982
93.837	Causal variant association mechanisms in TCF21 binding coronary disease loci				$597,672
93.837	Cavopulmonary Assist to Reverse the Fontan	Indiana University	Sub 8777; PO0511131		$151,158
93.837	Cholesterol Regulation of Lysosomes				$39,914
93.837	Chronic Hypertension and Pregnancy (CHAP)	University Of Alabama In Birmingham	000503570-SC006-Els		$5,366
93.837	Clinical Microfluidic Assessment of Red Blood Cell Adhesion, Deformability, Cellular Hemoglobin Distribution, Cellular Density, and Blood Rheology for Curative Therapies in Sickle Cell Disease	Case Western Reserve University	RES515114		$6,228
93.837	Clinical Microfluidic Assessment of Red Blood Cell Adhesion, Deformability, Density, Cellular Hemoglobin Expression, and Blood Rheology for Curative Therapies in Sickle Cell Disease	Case Western Reserve University	RES515113		-$10,265
93.837	Clonal expansion, resistance to efferocytosis and innate immunity in atherosclerosis				$963,876
93.837	Comprehensive CT Imaging for Optimization of Coronary Artery Bypass Graft Surgery			$47.537	$442,462
93.837	Coronary Magnetic Resonance Angiography				$337,758
93.837	COVID-19 Genome Editing of Human iPSCs to Study Inherited Hypertrophic Cardiomyopathy				$254,095
93.837	COVID-19 Share, Trust, Organize, Partner: The COVID-19 California Alliance (STOP COVID-19 CA) Phase 3	University of California, Los Angeles	1790 G ZA118 / OT2 HL158287		$249,100
93.837	Cryo-electron tomography to determine crosstalk mechanisms of calcium channels in cardiomyocytes				$84,709
93.837	Deciphering the Endothelial Cell-Cardiomyocyte Crosstalk in LMNA Cardiomyopathy				$358,115
93.837	Deep Neural Networks to Treat Atrial Fibrillation				$152,495
93.837	Delineating the Genetic Susceptibility of Smoking-Induced Vascular Dysfunction				$118,659
93.837	Dynamic Biomaterial Design to Probe the Cellular Response to Fibrotic Stiffening				$467,084
93.837	E-cigarette aerosol effects on the cardiovascular system in rodents				$458,546
93.837	Elucidating ECM Signaling in Cardiac Organoids with Machine Learning and Single-cell Multiomics				$94,721
93.837	Elucidating Electro-Mechanical Dysfunction in Heart Failure with Human Stem Cell Models			$762,733	$1,800,666
93.837	Elucidating Genotype-Phenotype Relationship of Polygenic Dilated Cardiomyopathies				$436,098
93.837	Elucidating the Biology of Cardiovascular Risk in Hemodialysis Patients Using Proteomics	University of California, San Francisco	12862sc		$24,093
93.837	Elucidation of the Development and Function of the Cardiac Conduction System				$190,878
93.837	Engaging self-regulation targets to understand the mechanisms of behavior change and improve mood and weight outcomes	University of Illinois at Chicago	17357-01; 1228234-300-EAFGS		-$924
93.837	Engineered matrix microarrays to enhance the regenerative potential of iPSC-derived endothelial Cells				$317,194
93.837	Engineered Protein Hydrogels to Modulate Adipose-derived Stromal Cell Secretome and Exosomes for Injectable Myocardial Infarction Therapy				-$1
93.837	Escalating Proportion of Weight-Loss Maintainers Via Modules Prior to Weight Loss				$79,444
93.837	Evidence Based Evaluation and Acceptance of Donor Hearts for Transplantation				$116,694
93.837	Extracellular Matrix Biomechanical Properties Contribute to Aneurysm Formation in Marfan Syndrome				$66,405

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.837	FELLOWSHIP-Albert J. Pedroza-Developmental basis for vascular smooth muscle cell dysfunction in Marfan syndrome aortic aneurysm				$63,303
93.837	Genetic and Stem Cell Model of Cardiac Metabolic Disease				$235,614
93.837	Genome-wide association study of coronary artery disease in individuals of African ancestry	Vanderbilt University Medical Center	VUMC87372,UEIHJD6G4D6TJY5		$2,753
93.837	Gut Microbiota and Cardiometabolic Diseases/ Project 3: Discovery, enzymatic source and characterization of novel microbiota-derived metabolites in cardiometabolic diseases	Cleveland Clinic Foundation	1393-SUB		$367,612
93.837	Harnessing Big Data to Identify Effective Peripheral Artery Disease Treatments in Chronic Kidney Disease				$301,674
93.837	High-Throughput Screens to Discover Novel Inhibitors of Leaky RyR2 for Heart Failure Therapy	University Of Minnesota	N006353702		-$134,569
93.837	Human Induced Pluripotent Stem Cells for Cardiovascular Disease Modeling				$51,962
93.837	Human iPSC Model for Elucidating Crosstalk Signaling and Secretomes			$10,420	$263,914
93.837	Human iPSC Model for Elucidating Intracellular Crosstalk Signaling in Dilated Cardiomyopathy				$63,667
93.837	Human iPSCs for Elucidating Stress-mediated Paracrine Signaling in Dilated Cardiomyopathy				$53,126
93.837	Identification of Causal T-Cell Mechanisms in Immune Checkpoint Inhibitor Induced Myocarditis				$91,534
93.837	Identifying angiocrine factors for cardiomyocyte maturation using single-cell sequencing				$79,400
93.837	Identifying tobacco-genetic interactions through study of the aryl hydrocarbon receptor pathway				$418,814
93.837	Impact of Water Access on Child Food and Beverage Intake and Obesity			$102,497	$175,279
93.837	Improve PAD PERformance with METformin: The PERMET Trial	Northwestern University	60045563 SU / R01 HL131771		$8,448
93.837	Improving the Screening Criteria that Trigger an Early ECG to Diagnose STEMI				$14,470
93.837	Improving Tissue Engineered Vascular Graft Performance via Computational Modeling	Research Institute at Nationwide Children's Hospital	700151-1121-00; PO# 4605919		$25,835
93.837	Injectable Hydrogels to Deliver Gene Therapy for Myocardial Infarct				$542,723
93.837	Integrating Volumetric Light-Field with Computational Fluid Dynamics to Study Myocardial Trabeculation and Function	University of California, Los Angeles	1564 G ZA140		$66,753
93.837	International Consortium for Multimodality Phenotyping in Adults with Noncompaction			$97,493	$364,411
93.837	Investigating the Role of Shear Stress in Coronary Artery Development				$5,536
93.837	ISCHEMIA Trial	New York University	10-01073/26-C-10500NYUPG100422		$158,501
93.837	Leveraging a Natural Experiment to Estimate the Effects of School Racial Segregation on Cardiovascular Risk Factors amoung Youth and Young Adults	University of California, San Francisco	12218sc		$13,760
93.837	LncRNA Transcriptional Mechanisms of Coronary Artery Disease Risk			$177,574	$386,712
93.837	Machine Learning in Atrial Fibrillation			$71,908	$670,310
93.837	Mapping, modeling, and manipulating 3D contacts in vascular cells to connect risk variants to disease genes				$144,693
93.837	Marfan Aortic Embryologic Origin Influences Aneurysm Formation				$266,197
93.837	Mechanotransduction and transcriptional regulation during artery development				$525,282
93.837	Mediators of Systemic Inflammation and Heart Failure Risk in the Community	Cedars-Sinai Medical Center	1572381		$114,966
93.837	Mendelian randomization of dietary intakes in the UK Biobank				$3,454
93.837	META - Mentor, Educate, Train, Advocate: Patient Oriented Researchers in Cardiometabolic Disease				$181,611
93.837	Mitochondrial health, cardiovascular risk, and blood pressure targets in hypertensive adults	Northern California Institute for Research and Education	JOTV2359-03		$117,552
93.837	Modeling myosin mechanobiology towards understanding the mechanisms of hypertrophic cardiomyopathy				$145,205
93.837	Modeling Susceptibility to Chemotherapy-Induced Cardiotoxicity Using Human iPSCs			$2,738	$502,787
93.837	Modeling Tyrosine Kinase Inhibitor-Induced Vascular Dysfunction Using Human iPSCs			$2,738	$834,003
93.837	Molecular Characterization of Cardiomyopathy Mutations in Human Cardiac Myosin	University of Colorado	RHL117138C/1556322/1001023086		$50,581
93.837	Molecular Imaging of Cardiac Pluripotent Stem Cells				-$1,184
93.837	Molecular phenotyping for autopsy-defined sudden cardiac death	University of California, San Francisco	12636sc		$78,568
93.837	Motivational Determinants of Postpartum Lifestyle Behaviors, Weight Retention, and Metabolic Syndrome	University of California, Davis	A20-3069-S003		$21,586
93.837	Mulan: A Novel Regulator of Mitochondrial Dynamics, Mitophagy, and Heart Function				-$17,921
93.837	Mulan: A Novel Regulator of Mitochondrial Dynamics, Mitophagy, and Heart Function			$82,873	$82,873
93.837	Multicenter International Durability and Safety of Sirolimus in LAM Trial (MIDAS) Clinical Study	LAM Foundation	MIDAS Site Agreement - 1		-$743
93.837	Multimodality Molecular Imaging of Stem Cell Therapy for Ischemic Cardiomyopathy				$165,335
93.837	Neurometabolic Outcomes of Different Cardiopulmonary Bypass Strategies				$837,919
93.837	NHLBI Undergraduate URM Summer Research Program				$75,450
93.837	Novel Conditioning for Hematopoietic Stem Cell Transplantation for Sickle Cell Disease: Use of an Antibody that Targets CD117				-$58,691
93.837	Optogenetic Engineered Heart Muscle for Disease Modeling				$43,245
93.837	Patient Oriented Research in Cardiovascular Regeneration				$10,947
93.837	Patient Specific Induced Pluripotent Stem Cell Derived Cardiomyocytes to Define Mechanisms of Electrical-Mechanical Dysfunction in Dilated Cardiomyopathy".				$101,102
93.837	Patient-Directed Computational Analysis of Atrial Fibrillation	University of California, San Diego	131549675 PO S9002618		$77,921
93.837	Patient-specific modeling of metabolic dysfunction in statin-induced myopathy using iPSC-derived myocytes				$31,521
93.837	PCSK9 Inhibition after Heart Transplantation				$353,500
93.837	PDGFD regulates a transcriptional network to modulate smooth muscle cell transition and disease risk				$345,776
93.837	Perinuclear cAMP in Cardiac Hypertrophy	University of Connecticut	UCHC7-144253015		$202,519
93.837	PEripheral ARtery Disease: Long-term Survival & Outcomes Study (PEARLS)	University of Iowa	S03172-01		$20,068
93.837	Physical Activity to Improve CV Health in Older Women: A Pragmatic Trial	Fred Hutchinson Cancer Research Center	0001086037		$1,042,633
93.837	Physical Activity to Improve CV Health in Women: A Pragmatic Trial CCC-Lead				-$2
93.837	Precision Medicine by Harmonizing Real World Evidence and RCT Data			$72,298	$270,562
93.837	Precision Medicine for Dilated Cardiomyopathy in European and African Ancestry	Ohio State University	GR119789 /SPC-1000004291		$2,923
93.837	Preeclampsia to Cardiovascular Disease: Life-course Analysis of Biomarkers and Risk			$72,242	$1,353,572
93.837	Pregnancy as a Window to the Future: Outcomes of Antihypertensive Therapy and Superimposed Preeclampsia in Pregnant Women with Mild Chronic Hypertension (CHAP Maternal Follow-up Study)	University of Alabama at Birmingham	000530812-SC023		$13,582
93.837	Production of a GMP lot of AAV6	Beckman Research Institute Of The City Of Hope	PO# 3000201679; 3000230484		-$3,173
93.837	Protein Kinase C Isozymes in Ischemic Heart				$371,587
93.837	Radiomics approach to engineering an artificial intelligence based echocardiography platform to predict cardiovascular surgery and heart failure outcomes.				$203,293
93.837	RE-ENERGIZE FONTAN - RandomizEd Exercise INtERvention desiGned to MaximIZE Fitness in Pediatric FONTAN patients			$30,727	$671,627
93.837	Regulation of Histone Deacetylases by mAKAP Signalosomes			$225,809	$434,014
93.837	Regulation of Inflammation and Atherosclerosis by TCF21				$99,961
93.837	Role of Zeb2 in modifying genetic risk of coronary artery disease				$149,492
93.837	Shear stress and light-field to elucidate the initiation of cardiac outflow tract	University of California, Los Angeles	1564 G YA759		$124,642
93.837	Single Cell Sequencing of Human iPSC-CM Subtype Identity and Function				$381,080

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.837	Single-cell analysis of the heart in myotonic dystrophy				$53,119
93.837	Small Molecule NOTCH Inhibitors for the treatment of pulmonary hypertension				$15,553
93.837	Stanford BSSR Pre-Doctoral Training Program at the Intersection of Behavioral, Data and Population Health Sciences				$233,240
93.837	Stanford Cardiovascular Summer Research Training Program for Medical Students				$86,820
93.837	Structural and dynamic analysis of GRK interaction with G protein-coupled receptors	Thomas Jefferson University	080-02000-S29101,PO2000077205		$230,420
93.837	Structure function relationships from deep mutational scanning in human cardiomyopathy				$513,843
93.837	Studying guinea pig development to discover how natural collateral arteries form				$129,830
93.837	SURPASS: (Statin Use and Risk Prediction of Atherosclerotic Cardiovascular Disease in minority Subgroups)				$171,365
93.837	T32 Training Program in Mechanisms and Innovation in Vascular Disease				$414,067
93.837	Targeting cardiovascular events to improve patient outcomes after sepsis	Boston University	4500002816		$30,084
93.837	Targeting the genotype to phenotype link in HCM as a therapeutic strategy			$25,339	$553,297
93.837	Technology Innovations for Supporting Health Among Alaska Native People				-$30,225
93.837	Th SMAD3 signaling network in coronary artery disease risk				$466,894
93.837	The Dynamics of Human Atrial Fibrillation			$23,034	$570,995
93.837	The Effect of Estrogen on Cardiac Arrhythmic Propensity				$36,915
93.837	The Effect of Value-based Payment on Heart Failure Quality of Care (Value-HF)				$175,466
93.837	The LIMIting AAA with meTformin (LIMIT) Trial				$868,657
93.837	The Pilot Project	University Of South Carolina	20-3899 PO#2000048662		$73,390
93.837	The Role of 3-Dimensional Genome Integrity In Cardiac Laminopathies				$504,542
93.837	The Role of RBM20 Sequence and Expression in Dilated Cardiomyopathies				$129,069
93.837	The role of the gut microbiome-host metabolome interactions in heart failure-related insulin resistance				-$2,534
93.837	The WHI Strong and Healthy SilenT Atrial fibrillation Recording study (WHISH STAR)			$233,171	$549,263
93.837	Training in Myocardial Biology at Stanford (TIMBS)				$34,660
93.837	Trans-omics elucidation of genetic architecture underlying cardiovascular and HLBS diseases			$215,879	$412,825
93.837	Tweet4Wellness: Development and RCT of Mobile Social Support Groups for Sedentary Behavior Reduction				$175,245
93.837	Understanding the Mechanisms of Ventricular Dysfunction in Hypoplastic Left Heart Syndrome				$33,713
93.837	Unraveling the pathogenesis of familial dilated cardiomyopathy towards precision medicine				$506,079
93.837	Unraveling the role of endothelium in chemotherapy-induced cardiotoxicity				$149,850
93.837	Using artificial intelligence to enable early identification and treatment of peripheral artery disease				$140,080
93.837	Using Atrial Mechanics To Identify Fibrosis In Patients with Atrial Fibrillation			$122,857	$409,689
93.837	Using Deep Learning to Predict Induced Pluripotent Stem Cell-Derived Cardiomyocyte (iPSC-CM) Differentiation Outcomes				$38,151
93.837	Using Modern Data Science Methods and Advanced Analytics to Improve the Efficiency, Reliability, and Timeliness of Surgical Quality Data	Emory University	A632369		$87,777
93.837	Vaccine Induced Immune-Inflammatory Response and Cardiovascular Risk	Cedars-Sinai Medical Center	1891939		$211,462
93.837	Validating Cardiac MRI Biomarkers and Genotype-Phenotype Correlations for DMD			$153,974	$298,075
93.837	Validation of Cancer Prevention and Control Using Smarthphones, Cognitive	Vignet Inc.	HHSN261201700003C	$34,403	$59,817
93.837	Whole-genome sequencing analysis of coronary atherosclerosis and related traits	University of Texas Health Science Center at Houston	SA0000633		$75,128
93.838	1/1 , 2/2 Arrest Respiratory Failure due to Pneumonia (ARREST PNEUMONIA)			$526,840	$1,509,531
93.838	133420_R01_Desai_Identifying niche factors regulating distinct properties of AT2 stem cells				$486,285
93.838	2/2 Ganciclovir to Prevent Reactivation of Cytomegalovirus in Patients with Acute Respiratory Failure and Sepsis	Fred Hutchinson Cancer Research Center	0001104765		$24,218
93.838	A critical role for macrophage ferroptosis in promoting fungal invasion in lung transplant recipients				$597,258
93.838	A Mechanistic Clinical Trial of JAK Inhibition to Prevent Ventilator- induced Diaphragm Dysfunction				$586,393
93.838	A novel microfluidic platform to study exosome biology in PAH.				$213,534
93.838	A universal genome editing strategy to develop an airway stem cell therapy for cystic fibrosis				$181,635
93.838	Air pollution disrupts Inflammasome Regulation in HEart And Lung Total Health (AIRHEALTH)			$104,794	$1,780,172
93.838	An Anesthesia-Centered Bundle to Reduce Postoperative Pulmonary Complications: The PRIME-AIR Study	Massachusetts General Hospital	236660		$13,712
93.838	Biased Targeting of GPCR Signaling in Airway Disease	Thomas Jefferson University	PO 2000139768/080-02000-Z69104		$88,751
93.838	Case-Control Study of Methamphetamine in Pulmonary Arterial Hypertension	University Of Pennsylvania	583172		$115,149
93.838	CLOVERS Trial	University of California, San Francisco	10641sc		-$1,684
93.838	Complement Mediated Remodeling in Pulmonary Vascular Disease	University of Colorado Denver	FY21.032.003/PO #1001417854		$106,087
93.838	COVID-19 California Alliance (STOP COVID-19 CA)	University of California, Los Angeles	1790 G YA230 / OT2 HL156812		$76,845
93.838	COVID-19 FIRE CORAL: Functional, Imaging, and Respiratory Evaluation in CORAL	University of California, San Francisco	12878sc		$1,840
93.838	COVID-19 International Coordinating Center for ACTIV-3 Trial Initiative VATICO Pathway	Massachusetts General Hospital	239574		$22,760
93.838	Defining the cellular and molecular mechanisms driving neointimal lesion growth in pulmonary hypertension				$145,121
93.838	Developmental Heterogeneity of Pulmonary Endothelial Phenotype at Single Cell Resolution				$670,328
93.838	Dissecting the cell autonomous and non-cell autonomous of TBX1 in the human Pharyngeal Endoderm				$22,639
93.838	Diverse Homeostatic Roles for Distinct Macrophages in the Developing Lung Vasculature				$636,758
93.838	Elafin Therapy for Lung Diseases			$48,687	$874,555
93.838	Eliminating Monitor Overuse (EMO) Hybrid Effectiveness-Deimplementation Trial	Children's Hospital of Philadelphia	GRT-00001474/U01 HL159880		$2,006
93.838	Endothelial Injury, BMPR2 Dysfunction and Macrophage Activation Cause EndMT and PAH			$169,944	$178,683
93.838	Endothelial toll-like receptor 3 in the pathogenesis and therapy of pulmonary arterial hypertension	Ohio State University	GR118945 / PO# SPC-1000004075		$8,114
93.838	Endothelial-pericyte interactions in the pathogenesis of pulmonary arterial hypertension				$309,817
93.838	FLWSHIP M.Scott, PI P.Khatri-Role of cleaved H3 as a key epigenetic regulator of macrophages in idiopathic pulmonary fibrosis				$23,346
93.838	Genetic Disorder of Mucociliary Clearance	University of North Carolina at Chapel Hill	5122013		$41,632
93.838	HIF-1 mediated vascular integrity limits Aspergillus invasion in airway rejection				-$7,711
93.838	High Shear Stress Alters Gene Regulation in Pulmonary Arterial Hypertension				$623,271
93.838	Hydrocortisone for BPD Respiratory and Development Outcomes Study (HYBRID Outcomes Study): Clinical Coordinating Center	Children's Hospital of Philadelphia	3200930822/PO#20306796		$20,961
93.838	Immune Checkpoint inhibitors as Antifibrotic Therapy for Idiopathic Pulmonary Fibrosis				$1
93.838	Immunometabolic phenotypes in adult severe asthma and disease progression	Brigham and Women's Hospital	122869		$132,918
93.838	Impact of Early-in-life Disruption of Lung Development on Adult Lung Progenitor Function	University of California, San Diego	KR 703867		$240,580
93.838	Long Term Follow up of the Lung Transplant Outcomes Group Cohort	University Of Pennsylvania	PO# 4699778		$53,169
93.838	Molecular characterization of pulmonary edema: a window to an injured lung			$82,815	$278,109
93.838	MRI Methods for High Resolution Imaging of the Lung	University of California, San Francisco	10923sc / R01 HL136965		$117,517

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.838	Optimizing Surgical Transplant of CFTR Gene-Corrected Human Basal Stem Cells to the Upper Airway				$553,505
93.838	Pathogenesis of Pf Bacteriophages in Pseudomonas Cystic Fibrosis Lung Infections				$446,867
93.838	PD1 Pathway in ARDS	Benaroya Research Institute at Virginia Mason	0164102s03		$23,558
93.838	Pericytes and postnatal alveolarization: Role of hypoxia inducible factors				$135,453
93.838	Population-level Pulmonary Embolism Outcome Prediction with Imaging and Clinical Data: A Multi-Center Study			$32,199	$409,672
93.838	Probing the mechanisms of epithelial barrier restoration in the distal lung				$46,501
93.838	Proteomic and Transcriptomic Biomarkers of Circadian Timing			$434,500	$1,030,054
93.838	Pulmonary Complications in a Birth Cohort after a Randomized Trial of Antenatal Corticosteroids ("ALPS Follow-Up") Capitation Contract	George Washington University	Clinical Center 32		$6,887
93.838	Pulmonary Complications in a Birth Cohort after a Randomized Trial of Exposure to Antenatal Corticosteroids: the ALPS Follow-Up Study	George Washington University	S-ALP2122-CF32 PO 1000238024		$20,817
93.838	Pulmonary Hypertension In Genetically Modified Mice				$611,473
93.838	R38 Stanford Integrated Cardiovascular/Pulmonary Residency Research Training Program				$128,440
93.838	Reclassifying Pulmonary Arterial Hypertension with Machine Learned Immune Phenotypes				$223,867
93.838	Regulatory T Cells and Pulmonary Hypertension	Palo Alto Veterans Institute for Research	NIM0015-01		$22,718
93.838	Stanford Training Program in Lung Biology				$324,001
93.838	Suppression of basophil activation by IgE glycovariants			$174,282	$258,482
93.838	T Regulatory Cells in Pulmonary Arterial Hypertension	Palo Alto Veterans Institute for Research	NIM0015-02		$19,079
93.838	The ALOHA trial: Addressing Quality of Life, Clinical Outcomes, and Mechanisms in Adults with Uncontrolled Asthma Following the DASH Dietary Pattern	University of Illinois at Chicago	18723		$14,292
93.838	The BMP-PPARgamma Axis and Pulmonary Hypertension				$512,909
93.838	The Wnt7a/ROR2 axis in the pathogenesis of pulmonary arterial hypertension				$461,398
93.838	Therapeutic Rescue of a Deficient BMPR2 Hypoxic Response in Pulmonary Arterial Hypertension				$28,694
93.838	Understanding and targeting molecular as well as structural events governing right ventricular adaptation, failure and recovery in pulmonary hypertension using repurposed drugs			$16,023	$384,174
93.838	What triggers RV Fiber Re-Orientation in Pediatric Pulmonary Hypertension, and what is its Consequence on Inter-Ventricular Decoupling?	University of Colorado Denver	FY22.864.001/PO 1001650710		$71,794
93.839	Adenylate Kinase 2 Deficiency and the Failure of Myelopoiesis				$302,185
93.839	Biochemistry of Platelet Desialylation				$157,758
93.839	BMT Clinical Trial Network at Stanford				$146,274
93.839	Clonal hematopoiesis in human aging and disease				$845,062
93.839	Clonal hematopoiesis in the Women's Health Initiative	Fred Hutchinson Cancer Research Center	0001084349		$49,496
93.839	Epigenetic, Transcriptional, and Microenvironmental Determinants of Human HSC Self-Renewal				$478,720
93.839	Hepatic Gene Transfer for Treatment of Hemophilias A & B				$684,934
93.839	Homologous Recombination Mediated Gene Correction for the Hemoglobinopathies				$103,659
93.839	Identifying critical erythrocyte host factors for Plasmodium falciparum malaria				-$9,607
93.839	Immunosuppressive human invariant natural killer T cells for prevention of graftversus- host disease				$147,693
93.839	Innate cellular responses against Adeno-associated virus in hematopoietic stem and progentitor cells influence cell survival and repopulation capacity				$63,683
93.839	Investigating immunophenotype and metabolism of TCR KO donor and third-party CD19-targeted chimeric antigen receptor T cells				$156,091
93.839	Modulating HSC-niche interactions to understand aging and improve transplantation				$364,863
93.839	Molecular targeting of erythroid progenitor cells in normal and disordered human erythropoiesis	Feinstein Institute for Medical Research	GRT1900016;AWD00001008-Stanfor		$172,400
93.839	Program in Translational and Experimental Hematology				$299,632
93.839	Training Program in Hematopoietic Cell Transplantation				$97,602
93.839	Transfusion of Prematurity Early School Age Follow up (TOP 5) CCC	University of Iowa	S00706-04; g/p no. 11296400		$37,990
93.846	Advanced MR Imaging of Early Osteoarthritis				$99,292
93.846	Agile Development of a Digital Exposure Treatment for Youth with Chronic Musculoskeletal Pain				$165,823
93.846	AMP RA/SLE Leadership Center			$590,049	$674,975
93.846	Back Pain Consortium (BACPAC) Research Program Data Integration, Algorithm Development and Operations Management Center	University of North Carolina at Chapel Hill	5123478		$62,794
93.846	Can hydroxychloroquine prevent preeclampsia and preterm delivery in lupus pregnancy?			$292,536	$505,865
93.846	Characterization of Chronic Pain and its Biopsychosocial Mechanisms in Lupus using Electronic Health Records				$102,901
93.846	Chromatin Dynamics During Epithelial Commitment				$709,253
93.846	Customized MSCs to Enhance Healing of Bone Defects				$99,752
93.846	Determining how cell growth triggers cell division in epidermal stem cells				$214,479
93.846	Developing and Testing a Tool for Preference Elicitation in Carpal Tunnel Syndrome				$180,000
93.846	Development of Sodium Fluoride PET-MRI for Quantitative Assessment of Knee Osteoarthritis			$70,114	$363,182
93.846	Enhanced Bone Healing Around Implants by Transplanted NF-kB Driven Immunomodulating MSCs				$279,738
93.846	Epigenetic determinants influencing development and evolution of chronic post-surgical pain in children undergoing musculoskeletal surgery	Cincinnati Children's Hospital Medical Center	308702 (PO #3100774972)		$16,976
93.846	Establishing a Single-Cell Proteomic Atlas for Normal and Osteoarthritic Articular Cartilage				$499,416
93.846	Evaluating the potential of human induced pluripotent stem cells (hiPSC) for cartilage repair.				$299,976
93.846	Get moving, GET living: Graded exposure treatment for adolescents with chronic musculoskeletal pain.				$14,667
93.846	HEAL Initiative: Back Pain Consortium (BACPAC) Research Program Technology Research Sites	University of California, San Francisco	11817sc		$131,971
93.846	Homeostatic Regulators Disrupted in Skin Carcinogenesis				$354,605
93.846	Imaging of Joint Response to Physiological Stress with Age, Sex and in Osteoarthritis				$40,209
93.846	Instant Stem Cell Labeling with a new Microfluidic Device				$25,173
93.846	Interactions of PTH and Wnt Signaling in Bone Formation			$21,856	$379,209
93.846	Marfan Aortic Embryologic Origin Influences miR-29b Regulators and Targets				$114,145
93.846	Mechanisms of chromatin remodeling during epithelial development				$30,174
93.846	Mentoring and Research in Biobehavioral Aspects of Pediatric Pain				$72,225
93.846	Mitochondrial inner membrane artichoture in skeletal muscle pathophysiology				$623,491
93.846	Monitoring of Stem Cell Engraftment in Arthritic Joints with MR Imaging				$494,376
93.846	Mucosal Breaks in the Initiation and Progression of Rheumatoid Arthritis			$156,918	$350,293
93.846	Novel PET/MR Imaging Approach for Persistent Postsurgical Pain Following Joint Replacement				$656,119
93.846	Pain Rehabilitation Virtual Reality (PR-VR): Innovations to enhance mobility in the presence of pain				$181,093
93.846	Patient Oriented Research in Vulnerable Populations with Skin Disease				$171,111
93.846	Postgraduate Training Program in Epithelial Biology				$186,544
93.846	Rapid Low-Cost Quantitative 3D MRI and Gait Assessment of the Knee				$685,930
93.846	Regulating GLI Function in Hair Follicle Progenitors				$757,742
93.846	Regulators of Epidermal Gene Expression				$552,145
93.846	Regulatory Variants in Human Skin Diseases				$538,324
93.846	Sliding hydrogels for accelerating cartilage regeneration				$434,028
93.846	Small non-coding RNA regulation of RAS GTPase function in epidermal homeostasis				$49,535

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.846	Stanford Technology Accelerating Medicines Partnership Center				$4,528
93.846	Stromal Regulation of Basal Cell Carcinoma Formation				$669,226
93.846	SVF Cells for Nonoperative Treatment of Small Rotator Cuff Tears	Adventist Health System/Sunbelt, Inc. dba AdventHealth Orlando	1719309-Stanford		$20,236
93.846	Systems Modeling Guided Bone regeneration	University of Texas Health Science Center at Houston	SA0000046		$270,267
93.846	Targeted therapeutic modulation of inflammatory cytokines through manipulation of noncoding RNA regulation of innate immunity in atopic dermatitis				$163,321
93.846	Targeting DNA Demethylation Regulators in Osteoarthritis				$39,847
93.846	Thumb CMC Biomechanics and Early OA Progression	Rhode Island Hospital	7017137231		$53,565
93.846	Tissue engineering approaches for improved treatment of early stage osteonecrosis of the hip				$459,084
93.846	Training Program in Adult and Pediatric Rheumatology				$359,106
93.846	Transcriptional Regulatory Complexes in Epidermal Differentiation				$123,579
93.846	Urine cadmium and risk of fracture and bone loss	Stony Brook University, State University of New York	1171294/2/92721		$33,766
93.846	Vascularization in bone tissue engineering constructs				$301,655
93.847	123430_LTOG AKI_Dhillon_Clinical and molecular epidemiology of acute kidney injury after lung transplant.	University Of Pennsylvania	3918396/ PO4748790		$55,733
93.847	157068_Calcineurin in pancreatitis				$110,997
93.847	224800 WellRx subcontract: Does Free Medicine coverage Improve Diabetes	Kaiser Foundation Research Institute	RNG210891-Stanford		$12,474
93.847	A Clinical Center to Study Immunological and Hormonal Biomarkers for the Diagnosis, Prediction, and Treatment of Chronic Pancreatitis and its Associated Development to Diabetes and Pancreatic Cancer				$478,990
93.847	A Multi-Level Intervention to Promote Healthy Beverage Intake through Childcare			$47,934	$324,147
93.847	A novel approach for treating diabetes using pulsed focused ultrasound and intraarterial delivery of mesenchymal stem cell based therapies directly into the pancreas				$459,464
93.847	A Novel Therapeutic that Harnesses Microtubules to Promote Cavernous Nerve Regeneration after Radical Prostatectomy	MicroCures, Inc.	SPO 251528		$37,377
93.847	A Randomized Trial of a Group-Based Yoga Intervention for Urinary Incontinence in Ambulatory Older Women	University of California, San Francisco	11117sc		$170,478
93.847	A stem cell activated cryogel bioscaffold that restores islet bioenergetics while providing oxygen and nutrients at extravascular sites of transplantation				$87,111
93.847	Accelerating Solutions to Optimize Glycemic Control and Weight Management in Young Adults with Type 1 Diabetes	University of North Carolina at Chapel Hill	5107491		$23,553
93.847	Adult and Pediatric Nephrology and Urology Research Training Program				$292,060
93.847	An Encyclopedia of the Adipose Tissue Secretome to Identify Mediators of Health and Disease	Rockefeller University	1RC2DK129961-01 Dr. Paul Cohen		$266,201
93.847	An Integrated and Non-invasive Wearable Platform and Analytical Framework for Precision Nutrition and Personalized Medicine.	University of California, Los Angeles	0160 G ZC116		$37,239
93.847	Assessment of eligibility for kidney donation among potential living donors	University of California, San Francisco	11918sc		$6,756
93.847	Biologic Inhibitor of Galectin-3 for Liver Fibrosis	MandalMed, Inc.	Prime AW #1R43DK107285-01A1		-$475
93.847	BMP5 cells and signaling in BPH pathogenesis				$226,240
93.847	Bone Health in Patients with Urinary Stone Disease				$97,686
93.847	Bridging the gap between Type 2 Diabetes GWAS and therapeutic targets (WIP)	University of North Carolina at Chapel Hill	5121606		$524,611
93.847	Cellular and molecular analyses of hematopoietic stem cell [HSC] interactions with bone marrow niches to improve HSC engraftment for transplantation and tolerance induction				$248,042
93.847	CFTR-Independent Bicarbonate Secretion is a Novel CF Therapeutic Target				$193,359
93.847	Characterization of novel insulin resistance genes by gene editing, high-throughput phenotyping and in vivo studies				$681,607
93.847	Characterization of the Role of Nemo-like Kinase in Normal and Diamond Blackfan Anemia Models of Erythropoiesis.				$152,481
93.847	Chemical control of energy metabolism by N-acyl amino acids				$400,944
93.847	Chemical interrogation of metabolic tissue crosstalk				$730,776
93.847	Chemosensory tuft cells and intestinal homeostasis				$53,935
93.847	Chronic kidney disease of unknown etiology: investigating an endemic nephropathy with a multidisciplinary approach			$81,197	$431,400
93.847	Chronic Kidney Diseases of UnceRtain Etiology (CKDu) in Agricultural Communities (CURE) Research Consortium - Scientific Data Coordinating Center (SDCC) (U24)	RTI International	3-312-0218210-66575L		$25,847
93.847	Clinical Trial of Latiglutenase for People with Celiac Disease and Type 1 Diabetes	ImmunogenX	138618		$111,018
93.847	Co-Formulations of Amylin Analogues with Insulin Analogues for Treatment of Diabetes				$417,625
93.847	Continuation of the Coordinating Center for the Chronic Renal Insufficiency Cohort (CRIC) Study	University Of Pennsylvania	582534 PO: 4744487		$11,508
93.847	Contribution of CMV-specific T cells to chronic kidney rejection				$176,693
93.847	Control of glucose homeostasis through the insulin-independent Isthmin pathway				$593,957
93.847	COVID-19 Intestinal Organoid Modeling of SARS-CoV-2-Stimulated Innate and Adaptive Immunity				$497,659
93.847	COVID-19 Structure-based Bioengineering of Wnt Surrogates for Intestinal Stem Cell Biology and Therapy				$599,342
93.847	Data Coordinating Center for the Type 1 Diabetes in Acute Pancreatitis Consortium (T1DAPC)	Penn State College of Medicine	STUDK127384		$145,568
93.847	Designer Tregs for restoring tolerance in patients with type 1 diabetes	University of California, San Francisco	10345sc		-$9,251
93.847	Determining the mechanisms linking cell growth to the cell cycle in the liver				$298,676
93.847	Development of Beta-Cell-Targeted Regenerative Therapeutics Using A Novel Prodrug Strategy				$357,617
93.847	Development of concentrated, stable ultra fast-acting insulin formulation			$69,885	$572,004
93.847	Development of long-acting glucose-responsive insulin formulations			$25,780	$358,191
93.847	Diabetes, Endocrinology and Metabolism Training Grant				$121,472
93.847	Diabetes-Docs: Physician-Scientist Career Development Program (DiabDocs)				$16,000
93.847	Diabetic Foot Ulcer Biofilm Infection and Recurrence	Indiana University	8810_SU // PO0287871		$86,080
93.847	Dietary and Microbial Reprogramming of Intestinal Microbiota-Produced Metabolites			$35,970	$582,505
93.847	Direct conversion of fibroblasts to urothelial stem cells				$12,065
93.847	Discovering genetic and hormonal mechanisms underlying diabetes risk from flies to humans				$403,976
93.847	Discovery Science Collaborative for CKDu			$15,070	$75,694
93.847	Engineered Immune Cells for T1D				$178,936
93.847	Epigenetic and functional determination of colon organoids as a patient-specific preclinical model of ulcerative colitis				$32,776
93.847	Family Matters: Optimizing Family-Based Interventions for Adolescents with Type 1 Diabetes				$125,086
93.847	Fatty Acid Signaling via GPCRs in Primary Cilia Controls Adipogenesis and Insulin Secretion, Regulating Obesity and Diabetes				$1,049,007
93.847	From stomach tissue to cellular mechanisms: unraveling the role of mononuclear phagocytes in the pathophysiology of gastroparesis				$182,260
93.847	Gene Therapy for Diabetes	Oregon Health & Science University	1015967_STANFORD		$192,318
93.847	Genetic and physiologic regulation of pig islet development and function			$227,448	$643,200
93.847	Gut Bacteriophage Correspondence with Inflammation and Clinical Dietary Interventions				$54,764

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.847	Hepatitis B Research Network (HBRN): Natural History and Treatment Studies	University of California, San Francisco	11506sc		$59,376
93.847	High School Program in Biomedical and Health Sciences				$98,214
93.847	High-throughput dissection of transcriptional regulation in kidney disease				$37,852
93.847	Human Islet Distribution Coordinating Center	City of Hope National Medical Center	PO# 3000225133		$241,764
93.847	Human Pancreas Analysis Program-T2D	Vanderbilt University Medical Center	VUMC81249		$426,884
93.847	Immune Checkpoints for Intestinal Innate Lymphoid Cells				$207,893
93.847	Impact of Diet on Intestinal Microbiota-Host Dynamics				$299,243
93.847	Impaired Autophagy, Mitochondrial Dysfunction, and Inflammation in Pancreatitis	University of California, Los Angeles	1564 G ZA709		$69,521
93.847	Improving Glycemia & Reducing Diabetes Distress in Adolescents & Young Adults with T1D	Joslin Diabetes Center	003423-2150168		$167,111
93.847	In vivo systems to discover mechanisms regulating human islet alpha cell function			$467,447	$776,177
93.847	Integrating genome-scale data to reveal causal mechanisms in type 2 diabetes				$134,028
93.847	Intestinal Lengthening via Distraction Enterogenesis for the Treatment of Short Bowel Syndrome	Eclipse Regenesis Inc.	227854		$20,243
93.847	Investigating the effects of aerobic and resistance training in vivo on skeletal muscle metabolism in vitro in primary human muscle cells (MoTrMyo)	Adventist Health System/Sunbelt, Inc. dba AdventHealth Orlando	1329760-Stanford		$28,643
93.847	Investigating the Genetic, Cellular, and Metabolic Events Important for Urothelial Homeostasis and Response to Injury	Columbia University	3(GG016477-07) // SAPO G16540		$140,000
93.847	Investigation and Translation of the Intestinal Stem Cell Niche				$420,932
93.847	Leveraging the Uniquely High Beta-Cell Zinc Content for Targeted Drug Delivery				$348,654
93.847	Localizing Pathogenically Relevant Transglutaminase 2 in Celiac Disease				$188,862
93.847	Longitudinal multi-omic profiles to reveal mechanisms of obesity-mediated insulin resistance				$413,512
93.847	Long-term effectiveness of BPH/LUTS pharmacological therapies and using machine learning based predictive analytics to tailor treatment.				$34,839
93.847	Long-term metabolic effects of kidney events with intensive SBP control	University of Utah	Sub 10047597-01 PO #U000165213		$54,692
93.847	Lymph Node Extracellular Matrix in Antigen Presentation and Immune Regulation			$162,621	$456,019
93.847	MagSToNE - a magnetic system for kidney stone fragment elimination				$112,934
93.847	Mapping Protein Communication Between Organs in Homeostasis and Disease	Harvard University	153277.5107753.0004		$147,186
93.847	Maximizing Geographic and Scientific Reach Through a Northern California Apollo Network: Application for Clinical Center	University of California, San Francisco	10942sc		$13,733
93.847	Mechanisms and Consequences of Defective Flow-induced Potassium Secretion in the Metabolic Syndrome			$132,104	$496,441
93.847	Mechanisms of NAT2 regulation of insulin resistance and mitochondrial function				$638,407
93.847	Mechanisms of Physiological Organ Shrinkage				$286,726
93.847	Mechanistic Basis of Calcium Sensing Receptor Signaling				$127,322
93.847	Mentoring Patient-Oriented Clinical Investigators in Nephrology				$148,292
93.847	Modeling and modulating insulin delivery in automated insulin delivery systems to accommodate for meal compositions				$63,212
93.847	Molecular Basis of Renal Epithelial Cell-Cell Adhesion				$52,837
93.847	MRI-based Quantitative Susceptibility Mapping of Hepatic Iron Overload	University of Wisconsin-Madison	813K923 / R01 DK117354		$107,370
93.847	Multidimensional cellular interrogation of the kidney in AKI and CKD	University of California, San Francisco	1049051-101-KARAU		-$6,153
93.847	NADPH Oxidase Inhibition in NASH				$313,242
93.847	ONBOARD: OvercomiNg Barriers & Obstacles to Adopting Diabetes Devices				$221,092
93.847	Optimizing a scalable intervention to maximize guideline-recommended diabetes testing after GDM	University of California, Davis	A21-1599-S002		$41,141
93.847	Optimizing self-monitoring in a digital health intervention for weight loss				$52,792
93.847	Polarizing T Cell Responses in Vivo with Dendritic Cells				$54,549
93.847	Post-Surgical Predictors of Depression and Weight Regain After Bariatric Surgery	Sanford Research North	SR-2019-209		$51,829
93.847	Primary Outcomes in Glomerulonephritis Study (PROGRESS)	University Of Pennsylvania	582484 PO: 4722611		$8,783
93.847	Proteomic determinants of direct measures of insulin sensitivity				$248,199
93.847	Pumps for Kids, Infants, and Neonates (PumpKIN) Clinical Trial	New England Research Institute, Inc.	Task Order 6		$63,001
93.847	Quantifying the Metrics of Surgical Mastery: An Exploration in Data Science			$203,060	$595,627
93.847	Rationalising coronary artery disease screening prior to kidney transplantation				$136,162
93.847	Reducing Disparities in Pediatric Diabetes: Building the Evidence Base to Inform Effective Diabetes Technology Interventions in Underrepresented Minorities				$22,220
93.847	Regulation of gastrointestinal hormone signaling and metabolism by Neuromedin U				$160,201
93.847	Response Training for Obesity Treatment: Translational Neuroscience			$96,362	$221,237
93.847	Role of hemeoxygenase-1 in experimental acute pancreatitis				$26,392
93.847	Role of Immune Cells in Chronic Pancreatitis				$949
93.847	Role of Nucleus Accumbens and Its Glutamatergic Inputs in High-Fat intake				-$952
93.847	Role of Transglutaminase 2 in Celiac Sprue			$351,224	$547,631
93.847	Signaling Pathways in MDS				$36,794
93.847	Sit Less, Interact and Move More (SLIMM) 2 Study	University of Utah	10057603-01 / U000338299		$108,221
93.847	SPO189222_NIH-Yr. 2_Howitt_Impact of symbiotic protists				$629,143
93.847	Spring Mediated Enterogenesis				$279,757
93.847	Stanford Advanced Wound Care Center Clinical Research Unit				$346,543
93.847	Stanford Diabetes Research Center				$1,454,081
93.847	Stanford O'Brien Urology Research Center				$644,702
93.847	Stratification of Non-alcoholic Fatty Liver Disease using the SAFE Score				$550,538
93.847	Structural Insights to Insulin Receptor Ligands	University of Utah	10059395-01; PO# U000343539		$54,716
93.847	Structure/Function Correlations Over Copper Enzymes				$285,597
93.847	Structure-based strategy for developing inhibitors of the kidney chloride channelCLC-Ka				$349,007
93.847	Targeting bacterial proteases involved in PAR signaling to treat inflammatory bowel diseases			$58,988	$372,305
93.847	Teamwork, Targets, Technology, and Tight Control in Newly Diagnosed Pediatric T1D: 4T Study				$494,140
93.847	The Atrial Fibrillation - Factor Identification to Risk Modification Study in HD103080	Baylor College of Medicine	7000001119		$109,076
93.847	The Development of 4-methylumbelliferone Pro-drugs to Prevent Autoimmune Diabetes			$66,377	$86,112
93.847	The Diabetes Research for Equity through Advanced Multilevel Science Center for Diabetes Translational Research (DREAMS-CDTR)	Kaiser Permanente	RNG211603-01, RNG211604-01		$55,151
93.847	The impact of glomerular disorders on bone quality and strength	Columbia University	5(GG015009-01); G13413		$8,445
93.847	The Insulin-Only Bionic Pancreas Study	Jaeb Center for Health Research	IOBP Pivotal 172764; ID 1862		$218,707
93.847	The International Diabetes Closed Loop (iDCL) trial: A Randomized Crossover Comparison of Adaptive Model Predictive Control (MPC) Artificial Pancreas Versus Sensor Augmented Pump (SAP)/Predictive Low Glucose Suspend (PLGS) in the Outpatient	Jaeb Center for Health Research	DCPL4-197520		$3,644
93.847	The Optimal Pathway to Implanted Autonomous Insulin Delivery				$171,842
93.847	The Role of Hyaluronan and CD44 in the Pathogenesis of Type 2 Diabetes				$424,576
93.847	The role of circulating Slit2 in adipose thermogenesis and diabetes				$414
93.847	The role of small RNA derived tRNAs in gene regulation: Mechanism and Therapeutic Applications				$167,250

STANFORD UNIVERSITY
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93.847	The role of SPRY2 in the colonic epithelial response to inflammation	Children's Hospital Los Angeles	RGF011923-B		$14,735
93.847	The Stanford Clinical Center for the Study of Type 1 Diabetes in Acute Pancreatitis				$250,838
93.847	The Stanford Pre-Renal Initiative: Undergraduate Training in Kidney Health				$78,959
93.847	Therapeutic Exploitation of IPSE, a Urogenital Parasite-Derived Host Modulatory Protein, for Bladder Hypersensitivity Syndromes	Children's National Medical Center (Children's Research Institute)	30005392-01		$68,203
93.847	Therapeutic targeting of human islets with recombinant regulatory T cells			$295,413	$805,241
93.847	Three-Dimensional Structure of Eukaryote Chromosomes				-$4,779,425
93.847	Toward optimizing diabetes care in persons with chronic kidney disease				$115,838
93.847	Training Grant in Academic Gastroenterology				$220,366
93.847	Training in Pediatric Nonmalignant Hematology and Stem Cell Biology				$251,903
93.847	Training Research Leaders in Type 1 Diabetes				$414,024
93.847	Translation of the UVA Advanced Automated Insulin Delivery Systems to Clinical Care in Young Children: Glycemic Control, Regulatory Acceptance, and Optimization of Day to Day Use	University of Virginia	GB10908.PO#2318792		$327,074
93.847	Treating Kidney Injury by Modulating Heat Shock Proteins Using Soundwaves Combined with Mesenchymal Stem Cells and Their Extracellular Vesicles				$513,321
93.847	TrialNet at Stanford 2019	University of South Florida	6163-1082-10-BN		$221,254
93.847	Type 2 cytokines and innate lymphoid cells in pediatric ulcerative colitis				$89,049
93.847	Understanding mechanisms by which microbial strains and metabolites present in fermented foods decrease systemic inflammation				$71,517
93.847	Understanding the developmental xenobarrier				$460,754
93.847	United States Renal Data System (USRDS)	Hennepin Healthcare Research Institute	75N94019C00006_Option Period 2		$15,503
93.847	Urinary Proteome Monitoring for Transplant Injury			-$2,130	-$2,130
93.847	Valine as a metabolic modulator of hematopoiesis				$299,014
93.847	Whole blood gene expression to identify biomarkers of disease risk, progression and response to therapy in Type 1 diabetes				$546,696
93.847	Wise Social Psychological Interventions to Improve Outcomes of Behavioral Weight Control in Children with Obesity				$888,522
93.847	Wnt4(+) Cell Fate Mapping and ENaC Activity in Furosemide-treated Mice	University of Pittsburgh	CNVA00060589 (131753-2)		$20,343
93.853	"NIH StrokeNet National Coordinating Center" - Administrative Consulting Agreement - Albers	University of Cincinnati	011414-Adm-Albers/4600006772		$7,418
93.853	176406_NIH_Wright Novel AAV vector generation methods to prevent immunogenic unmethylated CpGsthat trigger efficacy-limiting CTLs in human gene therapy				$48,445
93.853	A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior	University Of Washington	UWSC10311/BPO40343-5		$43,561
93.853	A molecular investigation of retinoic acid-dependent homeostatic synaptic plasticity				$749,607
93.853	A Multimodal Brain-Gut Physiological Descriptive Method for Migraine				$44,800
93.853	A novel blood-CSF adaptive immune response in Alzheimer's disease				$32,572
93.853	A Novel Genome-Wide Screen to Identify and Characterize Regulators of ALS DiseaseModifier Gene Ataxin-2				$33,825
93.853	A RIPK2-Targeting Apoptosis-Inducing Small Molecule for the Treatment of Glioblastoma	Scripps Research Institute	5-54490		$200,203
93.853	A Shared Neuroscience Platform for National Dissemination and Training in Brain Organogenesis, Beavioral and Brain Disease Models, Viral Vectors, and Imaging Technologies				$126,382
93.853	A youth-specific helmet for preventing traumatic brain injury	Savior Brain Inc.	RNS119134A		$7,982
93.853	An Open Source Simulator for Multi Degree of Freedom Brain-Machine Interfaces	University of California, Los Angeles	0160 G ZB833		$23,739
93.853	ARCADIA CSI (Cognition and Silent Infarcts)			$777,263	$1,042,982
93.853	Automated Phenotyping in Epilepsy			$146,310	$359,767
93.853	Axonal myelination of interneurons in cortex: functional significance and plasticity.				$18,574
93.853	B Lymphocyte-Mediated Autoimmunity in Pain after Trauma	Palo Alto Veterans Institute for Research	CLA0042-01		$174,606
93.853	Bilateral Closed Loop Deep Brain Stimulation for Freezing of Gait using Neural and Kinematic Feedback				$1,037,962
93.853	Binding of Epstein Barr Virus EBNA2 unifies multiple sclerosis genetic mechanism	Cincinnati Children's Hospital Medical Center	138881 / PO #3100620274		$5,415
93.853	Bioluminescent indicators for noninvasive imaging of acetylcholine release				$319,656
93.853	Biophysical Characterization of Subthalamic Local Field Potentials in Parkinson's Disease	Duke University	303-000093		$55,732
93.853	Brainwide Computations Underlying Future Action Plans				$90,921
93.853	Cannabinoid control of epilepsy			$85,011	$274,048
93.853	CDKN2A couples lipid metabolism to Ferroptosis in Glioblastoma	University of California, Los Angeles	PO1490GZA883		$189,044
93.853	Cell-cell communications in neural circuit assembly				$326,227
93.853	Center for Narcolepsy and Related Disorders				-$636
93.853	Central Thalamic Stimulation for Traumatic Brain Injury	Weill Cornell Medical College	214389		$302,061
93.853	Characterization of central pain mechanisms using simultaneous spinal cord-brain functional imaging				$416,600
93.853	Characterization of Sexual Dimorphism in the brain				$570,226
93.853	Child neurologist career development program (CNCDP)	Kennedy Krieger Institute	CNCDP		$13,901
93.853	Circuit mechanisms for encoding naturalistic motion in the mammalian retina	University of Chicago	FP069821-01		$53,161
93.853	CLC-2 voltage-gated chloride channel structure and ligand recognition				$67,741
93.853	Clinical translation of targeted and noninvasive ultrasonic propofol uncaging				$888,472
93.853	Clinical Translation of Ultrasonic Ketamine Uncaging for Non-Opioid Therapy of Chronic Pain			$37,548	$677,088
93.853	Clinical Trial Readiness for SCA1 and SCA3-YR4	Houston Methodist Research Institute	AGMT00004435AM2		$280
93.853	Close-loop, spatially addressable multiphoton functional imaging	Cornell University	88390-11314		$67,669
93.853	Combinatorial matrix-mimetic recombinant proteins as engineered nerve guidance conduits				$117,913
93.853	Computational modeling of dynamic causal brain circuits underlying cognitive dysfunction in Alzheimer's disease			$57,986	$487,565
93.853	Control of Axon Initial Segment in Epilepsy			$236,319	$586,055
93.853	Correction of Mucopolysaccharidosis type 1: Targeting safe harbor loci using genome editing				$162,097
93.853	Cortical basis of complex motor sequences in humans for neural interfaces			$167,963	$486,752
93.853	CRCNS: Deconstructing dynamics of motor cortex in freely moving behavior				$15,887
93.853	CT Perfusion to Predict Response to Recanalization in Ischemic Stroke Project 2 (CRISP 2)				$511,418
93.853	Deciphering the role of Ataxin-2 in amyotrophic lateral sclerosis				$32,785
93.853	Developing Neuropathological Criteria for CTE	University Of Pennsylvania	568538; PO# 4508595		$26,525
93.853	Development of A Novel Imaging Strategy for Evaluation of CAR T-Cell Therapy in Glioblastoma				$265,340
93.853	Development of selective cannabinoid receptor 2 agonists for treatment of addiction				$346,686
93.853	Developmental Synaptopathies Associated with TSC, PTEN and SHANK3 Mutations	Boston Children's Hospital	GENFD0002117034,2117400,2117098,2117402,1945421,2117097		$163,031
93.853	Discovery of novel TDP-43 splicing targets: the Achilles heel for FTD and towards sensitive biomarkers and therapeutic targets			$32,639	$64,433
93.853	Dissecting hypothalamic pathways for seizure control				$52,803
93.853	Dissecting neocortical field potential dynamics using optical voltage imaging in genetically targeted cell-types				$207,939
93.853	Dissecting the Cognitive Roles of Hippocampus and Other Temporal Lobe Structures in Patients Undergoing Epilepsy Surgery	Emory University	A510155		$5,250

STANFORD UNIVERSITY
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PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

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93.853	Disseminating an Instrumented Mouthguard for Large-Scale Human Study of Mild Traumatic Brain Injury				$136,675
93.853	Dopamine degradation pathway and alpha-synuclein aggregation			$9,382	$222,815
93.853	Dynamic regulation of whole brain circuit function by basal ganglia pathways				-$41,457
93.853	Effects of TrkB Activation on Abnormalities in Neocortical FS interneuron				$451,638
93.853	ENIGMA Parkinson's Initiative: A Global Initiative for Parkinson's Disease	University of Southern California	SCON-00002524		$72,365
93.853	Epilepsy Training Grant				$205,716
93.853	Excitatory neurotransmission in the ventral tegmental area following neuropathic injury				$31,838
93.853	Experimental Study of Goal-Directed Behavior and Memory During Temporal Lobe Epileptic Activity				$247,263
93.853	Exploring Novel Epilepsy Pathways	University of Iowa	1001876082; g/p# 11277800		$3,167
93.853	Feasibility, Acceptability, and Pilot Testing of a Behavioral Intervention for Chronic Migraine				$190,509
93.853	Focal Sustained Release Chemotherapy-Loaded Biomaterials at Tumor Sites	Tufts University	HH4218; PO# EP0173100		$72,259
93.853	From structure to therapy: the TRiC Chaperonin network in Huntington's disease	University of California, Irvine	2017-3505		$136,180
93.853	G Protein Coupled Receptor Structure, Dynamics and Signaling				$254,825
93.853	Genetic and cellular analysis of glial development and function in vertebrates				$466,489
93.853	Genetic Control of Neural Stem Cell Homeostasis				$311,289
93.853	Global Leukodystrophy Initiative Clinical Trials Network (GLIA-CTN)	Children's Hospital of Philadelphia	3202030622-XX/PO# 20294008		$41,680
93.853	HEAL Study (High-dose Erythropoietin for Asphyxia and Encephalopathy)	University of California, San Francisco	9681sc		$36,245
93.853	HEAL-EEG - Neurophysiologic measures of Epo treatment for hypoxic-ischemic encephalopathy (HIE)	University of California, San Francisco	11027sc		$5,478
93.853	HEAL-EEG-Neurophysiologic measures of Epo treatment for hypoxic-ischemic encephalopathy (HIE)	University of California, San Francisco	11099sc		$69,015
93.853	How does 3 UTR secondary structure program mRNA transport in myelination?				$127,135
93.853	How Does Actin Disassembly Drive Myelin Wrapping?				$439,888
93.853	Human Infrared Vision at Molecular and Cellular Scale				$1,271,432
93.853	Identification and Molecular Characterization of Somatic Mutations in MCD	University of North Carolina at Chapel Hill	5116796		$20,113
93.853	Imaging B cells in the brain and beyond: developing an immuno-PET toolbox to improve understanding and treatment of multiple sclerosis				$361,807
93.853	Imaging inflammation in the whole body and brain of ME/CFS patients				$309,937
93.853	Impact of actin binding protein Coronin 1C in the pathogenesis of Parkinson's disease				$36,871
93.853	Impact of sleep-wake circuits on cortical synapse plasticity during motor learning			$172,119	$525,759
93.853	Inflammatory injury-mediated synaptic plasticity in the periaqueductal gray				$32,134
93.853	Inhibitory Controls in the Thalamic Neurons				$302,830
93.853	Innovating Yeast and Human Genetics Approaches to Define Mechanisms of Neurodegenerative Disease				$915,386
93.853	Instructive Signals for Motor Learning				$188,339
93.853	Integrating Pragmatic Comparative Effectiveness Research into a Tertiary Pain Management Center				$182,656
93.853	Interaction of external inputs with internal dynamics: influence of brain states on neural computation and behavior			$204,766	$1,240,839
93.853	Interneuron-Based Mechanisms of Temporal Lobe Epilepsy				$599,804
93.853	Investigating the pathogenesis of Moyamoya Disease using patient derived induced pluripotent stem cells				$175,233
93.853	Ischemic Brain Damage and Single Quantum Sodium MRI				$7,358
93.853	KIR and HLA effects in CNS paraneoplastic syndromes and related neuroimmune conditions			$106,145	$630,639
93.853	Label-free Optical Recording of Neuroelectric Activities			$123,717	$534,880
93.853	Large-scale recordings in Primate Prefrontal Cortex: Mechanisms of Value and Attention			$221,776	$650,794
93.853	Maladaptive Myelination in Pediatric Epilepsy				$191,386
93.853	Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs (MONEAD)			$1,985,701	$2,568,939
93.853	Mechanisms and Control of Thalamocortical Synchrony in Absence Epilepsy				$42,315
93.853	Mechanisms and Therapeutic Options of Hypersomnia in Myotonic Dystrophy				$122,077
93.853	Mechanisms of Dendritic Tiling				$68,061
93.853	Mechanisms underlying radiation and chemotherapy induced cognitive impairment	University of California, Irvine	2016-3313		$59,195
93.853	Mentoring in Discovery and Validation of Clinical Chronic Pain Biomarkers				$40,749
93.853	Mesh electronics for understanding space encoding in the amphibian brain				$68,341
93.853	Methods for Dynamic Causal Interactions in Human Brain Function and Dysfunction				-$872
93.853	Modulating Subthalamic Dysfunction to Ameliorate Disordered Sleep in Parkinson's Disease	University of Nebraska	34-5385-2100-002		$59,304
93.853	Modulating the post-stroke inflammatory response to improve outcome in models of cerebral ischemia				$265,242
93.853	Molecular Genetic Analysis of TORC1 and TORC2 Signaling in Neuronal Maintenance				$641,922
93.853	Molecular Mechanisms Regulating Inhibitory Circuitry in the Spinal Cord				$332,844
93.853	Motor neural dynamics of free behavior enabled through 3D computer vision				$312,876
93.853	Multi-arm Optimization of Stroke Thrombolysis (MOST) Stroke Trial	Washington University in St. Louis	WU-22-0055,PO ST00002693		$110,117
93.853	Multi-color optical voltage imaging of neural activity in behaving animals			$85,310	$228,070
93.853	Multimodal approach investigating the immunomodulatory effect of neural stem cells in stroke recovery				$779,036
93.853	Multi-regional neural circuit dynamics underlying short-term memory	Baylor College of Medicine	7000001047		$235,346
93.853	Mutations in ACTL6B cause recessive autism: affected families, mouse model, molecular and circuit mechanisms				$16,142
93.853	Nanocage-based systemic delivery of TGFb trap for immunomodulation of brain neoplasms	Johns Hopkins University	2005153819		$156,403
93.853	Network mechanisms of delayed, immune-dependent hippocampal dysfunction after juvenile stroke	Kennedy Krieger Institute	5K12NS098482-05		$161,007
93.853	Neural Basis of Behavioral Sequence Loops	Harvard University	149420.5104941.0503- 7		$207,640
93.853	Neural Basis of sensory-Guided Motion	California Institute of Technology	S399719	$113,362	$260,455
93.853	Neural circuit mechanisms controlling seizures				$122,440
93.853	Neural computations underlying vocal sensorimotor transformations	New York University	19-A0-00-1002501/PO#M200283440		$56,910
93.853	Neural representation of mating partners by male C. elegans.	California Institute of Technology	S447445 / 1222148-1-DDLEH		$157,285
93.853	Neuroimaging-Based Brain and Spinal Cord Biomarkers for Cervical Radiculopathy				$112,063
93.853	Neuromodulation of Brain States				$403,915
93.853	Neuronal activity-regulated mechanisms of glioma growth				$162,632
93.853	Neuronal and behavioral responses to spinal cord injury				$833,862
93.853	Neurostimulation by Ultrasound: Physical, Biophysical, and Neural Mechanisms				$789,112
93.853	Next Generation Brain PET Imaging				$365,457
93.853	Non-coding RNA regulation of sex differences in stroke				$426,431
93.853	Noninvasive optogenetics for seizure inhibition				$102,897
93.853	Novel fluorescent sensors for imaging neuromodulation	University of California, Berkeley	00010178; BB01416451		$251,897

STANFORD UNIVERSITY
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YEAR ENDED AUGUST 31, 2022

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93.853	NSTN National Clinical Coordinating Center	University of Cincinnati	Subaward:011414-Adm-Wintermark		$10,458
93.853	Optogenetic approaches to study post-stroke recovery mechanisms				$708,334
93.853	Optogenetics to improve hand function after spinal cord injury.	University Of Washington	UWSC13153 / BPO No. 59962		$142,934
93.853	Pathways to Neurosciences				$31,607
93.853	Patterning dendritic branches with environmental and neuronal surface molecules				$231,792
93.853	Peizo1 in neural stem cell mechanoregulation	University of California, Irvine	2018-3650		$4,119
93.853	Perinatal Arterial Stroke: A Multi-site RCT of Intensive Infant Rehabilitation (I-ACQUIRE)	Virginia Tech	432107-19751		$43,572
93.853	Perisomatic inhibition in epilepsy				$82,153
93.853	Population Neural Activity Mediating Sensory Perception Across Modalities			$720,635	$1,293,106
93.853	PRECISE (PeR fusion imaging to identify post Erior Circulation candidates for thrombectomy)			$12,000	$769,194
93.853	PREcision Care In Cardiac ArrEst - ICECAP (PRECICECAP)			$343,981	$1,298,420
93.853	Preventing Epilepsy Using Vigabatrin in Infants with Tuberous Sclerosis Complex	University Of Alabama In Birmingham	000510297-SC002		$32,413
93.853	Prognostic biomarkers for high-impact chronic pain: Development and validation				$648,300
93.853	Protein Aggregation and Inclusion Body Formation				-$278
93.853	Prototyping an ultrasound system for localized delivery of neuromodulatory agents and functional imaging in awake primates	Vanderbilt University Medical Center	VUMC69042 / UF1 NS107666		-$8,878
93.853	R01 Beta2 Adrenoceptor Structure and Mechanism of Activation				-$156,708
93.853	Recombinant Immunolabels for Nanoprecise Brain Mapping Across Scales	University of California, Davis	A19-1044-S003		$112,672
93.853	Regulation of Blood-Brain Barrier Function by the RECK/GPR124/Wnt7 Pathway				$171,428
93.853	Responsive Neurostimulation for Loss of Control Eating	University Of Pennsylvania	583688		$48,622
93.853	Shared Mechanisms of Absence Epilepsy and Selective Attention				$31,206
93.853	Small-molecule probes for study of CLC-2 chloride-channel function in the central nervous system				$489,045
93.853	Spatial and temporal regulation of synapse formation through phase separation				$105,024
93.853	Spatial Profiling of Inter-Cellular Regulation of Skeletal Muscle Regeneration				$101,992
93.853	Speaking of Spikes: Connectivity and Language in Benign Epilepsy with Centrotemporal Spikes				$242,332
93.853	SPO#128582 Towards a Complete Description of the Circuitry Underlying Sharp Wave-Mediated Memory Replay			$957,425	$2,106,168
93.853	SPRINT: Signature for Pain Recovery IN Teens			$561,832	$1,584,641
93.853	Stanford Neurosurgery and Neurology Resident Research Education Program				$240,203
93.853	Stanford University Regional Coordinating Stroke Center for the NINDS Stroke Trials Network				$283,078
93.853	Stroke Trials Network National Data Management Center (NDMC)	Medical University of South Carolina	A00-1427-S001,PO 454808		$6,601
93.853	Structural Basis of Signal Instigation Through Family C GPCRs			$16,866	$876,967
93.853	Structure and function of spontaneous network activity during circuit formation				$76,502
93.853	Synthesis of peripherally active CB1 agonists as analgesics	University of Health Sciences and Pharmacy in St. Louis	827-1-01		$31,502
93.853	Targeting GPCRs in amygdalar and cortical neural ensembles to treat pain aversion	University of North Carolina at Chapel Hill	5119107		$359,688
93.853	Targeting Lag-3 and PD-1 in Myeloid Cells of GBM			$2,707	$133,362
93.853	The biophysics of skin-neuron sensory tactile organs and their sensitivity to mechanical and chemical stress				$685,908
93.853	The impact of early Tau pathology on cognitive progression and neuropsychiatric symptoms in Parkinson's disease				$797,365
93.853	The power of positivity: a novel class of voltage indicators for high-fidelity brain activity imaging			$74,946	$993,815
93.853	The role of mTORC2 in cancer cell metabolism			$17,673	$291,333
93.853	The Role of Purinergic Signaling in Microglia Birth and Maturation in the Adult Brain				$71,045
93.853	The Vascular Effects of Infection in Pediatric Stroke (VIPS II) Study	University of California, San Francisco	10590sc / R01 NS104094		$59,834
93.853	Towards a unified framework for dopamine signaling in the striatum	Harvard University	153407.5111713.0310		$311,047
93.853	Tracking pre-seizure dynamics to predict and control seizures				$168,872
93.853	Transgenic mice and multiplexed, multi-beam instrumentation for large-scale optical experiments on brain states and ensemble cellular dynamics in behaving animal			$46,297	$240,803
93.855	241284_R21_Yr. 1_Tuft cell regulation of Peyers patch composition and organization				$56,881
93.855	A "Culture" Shift: Integrated Bacterial Screening and Antibacterial Susceptibility Test on Microfluidic Digital Array for Bloodstream Infections	Johns Hopkins University	2003726059		$346,795
93.855	A genomic tool for identifying pathogenic circulating vaccine-derivedpolioviruses				$144,954
93.855	A vaccine design to induce protective B and T cell immunity against hepatitis C virus			$856,466	$2,039,768
93.855	AAV capsid engineering for enhancing gene transfer				$630,418
93.855	Accelerated dissociation of IgE receptor complexes				$144,029
93.855	Acute/chronic limitations to transcriptional RNAi therapies for infectious and other liver diseases				$578,740
93.855	Advancing a Broad-Spectrum Anti-Influenza A Virus RNA Packaging Inhibitor to an IND				$30,226
93.855	An injectable hydrogel platform for sustained release of eCD4-Ig	Scripps Research Institute	5-27343		$456,509
93.855	An Integrated Micro-Basophil Activation Test for Rapid Food Allergy Diagnostics				$103,107
93.855	Antibiotics from nose and throat commensals that impact pathogen colonization	Baylor College of Medicine	7000001139		$52,537
93.855	Antimicrobial resistance and horizontal gene transfer in the human gut microbiome in response to an antibiotic	Palo Alto Veterans Institute for Research	REL0028-03		$232,134
93.855	Applied Genomics in Infectious Diseases				$164,765
93.855	Arbovirus Prediction and Mitigation in the Indo-Pacific				$19,860
93.855	B and T Cell Biology of Protection from and Eradication of SIV/SHIV Infection	Emory University	A483146		$308,333
93.855	Beta-lactamase probes for bacterial detection				$4,936
93.855	Big Data Analysis of HIV Risk and Epidemiology in Sub-Saharan Africa			$233,217	$573,045
93.855	Center for Expanded Data Annotation and Retrieval (CEDAR) - Overall			-$11,672	-$11,672
93.855	Center for Research to Evaluate and Advance TEsts for TB (CREATE)	University of California, San Francisco	12362sc		$207,928
93.855	Changes in Bone Quality, Sarcopenia and Fat Distribution in HIV/HCV Patients After HCV Therapy	University Of Pennsylvania	# 573221; PO 4831918		$18,586
93.855	Changing Cultures in Sepsis: Rapid single cell pathogen identification and antibiotic susceptibility testing directly from whole blood			$246,264	$704,223
93.855	Characterization of degranulation regulators in human mast cells				$137,558
93.855	Characterization of encystation pathways in Entamoeba histolytica			$7,634	$110,039
93.855	Characterization of innate and IgE-mediated mast cell functions in honeybee venom allergy using Collaborative Cross mice				$464,274
93.855	Characterization of the human antibody response to a novel neutralizing HIV-1 epitope				$38,120
93.855	Characterizing infectiousness of subclinical TB and identifying novel early diagnostic strategies for preventing transmission				$51,885
93.855	Chemical Mycobacteriology				$469,188
93.855	Clinical Epidemiology of Infectious Diseases				$172,866
93.855	Commercialization of New Filter Paper Technology for stabilization of Dried Blood Spot viral Samples for Collection, Shipping and Analysis	GenTegra LLC.	SPO136126		$50,630
93.855	Comparative MHC and KIR immunogenetics in the great apes				$71,109
93.855	Computational models of naturally acquired immunity to falciparum malaria	University of California, San Francisco	12040sc		$216,934

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.855	COVID-19 Computational models of naturally acquired immunity to falciparum malaria	University of California, San Francisco	12300sc		$367,780
93.855	Consortium for HIV/AIDS Vaccine Development (CHAVD)-Scripps	Scripps Research Institute	5-54560		$68,416
93.855	Contrasting biotic and abiotic drivers of adaptive evolution in a host-pathogen conflict				$63,459
93.855	COVID-19 Advancing the development of a novel class of small molecules for treating pan-coronavirus infections			$46,063	$632,770
93.855	COVID-19 AIDS Clinical Trials Group for Research on Therapeutics for HIV and Related Infections [ACTG LOC: COVID A5401]	University of California, Los Angeles	1560 G ZB549		$26,384
93.855	Mechanisms regulating immunity to dengue viruses	Rockefeller University	SUB00000185		$506,161
93.855	COVID-19 Antibody responses in symptomatic and asymptomatic SARS-CoV-2 infections	Rockefeller University	SUB00000188		$403,836
93.855	COVID-19 Covalent inhibitors of host cell entry by SARS-CoV-2 for treatment of COVID-19				$15,016
93.855	Deciphering the Inositol Phosphate Code in Viral Pathogenesis and Immunity				$302,573
93.855	COVID-19 Deciphering the Inositol Phosphate Code in Viral Pathogenesis and Immunity				$165.555
93.855	COVID-19 Defining the role of natural killer cells in COVID-19				$10,459
93.855	COVID-19 Exosomes and the Immune Response in Allograft Outcomes in Pediatric Transplant Recipients			$1,225,940	$1,595,035
93.855	Exosomes and the Immune Response in Allograft Outcomes in Pediatric Transplant Recipients				$389,293
93.855	COVID-19 HLA susceptibility to severe COVID-19	University of California, San Francisco	13394sc		$155,880
93.855	Influenza responses and repertoire in vaccination, infection and tonsil organoids			$72,286	$1,570,656
93.855	COVID-19 Influenza responses and repertoire in vaccination, infection and tonsil organoids -NOT-AI-20-031- COVID-19			$324,000	$1,390,440
93.855	COVID-19 Leadership and Operations Center (LOC), AIDS Clinical Trials Group (ACTG) [UM1AI068636]	University of California, Los Angeles	1560 G YB820		$44,530
93.855	COVID-19 Modeling early SARS-CoV-2 pathogenesis in human lung organoids and slice cultures				$88,022
93.855	COVID-19 Natural Killer cells and the immunogenetics of COVID-19	University of Colorado Denver	FY22.1050.004		$52,816
93.855	COVID-19 Obesity and COVID-19: Role of Adipose Tissue				$209,596
93.855	COVID-19 Optimizing a small molecule inhibitor of SARS-CoV-2 replication and associated cytokine storm.				$576,842
93.855	COVID-19 Project 1: Antiviral targeting to suppress drug resistance	Sloan Kettering Institute for Cancer Research	MSKSUB00000094		$80,984
93.855	COVID-19 Systemic Allergic Reactions to SARS-COV-2 Vaccination (SARS Vaccination)	Benaroya Research Institute at Virginia Mason	FY21ITN458		-$112,200
93.855	Systems Approach to Immunity and Inflammation Core E - CvTOF Flow Cytometrv	Scripps Research Institute	5-54605		$292,312
93.855	COVID-19 Systems Approach to Immunity and Inflammation - Supplement	Scripps Research Institute	5-54612		$264,912
93.855	COVID-19 Systems Approach to Immunity and Inflammation Core E - CvTOF Flow Cytometrv	Scripps Research Institute	5-54629		$860,885
93.855	The Impact of Epstein Barr Virus Infection on the Immune Response in Pediatric Transplant Recipients				$330,781
93.855	COVID-19 The Impact of Epstein Barr Virus Infection on the Immune Response in Pediatric Transplant Recipients				$106,106
93.855	COVID-19 Unique lung organoids to study Covid-19 pathogenesis and response to treatment	University of Alabama at Birmingham	000520244-SP008-SC011		$136,774
93.855	Cryo-ET Structural Biology of Herpesvirus Infection and Morphogenesis In Situ.				$228,029
93.855	Culture-free pathogen tracking in hospitalized patients				$553,041
93.855	Cytomegalovirus (CMV) Vaccine in Orthotopic Liver Transplant Candidates (COLT)	University Of Washington	UWSC13342, BPO 61352		$16,455
93.855	Defining the Role of Host Hsp70 Subnetworks in Dengue Virus Replication				$69,640
93.855	Delivery Technologies for In Vivo Genome Editing	Beth Israel Deaconess Medical Center	01062663		$129,047
93.855	Dengue Human Immunology Project Consortium (DHIPC) - Systems Vaccinology of the Vi Conjugate Typhoid Vaccine in Infants	Icahn School of Medicine at Mount Sinai	0255-C174-4609		$396,452
93.855	Detection of asymptomatic Salmonella enterica serotype Typhi and Paratyphi A carriage by serum antibodies targeting YncE	Massachusetts General Hospital	233137		$60,531
93.855	Developing CRISPR genome editing technology for Entamoeba				$242,398
93.855	Development of Antibiotic Adjuvants for the Treatment of Chronic Suppurative Otitis Media				-$39,014
93.855	Development of outpatient antiviral cocktails against SARS-CoV-2 and other potential pandemic RNA viruses.				$57,097
93.855	Differentially Culturable Tubercle Bacteria - The missing link in TB Transmission	Wits Health Consortium	D1811140-05		$37,931
93.855	Discovery and engineering of novel anti-IgE disruptive inhibitors				$158,922
93.855	Disentangling the human-vector relationship to disrupt dengue and chikungunya outbreaks in Kenya			$128,683	$628,918
93.855	Dissecting Mechanisms of Granuloma Macrophage Polarization and Granuloma Formation in Chronic Salmonella Infection				$257,030
93.855	DIVINCI: Dissection of Influenza Vaccination and Infection for Childhood Immunity	St. Jude Children's Research Hospital	112525030-8001521		$87,269
93.855	Drivers of strain-specific and strain-transcendent antimalarial immunity in childhood	University of California, San Francisco	12219sc		$20,604
93.855	Drug Development against Entamoeba Histolytica				$183,838
93.855	Effects of aging on primary and secondary vaccine responses in a 15-year longitudinal cohort				$594,908
93.855	Effects of IgE Blockade on T Cells in Food Allergy				$361,454
93.855	Emerging novel mechanisms of antibiotic resistance in the prevalent foodborne pathogen, Salmonella				$435,270
93.855	Engineered Regulatory T cells with Enhanced Stability and Suppression for Autoimmunity				$28,050
93.855	Enhancing immunity to malaria in young children with DP chemoprevention			$623,643	$934,483
93.855	Enhancing surveillance systems to slow the spread of antimicrobial-resistant gonorrhea in the United States	Yale University	GR109896 (CON-80002439)		$32,541
93.855	Epigenetic Histone Landscape Profiles in HIV				$7,435
93.855	Establishing ferret models to optimize new influenza vaccines that replace original antigenic sin with initial blessings of induced immunity	University Of Pennsylvania	580222; PO # 4573875		$127,371
93.855	Evaluating the role of allergen dose and duration in the safety and efficacy of multi-allergen oral immunotherapy with Omalizumab				$210,720
93.855	Evaluation of a novel rapid diagnostic for enteric fever	Massachusetts General Hospital	Subaward 238674		$25,500
93.855	Evolution of drug resistance in Candida glabrata			$271,865	$861,277
93.855	Exploiting and enhancing the IgE-binding epitopes of the 2S albumins of peanuts and tree nuts	University of Colorado Denver	PO: 1001584844:		$20,346
93.855	Exploiting the Host-HIV Interface to Identify Biomarkers Predicting Time to Viral Rebound after Treatment Interruption	J. David Gladstone Institutes	SC-00001		$18,734
93.855	Explorative studies of novel IgE ligands				$184,381
93.855	Exploring MetAP2 as a viable drug target for Entamoeba and Naegleria				$39,607
93.855	Functional analysis of pathogenic and protective peanut allergen-specific human antibodies				$441,861
93.855	Functional genetics of human innate immunity in the bimodal gamma delta T cell response to Epstein-Barr Virus and in education of NK cells and their re-education to respond to autologous cells				-$68,544
93.855	Gene Correction for RAG2-SCID Disorder in Human Hematopoietic Stem Cell	University of California, San Francisco	13208sc		$22,128
93.855	Gene Regulation as a Foundation for Autoimmune Disease Prevention	Cincinnati Children's Hospital Medical Center	313981 / PO 3100801236		$172,420
93.855	Giant MagnetoResistive (GMR) Sensors for Measuring Influenza Vaccine				$401,114
93.855	Glycan-Lectin Receptor Regulation of Macrophage Maturation and Lung Innate Defenses in the Fetus and Newborn Infant			$242,926	$512,836
93.855	Gut Microbiota Modulation of Chikungunya Virus infection and Pathogenesis	Washington University in St. Louis	WU-22-0325/ PO#ST00006053		$127,565

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.855	Harnessing the Unique Biogenesis of the Apicomplexan plastid organelle for Antimalarial Targets				$573,337
93.855	High resolution longitudinal immune monitoring for elucidating immune aging dynamics			$123,096	$1,123,455
93.855	HIPC EXTENSION: System biological analyses of innate and adaptive reponses to vaccinations- CORE D	Emory University	A542152		$86,329
93.855	HIPC: System Biological Analyses of Innate and Adaptive Responses to Vaccination	Emory University	A539938		$2,204,849
93.855	HIV Drug Resistance Database				$972,529
93.855	HIV Eradication Through Latency Reversal With New Potent PKC Modulators	University of California, Los Angeles	2301 G ZC969		$305,454
93.855	Host blood biomarkers for the diagnosis, prognosis and treatment response of childhood TB	University of Cape Town	ERA28691		$8,182
93.855	Host Determinants of Adeno-Associated Virus Entry and Trafficking				$191,029
93.855	Host determinants of enterovirus RNA replication and in vivo neuropathogenesis			$83,468	$459,584
93.855	Host Genes Critical for Flavivirus Infection				$365,832
93.855	Host-virus interactions in the control of the filovirus entry	Albert Einstein College of Medicine	311251; P0826300		$11,768
93.855	How Hepatitis C Virus Regulates Desmosterol to Affect RNA Replication: a New Virus-Host Interaction				$237,684
93.855	Human 3D neural-muscular assembloids to study cell tropism and host factor utilization of divergent neuropathogenic enteroviruses				$149,323
93.855	Human Cytomegalovirus Entry into Cells Mediated by Pentamer and Trimer Complexes	Oregon Health & Science University	1018176_STANFORD		$303,845
93.855	Human Lung Organoid Models of SARS-CoV-2 Infection			$455,283	$1,689,108
93.855	Identifying The Machinery That Translocates Toxoplasma Effectors Into The Host Cell				$546,931
93.855	Immune Tolerance Network	Benaroya Research Institute at Virginia Mason	FY21ITN357, FY22ITN357		$40,558
93.855	Immunization against filamentous bacteriophages to prevent bacterial infection	University of Montana	PG18-61062-01		$330,625
93.855	Impact of HIV exposure, feeding status, and microbiome on immune ontogeny and vaccine responses in infants			$194,213	$263,021
93.855	Implicit Bias in the Evidence: An Evaluation of Female-Predominant Disease				$535,171
93.855	In vivo Wireless Sensors for Gut Redox Monitoring to Understand Host and Microbe Physiology				$261,524
93.855	Insights into immune-related disease born from population genomics	University of Colorado Denver	FY21.1050.001/2-5-M9381		$89,986
93.855	Integrated Genomic and Functional Studies of Immunotherapy for Multi-Food Allergy				$1,553,869
93.855	Integrating genomic and spatial approaches for targeted control of HIV-associated tuberculosis epidemics	Yale University	GR110924 (CON-80002720)		$39,512
93.855	Integrating microfluidic vortex shedding-mediated gene delivery into the development and manufacture pipelines of adoptive cellular immunotherapies	Indee Labs	210194		$87,971
93.855	Investigating the latent HIV-1 reservoir in lymphoid tissue using multiplexed imaging and spatial transcriptomics				$21,012
93.855	Investigation of Epigenetic Dysregulation in Lupus NK Cells				$164,256
93.855	Long-term health and socioeconomic impact of interventions targeting low-density malaria infection (LMI) among children in Tanzania	University of California, San Francisco	13585sc / U01 AI155315		$8,134
93.855	Malaria Evolution in South Asia	University Of Washington	UWSC9949/ BPO55732		$43,046
93.855	Massively-parallel single-cell multi-omics to chart human immune cell states in infection	University of Alabama at Birmingham	000520244-SP008-SC017		$87,679
93.855	Measuring spillover effects of reactive, focal malaria elimination interventions				$142,352
93.855	Mechanisms of Diet-Induced Pathogen Expansion in the Gut				$388,114
93.855	Mechanisms of persistent Salmonella infection				$496,741
93.855	Mechanistic studies to assess the effect of omalizumab on immune cells in conjunction with randomized, controlled rapid multifood OIT (CoFAR11) trial	Johns Hopkins University	2004200730		$98,274
93.855	Metabolic aldehydes as immune effectors against tuberculosis	New York University	20-00-00-1003829/POM200367614		$32,070
93.855	Metabolic imprinting of dendritic cell fate and function in tissues				$468,158
93.855	Metagenomic shotgun microbial sequencing in post-transplant lymphoproliferative disorders (PTLD-MSMS)	Washington University in St. Louis	WU-19-427-MOD // PO ST00000416		$67,900
93.855	MHC & KIR Sequencing and Association Analyses in the iGeneTRAiN Studies Effort	University Of Pennsylvania	582580 PO 4706814		$35,061
93.855	Modeling the influence of temperature on the evolution of vector-virus interactions	Health Research, Inc.	7058-01		$5,387
93.855	Modulation of the B cell response to dengue virus infection by Plasmodium falciparum co-infection				$156,700
93.855	Molecular and Cellular Immunobiology				$464,402
93.855	Molecular and single-cell immunology of myalgic encephalomyelitis / chronic fatigue syndrome				$524,808
93.855	Molecular Basis of Host Parasite Interaction				$473,979
93.855	Molecular Interactions of HIV-1 with the Nuclear Pore Complex	Emory University	A237546		$125,687
93.855	Molecular Mechanisms of Inflammasome Activation During Salmonella Infections				$177,686
93.855	Multi-omic Biomarker Discovery and Validation in Heart Transplant Patient Populations	University Of Pennsylvania	579036 PO 4881220		$381,976
93.855	Nano-optical reporters of dynamic mechanotransduction in the immune system				$951,908
93.855	Natural killer cell engineering to target the HIV reservoir	University of California, Los Angeles	2301 G YG461		$392,489
93.855	NEW HORIZONS IN THE PREVENTION AND TREATMENT OF FOOD ALLERGY- Outmatch	Johns Hopkins University Hospital	2004474750		$230,263
93.855	Novel disposable microchips for HIV-1 viral load				-$714
93.855	Novel transcription factors modulating the development and function of pDCs and pDC-related cells				$231,345
93.855	Omics for TB: Response to Infection and Treatment	Seattle Children's Hospital	12542SUB		$126,292
93.855	Once Bitten: Detecting the World's Most Common Vector-Borne Pathogens				-$265
93.855	Optimal targeting for individual and population-level TB prevention	Harvard School of Public Health	117164-5113037		$22,250
93.855	Pandemrix and T Cell Immunology in Narcolepsy				$692,498
93.855	Parasite-specific proteasome inhibitors to combat multi-drug resistant malaria			$155,611	$274,079
93.855	PPiSeq: High-Throughput Protein-Protein Interaction Sequencing				$272,293
93.855	Prevention Center U01: Early Targets For Antigen-Specific Tolerance Induction in Preclinical Rheumatoid Arthritis (Project number: 2-5-24210)	University of Colorado Denver	FY22.090.003_AMD4, 2-5M9074		$188,581
93.855	Primary Immune Deficiency Treatment Consortium	University of California, San Francisco	12053sc		$19,694
93.855	Profiling the protective B cell response to HCV			$117,286	$193,741
93.855	Programmed Cell Removal (PrCR) by Macrophages: recognition and phagocytosis of target cells				$399,253
93.855	Project 3: Fragment-to-lead and target validation	Sloan Kettering Institute for Cancer Research	MSKSUB00000099		$6,935
93.855	Project 4: Covalent targeting strategies	Sloan Kettering Institute for Cancer Research	MSKSUB00000102; PO C22069257		$6,073
93.855	Rapid development of SARS-CoV-2 specific therapeutics that leverage virus specific RNA elements				$154,561
93.855	Regulation of the IgG Fc domain repertoire				$189,696
93.855	Regulatory control of inflammatory cytokine production by a linear ubiquitin-binding protein				$166,537
93.855	Repertoire studies of human antibodies to RSV and MPV F			$288,219	$404,271
93.855	Role of nociceptive sensory neuron/mast cell interactions in cutaneous allergic inflammation				$246,930
93.855	Roles for hepatitis C virus-derived circular RNAs in infected cells				$184,837
93.855	Roles for microRNA-122 and circular RNAs in flavivirus RNA amplification				$422,117
93.855	Safety and Tolerability of Shrimp Oral Immunotherapy	Baylor College of Medicine	7000001426		$18,374
93.855	Sample-to-Answer Rapid, Multiplexed and PCR-Free Detection of Arboviral Fever Diseases in Resource Limited Settings	University of California, Santa Cruz	A21-0230-S001/P0754618		$523,996

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.855	SARS-COV-2 Screening in Dialysis Facilities: Building an Optimal Strategy to Protect High Risk Populations				$219,794
93.855	SEAL (Stopping Atopic dermatitis and ALlergy) Study: Prevent allergy by enhancing the skin barrier			$1,031,478	$1,622,986
93.855	Small molecule degraders of HIV-1 Nef				$256,267
93.855	Small molecule-induced degradation of dengue proteins as an antiviral strategy				$684,495
93.855	Small RNA regulation of gene expression in Entamoeba				$208,147
93.855	Stanford TRANSFORM I2T Program				$376,837
93.855	Storage and recall of human B cell memory of influenza over tissues and time			$476	$252,965
93.855	Strategies for tuberculosis control in prisons			$117,968	$513,532
93.855	Structural and Functional Characterization of the Ebola Virus Replication Complex"	Washington University in St. Louis	WU18-66-MOD-3 / PO #2934346E		$29,150
93.855	Structural correlates of T cell receptor signaling				$460,289
93.855	Structural interrogation of the HIV - 1 5' leader by multidimensional chemical mapping and integrative modeling				$101,467
93.855	Structure and function of EBV protein complexes that trigger epithelial cell entry.	Northwestern University	60049111 SU		$311,684
93.855	Structure, function and engineering of immune cytokine receptor signaling				$459,481
93.855	Structure-based vaccine design for hepatitis C virus	University of Maryland at College Park	50917-Z0022201		$59,055
93.855	Studies on bacteriophages in respiratory diseases				$8,202
93.855	Systems biological assessment of innate and adaptive immunity to vaccination				$345,945
93.855	Systems biological assessment of vaccination-induced protective immunity in African children				$6,098
93.855	Systems Biology of Early Atopy (SUNBEAM)	Johns Hopkins University	2004813184		$384,046
93.855	Systems Modeling Guided Bone regeneration	Cincinnati Children's Hospital Medical Center	138679/PO 3100767574		$15,748
93.855	T Cell Reagent Research for Monitoring T-Cells in Food Allergy				$427,934
93.855	Targeting Inflammation and Alloimmunity in Heart Transplant Recipients with Tocilizumab	Massachusetts General Hospital	232560		$20,834
93.855	Technology development for point-of-care detection and antimicrobial susceptibility testing of Neisseria gonorrhoeae	Johns Hopkins University	2004139484		$113,295
93.855	The Role of the LAT Locus in HSV-1 Infection of Human Skin Xenografts in vivo				-$3
93.855	Therapeutic Development of RNAi-Based Inhibitors Against the Hepatitis Delta Virus	SomaGenics Inc	R44AI104007		$82,403
93.855	Therapeutics for Post-Tx Lymphoproliferative Disorder				$168,376
93.855	Tissue Cytokine Sequestration and Immune Regulation in Autoimmunity				$530,174
93.855	Tomotherapy and Hematopoietic Stem Cells for Tolerance to MHC Disparate Kidney	University of Wisconsin	Sub 0000001548		$114,836
93.855	Transitional dendritic cells: identifying the origin and role of a novel innate immune population during viral infection			$92,387	$416,992
93.855	Ultrasensitive HIV viral load quantitation using designer DNA nanostructure captureprobes and photonic resonator interference scattering microscopy			$180,643	$551,314
93.855	Using colloborative cross mice to monitor resilience to malaria				$21,886
93.855	Vaccine Induced Immunity in the Young and Aged - TDP	Emory University	A594635 (A333350)		$154,450
93.855	Vaccine-Induced Immunity in the Young and Aged	Emory University	A489727 (formerly A335561)		$316,416
93.855	Validating the Flavivirus Envelope Protein as an Antiviral Target			$31,966	$713,188
93.855	Varicella-Zoster Virus: T Cell/Skin Tropism & Immunity				$304,072
93.855	Viral GPCR recognition of chemokines and engineered ligands				$38,759
93.855	Viral use and mimicry of autophagy pathways and components				$428,659
93.855	Yellow fever in Brazil: new insights on an old disease				$150,669
93.856	Imaging Chemotherapy-Induced Brain Damage in Pediatric Cancer Survivors				$83,088
93.859	A central control system for mitochondrial navigation in neurons				$304,163
93.859	A comparative population genomic approach for high-resolution inference of natural selection in fruit flies				$61,741
93.859	A nanophotonic approach to building DNA using enzymatic synthesis				$633,902
93.859	A Synchrotron Radiation Structural Biology Resource			$66,701	$4,916,411
93.859	A universal pipeline for functional characterization of the human microbiota at a massive scale	Massachusetts Institute of Technology	S5065 - PO 473143		$730,404
93.859	Bacterial Cell Wall Composition and the Influence of Antibiotics				$295,102
93.859	Binuclear Copper-O2 Hydroxylation Reactivity: Role of CuIII?				$38,387
93.859	Biophysical studies of macromolecules and molecular assemblies				$795,050
93.859	BioPortal: An Expansive Knowledgebase of Biomedical Entities and Relations			$278,134	$996,252
93.859	Bistability and trigger waves in cell signaling				$732,028
93.859	Capturing the phenotypic landscape of single-nucleotide variation via systematic genome editing				$835,524
93.859	Cell-cycle commitment in muscle regeneration				$55,731
93.859	Cellular and Molecular Biology Training Program				$1,294,564
93.859	Cellular Response to Genetic Change				$605,090
93.859	Center For The Structural Biology of Cellular Host Elements In	University of Utah	10044932-05; PO #U000330614		$30,739
93.859	Charactering the impacts of regulatory epistasis with high-throughput precision genome editing				$68,095
93.859	Characterization and Modulation of Caspase 4-Mediated Pyroptosis				$71,622
93.859	Characterizing the Regulation of Ferroptosis				$498,653
93.859	Chemical Glycobiology Tool Development: LYTACs				$409,879
93.859	Chemical tools for developmental biology				$977,201
93.859	Chemogenetic control of kinase and phosphatase activity by modulating autoinhibition				$287,134
93.859	Circulating Bacteriophages for the Diagnosis of Sepsis				$1,041
93.859	Combining systems biology and structural biology to find new therapeutics				$203,349
93.859	Comparative systems biology defines regulatory mechanisms in whole-body regeneration				$378,644
93.859	Computational- and experimental- driven discovery of splicing regulation and circRNA function				$540,136
93.859	Cost Effective, Synergistic Macromolecular Structure Determination, Analysis & Simulation				$306,521
93.859	Covalent Profiling of RNA Targets and Off-targets				$318,328
93.859	Data-Rich Strategies for Programming Ligand-Responsive RNA Regulatory Systems				$564,871
93.859	Delineation of genetic architecture underlying complex traits at molecular, individual and population levels				$223,508
93.859	Determining how cell growth triggers cell division				$427,794
93.859	Determining the molecular mechanism controlling cell size in mammalian epithelia				$91,979
93.859	Determining the molecular mechanisms controlling cell size				$4,813
93.859	Developing nanoparticle optical reporters of compressive, tensile, and shear forces for use in living cells and tissues.				$66,648
93.859	Discovering the mechanism of GPCR-mediated arrestin stimulation to enable effective drug therapies				$170,208
93.859	Discovery and Engineering of Plant Natural Product Pathways				$181,915
93.859	Discovery of Pharmacogenomic Biomarkers for OATP1B1 and OATP1B3	University of California, San Francisco	13058sc		$37,575
93.859	Dissecting principles of transcription factor binding				$38,993
93.859	Dynamic interplay of eukaryotic translation and mRNA decay				$39,701
93.859	Dynamics of eukaryotic translation initiation and its control				-$7,340
93.859	Dynamics of Translation				$481,874
93.859	Evolutionary Genomics of Yeast				$515,037

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.859	Extending the temporal and spatial capabilities of single-molecule methods				$370,024
93.859	Fibrolast lineage mechanisms of skin regeneration				$30,824
93.859	Fitness Effects of Beneficial Mutations				$497,851
93.859	FLWSHIP E.Agmon, PI M.Covert-Adding an environment and motility in a Whole Cell Model of Escherichia Coli				$50,278
93.859	FLWSHIP N.Till, PI C.Bertozzi-A Metabolic Engineering Strategy to Map Sialyltransferase Glycosites				$66,258
93.859	From one end to the other: dynamics of human translation initiation and its control				$59,114
93.859	From proteins to cells to tissues: A multi-scale assessment of biomechanical regulation by the myosin molecular motor			$1,161,758	$2,402,516
93.859	Function of Protein Methylation in Chromatin and Signaling Regulation				$716,627
93.859	Fundamental Studies of RNA Conformational Thermodynamics			$149,896	$548,678
93.859	Genetics and Developmental Biology Training Program				-$2
93.859	Genetics of adaptation to toxic environments				$84,334
93.859	Genomics of rapid adaptation in the lab and in the wild				$922,776
93.859	Genomics of RNA Editing: Identification and Regulation			$15,810	$380,185
93.859	Graduate Training in Stem Cell Biology and Regenerative Medicine				$415,620
93.859	Graduate Training Program in Biotechnology				$268,332
93.859	Guanidinium Toxins as Molecular Probes for NaV Study			$87,297	$439,396
93.859	Harnessing the human monocyte system to improve surgical recovery				$422,234
93.859	High resolution imaging of genome structure and gene regulation in development				$565,233
93.859	High-resolution modeling of protein-RNA interfaces	Fred Hutchinson Cancer Research Center	0001044379		$48,705
93.859	High-throughput precision genome editing to characterize natural genetic variants				$448,822
93.859	In vivo characterization of CNE/SNPs and identification of cis (dys)regulated genes			$347,030	$542,365
93.859	Induction of Cell Death by Dietary Fatty Acids	Washington State University	135103 SPC001412		$36,786
93.859	Integrated Instrument for non-natural aptamer generation				$215,684
93.859	Integration of regulatory networks and dynamic subcellular architecture to control the Caulobacter cell cycle				$80,966
93.859	Intracranial cortical network connectivity underlying complexity changes during anesthetic emergence				$15,497
93.859	Investigating the establishment, structure, and function of microtubule organizing centers in differentiated cells in vivo				$303,282
93.859	Investigating the molecular details of assembly, disassembly and trafficking of GPCR-arrestin complexes				$11,149
93.859	Ion Channels and Signaling Mechanisms in T Lymphocytes				$446,070
93.859	Leveraging environmental drivers to predict vector-borne disease transmission			$60,050	$375,423
93.859	Machine Learning for Integrative Modeling of the Immune System in Clinical Settings				$493,403
93.859	Mechanism of the Eukaryotic Chaperonin TRiC/CCT				$545,230
93.859	Mechanisms and Evolution of Assembly-Line Polyketide Synthases				$491,897
93.859	Mechanisms controlling the inactivation of microtubule organizing center function at the centrosome				$441,193
93.859	Mechanisms of Ciliary Signaling Controlling Obesity and Metabolic Disease				$108,190
93.859	Mechanisms of CLC Transporters and Channels			$22,785	$458,147
93.859	Mechanisms of Kinetochore Assembly				$649,091
93.859	Mechanisms of R-loop-Associated Genome Instability				$274,397
93.859	Mechanisms of Smoothened Activation in Hedgehog Signaling	University of California, San Francisco	13354sc		$5,756
93.859	Mechanistic models for predicting the dynamics of microbial communities				$44,056
93.859	Mechanistic Studies of Polyketide Synthases Enabled by Unnatural Amino Acids and Antibody Fragment Structural Tools				$64,316
93.859	Mechanoresponsive Engrailed-1-negative fibroblasts activate Engrailed-1 to promote fibrosis in wound healing.				$336,690
93.859	Medical Scientist Training Program				$1,444,334
93.859	Meiotic Chromosome Inheritance in C. elegans				$854,507
93.859	Molecular Biophysics Training Program at Stanford				$567,555
93.859	Molecular Mechanism of Mitochondrial Membrane Transport			$66,033	$541,370
93.859	Molecular mechanisms of alkane hydroxylase (AlkB) selectivity and reactivity	Barnard College	SU-1R01GM130989-01A1		$260,143
93.859	Molecular mechanisms of centriolar triplet microtubule formation				$42,052
93.859	Molecular mechanisms of Wnt and mechanical signaling through -catenin				$123,051
93.859	Molecular mechanisms that regulate target cell sensitivity to Hedgehog morphogens				$74,800
93.859	Molecular mechanisms underlying force transduction at cellular adhesion complexes				$452,407
93.859	Molecular Pharmacology Training Program				$285,553
93.859	mRNA Template-free Protein Elongation: a New Paradigm for Quality Control at the Ribosome				$321,658
93.859	Multimodal Single-molecule Analysis of DNA Interrogation by Cas9 and Cas12a: Examining the relationship between mismatches, DNA supercoiling, and conformational dynamics				$18,444
93.859	Multiplexed Nucleation Approaches for Enhanced High Throughput Screening of Co-Crystals	DeNovX	174038 / R44 GM116285		$150,784
93.859	Multi-scale, model-driven exploration of sub-generational gene expression in bacteria: individual consequences, population benefits			$44,388	$476,042
93.859	Myeloid lineage targeting to improve recovery from injury and surgery: Cellular and molecular mechanisms				$435,492
93.859	Myosin Movement in Vitro-Molecular Characterization				$299,032
93.859	Nanoscale probes for sensing molecular functions in live cells				$704,890
93.859	Next-generation computational/chemical methods for complex RNA structures				$859,836
93.859	NIH R01_Engineering Cytoskeletal Motors			$87,011	$187,513
93.859	Noninvasive deep-tissue single-cell imaging and nanoprobe development				$379,346
93.859	Novel Mechanisms of Regenerative Wound Healing	Baylor College of Medicine	7000001271		$13,987
93.859	Nucleic Acid Enzymes Studied at the Molecular Level				$257,389
93.859	OpenMM: Scalable biomolecular modeling, simulation, and machine learning				$387,479
93.859	Organ-scale regulation of stem cell dynamics				$297,514
93.859	Oxygen Activation by Mononuclear Copper(I) Active Sites				$61,876
93.859	Physiology of bacterial metabolism in the human gut microbiome				$431,299
93.859	Planar cell polarity mechanisms and systems architecture				$805,315
93.859	Platform for high-throughput biomechanical measurements using metallic islands on boron nitride nanosheets	University of California, San Diego	703883		$184,231
93.859	Precision medicine for Asian Americans requiring anesthesia				$436,213
93.859	Probing the Transcriptome with Multifunctional Acylation Chemistry				$139,005
93.859	Programmable evolution of optogenetic systems - P. Kyriakakis				$226,015
93.859	Protein Folding in the Eukaryotic Cytosol				$642,465
93.859	Protg: A Knowledge-Engineering Environment for Advancing Biomedical Sciences				$4,573
93.859	Quantitative, High-throughput Mechanistic Enzymology				$496,216
93.859	Recombineering-based no-cleavage gene-editing toolkit for large-scale genome engineering and functional screening				$403,954
93.859	Reconstructing and deconstructing intracellular signaling at the membrane-cytosol interface				$21,058
93.859	Regulated Protein Degradation				$35,255
93.859	Regulation of calcium signaling in microdomains by the calcium pump PMCA4b				$16,591

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.859	Regulation of Heterotrimeric G proteins by non-receptor activators	University of Michigan	SUBK00014358 PO 3006261647		$64,918
93.859	Regulation of proliferation and differentiation in the male germ line adult stem cell lineage				$762,817
93.859	Regulation of Signaling by Histidine Protein Methylation				-$994
93.859	Regulatory and Mechanistic Understanding of ADAR-Mediated RNA Editing				$46,833
93.859	Remodeling the microtubule cytoskeleton during epithelial cell division and differentiation				$103,870
93.859	Repurpose open data to discover therapeutics for understudied diseases	Michigan State University	RC110435LSJU		-$8,129
93.859	Research in Anesthesia Training Program (ReAP)				$302,306
93.859	Role of pseudouridines in pre-mRNA processing				$196,705
93.859	Scalable Coalescent Inference for Large Data Sets				$170,892
93.859	Seg2-Structure and dynamics of G protein coupled receptor-G protein complexes	University of California, San Diego	703861/305126 / R01 GM083118		$159,962
93.859	Selective Halogenation Reactions for the Synthesis of Chiral Bioactive Small Molecules				$5,717
93.859	Signal transduction in development and disease				$664,172
93.859	Signaling in cell expansion and morphogenesis	Carnegie Institution of Washington	6-10756-01		$35,736
93.859	SimTK: An Ecosystem for Data and Model Sharing in the Biomechanics Community				$313,129
93.859	Single-cell analysis and synthetic control of mammalian chromatin dynamics and gene regulation				$330,222
93.859	Single-Molecule Imaging for Cell Biology and Super-Resolution Microscopy				$594,520
93.859	Spectroscopic Characterization of Oxygen Intermediates in Non-heme and Heme Iron Enzymes				$101,235
93.859	Spectroscopic Studies of Mono-Nuclear Non-Heme Fe Enzymes				$604,886
93.859	Stanford ChEM-H Chemistry/Biology Interface Predoctoral Training Program				$283,456
93.859	Structural Biology Center for HIV/Host Interaction in Trafficking and Assembly	University of Utah	10044932-04; PO #U000330629		$263,476
93.859	Structural Dynamics and Mechanochemical Coupling in DNA Gyrase			$14,885	$348,239
93.859	Structural Dynamics at LCLS				$1,651,768
93.859	Structure and Function of SWEET Sugar Transporters				$445,910
93.859	Structure and mechanism of the centrosome-cilium complex				$316,458
93.859	Structure of RNA Polymerase II				$15,588
93.859	Structure, Mechanism, and Engineering of Assembly Line Polyketide Synthases				$209,849
93.859	Studies on insulin receptor ISO Forms				$636,986
93.859	Systematic approaches to deciphering cis regulation of A-to-I RNA editing				$164,558
93.859	Systematic elucidation of calcineurin phosphatase signaling in humans				$769,449
93.859	The Bio-Tinkering Playground	Tech Museum of Innovation	8R25GM129220-02		$59,246
93.859	The population genomics of hybridization: from adaptation to genome evolution				$409,046
93.859	The Role of Chromatin in Metabolic Homeostasis				$446,844
93.859	The Role of eIF4G1 and eIF4G2 in Translational Control of Adipogenesis and Obesity				$5,464
93.859	The Role of Membrane Architecture in Primary Cilium Signaling				$69,920
93.859	The Ubiquitin Proteasome System in ER Quality Control				$760,821
93.859	Transcriptional and Epigenetic Control of Pluripotency and Self-Renewal by Honey Bee Royalactin and its human structural analog				$314,401
93.859	Transcriptome Analysis with RNA-Reactive Probes				$187,086
93.859	U24 - CryoEM Data Collection Facility Consortium at NCMI				$211,476
93.859	Unbiased discovery of mechanisms regulating circRNA				-$2,660
93.859	Uncovering fundamentals of gene regulation by enhancers				$246,643
93.859	Unified Data Resource for 3DEM			$383,667	$546,960
93.859	Universal Roles of Force Generation and Transmission in Biological Systems	Purdue University	11000645-006 / 4102-83304		$63,253
93.865	146088-shannon/Frank-NIH Fellowship-Testing a Framework of Environmental Adaptation in Children's Learning Strategies				$69,792
93.865	3/3 -A randomized controlled trial of frozen embryo transfers performed in modified natural versus programmed cycles (NatPro)			$75,258	$344,333
93.865	5'UTR RNA Regulons in ribosome-mediated control of embryonic development				-$4,519
93.865	A Dashboard of Racial/Ethnic Disparity in Care Provided by NICUs				$48,447
93.865	A monkey model of naturally occurring social impairments				$31,309
93.865	A prospective study of male factors, fertility, and pregnancy outcomes	Boston University	4500004002		$159,421
93.865	A transposon-based strategy for optogenetic engineering				$76,569
93.865	Active Surveillance of the Safety of Antipsychotic Medications in Pregnancy	Brigham and Women's Hospital	125323		$35,622
93.865	Brain, Behavior and Puberty in Klinefelter Syndrome			$252,809	$700,039
93.865	Cell Surface Receptor Recognition and Membrane Fusion in Mammalian Fertilization				$106,468
93.865	CELL TYPE-SPECIFIC CONTROL of GENE EXPRESSION by RIBOSOMAL PROTEIN ISOFORMS				$39,560
93.865	Center for Reliable Sensor Technology-Based Outcomes for Rehabilitation (RESTORE)			$66,185	$629,694
93.865	Center for the Development of Phenotype-Based Treatments of Autism Spectrum Disorder	University of California, Davis	A18-0985-S002		$157,494
93.865	Characterizing synaptic phenotypes in FXS human organoids and FXS mouse models	Emory University	A499114		$391,719
93.865	Chemical-inducible Epigenome Editors for Allele-specific Gene Regulation in Developmental Disorders				$37,638
93.865	Comparative Safety of Non-Insulin Agents in Pregnant Women with Pregestational Diabetesomen with Pregestational Diabetes	Harvard School of Public Health	117244-5122322		$17,792
93.865	Connectivity, activity, and function of a hypothalamic pathway in female social behaviors				$682,121
93.865	Continuous Non-Invasive Blood Pressure Monitor for Neonates	PyrAmes Health	Rhine SPO 149124		$42,817
93.865	COVID-19 Impact of COVID-19 Exposure on U.S. Birth outcomes	University of Wisconsin-Madison	0000001869		$150,505
93.865	Cross-Species Multi-Modal Neuroimaging to Investigate GABA Physiology in Fragile X Syndrome				-$159
93.865	Determinants of ultra-low viral reservoirs in HIV infected children	University Of Washington	UWSC10077 BPO26954/BPO33467		$94,911
93.865	Developing a wearable computing device to provide vibrotactile stimulation for spasticity relief post-stroke				$14,063
93.865	Developing deep learning algorithms for studying infant brain and behavior relationships				$464,333
93.865	Development of a novel treatment for hyperbilirubinemia-induced kernicterus				$116,628
93.865	Development of allosteric HIPK4 inhibitors as non-hormonal male contraceptives			$411,041	$768,150
93.865	Disparities in Processes and Outcomes of Care Across Asian/Pacific Islander Populations at Childbirth			$71,480	$535,265
93.865	Do Hair Cortisol and Hair Oxytocin Represent the Stressful and Supportive Experiences of Preschool Children?				$977,939
93.865	Dysregulation of Mitochondrial Dynamics in Sepsis - Induced Multi-Organ Dysfunction Syndrome (MODS)				$273,091
93.865	Early Infection in High Risk Women AI38518	Fred Hutchinson Cancer Research Center	0001027099		$136,513
93.865	Early language processing skill and school-relevant outcomes in emerging Spanish-English bilinguals				$377,357
93.865	Effects of Age at Marriage and Education on Health of Mothers and Children	Duke University	A03-3680		$6,337
93.865	ENACT: Endometriosis Center for Discovery, Innovation, Training and Community Engagement	University of California, San Francisco	12998sc		$297,280
93.865	Enhanced Stem Cell Therapy with Rehabilitation Strategies for Peripheral Nerve Regeneration				$19,063
93.865	Enhancing Effectiveness of a Dissonance-Based Obesity Prevention Program			$369,228	$506,893

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.865	Environmental, Genetic, and Epigenetic Mechanisms for Hormonal Change at Puberty	University of Texas at Austin	UTA20-000651		$35,974
93.865	Evaluation of ovarian reserve, aging and fertility preservation in women with sickle cell disease				$175,120
93.865	Fear learning in adolescents with chronic pain: Neural and behavioral mechanisms				$52,976
93.865	FLWSHP K.Jennings, PI de Lecea-Lateral hypothalamic regulation of male and female sexual motivation				$35,438
93.865	Genomic Predictors of Pregnancy Loss			$327,754	$1,002,259
93.865	Gestational Diabetes Drugs and Perinatal Outcomes in Underserved Populations	Vanderbilt University Medical Center	VUMC99802		$12,301
93.865	Improving outcomes of periviable births via an enhanced prediction tool			$24,930	$280,160
93.865	In situ simulation of neonatal resuscitation to improve team performance and clinical outcomes			$36,810	$234,298
93.865	Influence of maternal virome and HIV status on infant enteric virome and immune ontogeny	Seattle Children¿s Research Institute	12533SUB		$131,750
93.865	Interventions in math learning disabilities: cognitive and neural correlates				$124,692
93.865	Intranasal vasopressin treatment in children with autism				$543,637
93.865	ISRIB as a promising therapeutic for Fragile X syndrome				$68,222
93.865	Large-scale Implementation of Community Co-led Maternal Sepsis Care Practices to Reduce Morbidity and Mortality from Maternal Infection	Duke University	303000035		$168,664
93.865	Listening to Mom in the NICU: Neural, Clinical and Language Outcomes				$251,503
93.865	Longitudinal investigations of the infant virome and its associations with obesity			$24,822	$177,943
93.865	Longitudinal Neurocognitive Studies of Mathematical Disabilities: trajectories and outcomes				$867,405
93.865	Maternal Chronic Pain: Risk for Pain and Poor Outcomes in Children	Oregon Health & Science University	1006408_Stanford		$4,398
93.865	Medical Rehabilitation Research Resource P2C	University of Pittsburgh	AWD00002588 (135108-4)		$103,691
93.865	Mentoring and Advanced Research Training for WRHR Scholars				-$810
93.865	Microbial dispersal, skin-to-skin contact, and assembly of the neonatal gut microbiome				$319,773
93.865	Molecular images and machine learning to extract placental function from maternal cfDNA				$498,812
93.865	Molecular Imaging and Diagnosis of Endometriosis using Mass Spectrometry Technologies	Baylor College of Medicine	7000001654		$1,017
93.865	Multi-center Randomized Controlled Trial of Refeeding in Anorexia Nervosa	University of California, San Francisco	12914sc		$195,008
93.865	Multiplex gene sequencing and metabolomics analysis from newborn dried blood spots to improve screening and diagnosis of metabolic disorders	Yale University	GR111297(CON-80002682)		$112,899
93.865	Neural mechanisms of successful intervention in children with dyslexia				$674,593
93.865	Neuromodulation of maternal immune adaptations in pregnancy				$74,036
93.865	NICHD Cooperative Multicenter Neonatal Research Network				$239,687
93.865	Novel pathways regulating calcium mediated contractility in the pregnant uterus			$13,577	$598,821
93.865	Obstetric delivery volume, regionalization, and maternal and infants outcomes.			$579,141	$818,040
93.865	Passive phototherapy to improve sleep in teens			$58,848	$295,890
93.865	Paternal medications and congenital malformations in offspring				$53,331
93.865	PediAtric ReseArch of Drugs, Immunoparalysis and Genetics during MODS (PARADIGM)	Research Institute at Nationwide Children's Hospital	700196-0420-00; PO# 4605508		$2,319
93.865	Personalized Whole Body Staging for Children with Cancer: A Solution to the Conundrum of Long-Term Side Effects from CT and PET/CT Scans				$18,854
93.865	Pharmacological and phosphoproteomic studies of HIPK4-dependent spermatogenesis				$52,983
93.865	Predicting language processing efficiency in preterm children: Social-environmental and neuro-biological factors				$657,180
93.865	Predicting PrEP Uptake and Adherence among Adolescent Girls and Young Women in Sub-Saharan Africa: Leveraging Programmatic and Clinical Trials Data	Fred Hutchinson Cancer Research Center	0001067241		$73,972
93.865	Preterm Infant Outcomes Following Changes in Oxygen Saturation Targets in California Neonatal ICUs	Connecticut Children's Medical Center	20-181011-01		$28,308
93.865	Prevention of neonatal opioid withdrawal syndrome				-$214,772
93.865	Rapid remodeling of the translatome underlying wound healing and regeneration				$3,405
93.865	Ras/MAPK Mutations Effects on the Developing Brain				$160,349
93.865	Ribosomes and Regeneration: Defining the Role of Protein Synthesis in Tissue Development, Homeostasis and Repair				$101,254
93.865	Specialized filopedia in long range cell signaling and vertebrate tissue patterning				-$143
93.865	Specialized Translational Control of Stem Cell Differentiation and Embryonic Development				$876,178
93.865	Stanford Women's Reproductive Health Research Career Development Program				$284,822
93.865	Stem cell-derived smooth muscle progenitor cells for vaginal wall prolapse				$160,453
93.865	Targeting the neurobiology of restricted and repetitive behaviors in children with autism using N-acetylcysteine				$134,444
93.865	The effects of maternal early life stress on perinatal hair cortisol concentration: Implications for infant cortisol and brain volume				$73,091
93.865	The Impact of Opioids on Health Outcomes for Hospitalized Infants	Children's Hospital Los Angeles	000014111-A		$32,944
93.865	The influence of health and neighborhood context on economic mobility: Evidence from a social experiment	University Of Minnesota	H006124303 / R01 HD090014		$14,610
93.865	The Value of Hospital Readiness for the Emergency Care of Injured Children	Oregon Health & Science University	1009131_STANFORD- 2		$40,001
93.865	Theranostics for Pediatric Brain Cancer				$507,872
93.865	Towards Identifying Optimal NICU Admission Criteria for Late Preterm Infants				$6,445
93.865	Unconventional signaling by the R-spondin family of WNT regulators				$107,430
93.865	Understanding the Short- and Long-Term Impacts of Childhood Exposure to Violence: Evidence from School Shootings			$145,762	$294,963
93.865	Validation of the Regulating Emotions in Parenting Scale (REPS) in a Nationally Representative Sample	University of Georgia Research Foundation, Inc.	SUB00002547		$11,466
93.865	Vector Flow Velocity Imaging of Human Placenta using Angle-resolved Ultrasound and Deep Learning				$76,529
93.865	VIRTUUS Children's Study - Validating Injury to the Renal Transplant Using Urinary Signatures In Children	Children's Hospital of Philadelphia	3200880522; PO# 20287500		$141,559
93.866	138117_Hong,NIH R00_Brain Aging Studies with Single-Neuron Resolution Using Syringe-Injectable Electronics				$10,637
93.866	A Mentoring Program in Kidney Care for Older Adults				$11,174
93.866	A mitochondrial membrane-spanning ternary complex regulates mitochondrial motility				$2,141
93.866	A Non-Invasive Neuromodulation Device for In-Home Treatment of Overactive Bladder	TheraNova LLC	145080		$95,812
93.866	Advancing Geriatric Infrastructure and Networth Growth (AGING) Initiative	University of Massachusetts	OSP2018116 WA01117582		$45,923
93.866	Advancing Geriatrics Infrastructure & Network Growth (AGING) Initiative - SUPPLEMENT	University of Massachusetts	OSP27336-S0 // PO #WA01105476		$16,915
93.866	Age-related clonal hemopoiesis and cognitive impairment in chronic kidney disease	University of Colorado	FY22.269.005		$392
93.866	Age-related decline in interactions between context, cognitive control, and memory				$87,217
93.866	Aging and Stem Cell Resilience	Palo Alto Veterans Institute for Research	RAN0047-01		$29,321
93.866	AGS/AGING Learning, Educating, And, Researching National INitiative in Geriatrics (LEARNING) Collaborative	American Geriatrics Society Inc,	1R25AG071488-01-SU		$8,294
93.866	Altered ENS Neuroimmune Interactions Disrupt Gastrointestinal Motility in Alzheimers Disease				$463,650
93.866	Alzheimer Gut Microbiome Project (AGMP) - Duke University U19	Duke University	A035573		$39,350
93.866	Alzheimer's Clinical Trials Consortium (ACTC)	University of Southern California	118871699		$3,345
93.866	Alzheimer's Clinical Trials Consortium (ACTC) (U24)	University of Southern California	SCON-00000156		$176,138

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.866	Alzheimer's Disease Genetic Consortium	University Of Pennsylvania	582036; PO 4663771		$16,515
93.866	Alzheimer's Disease Research Centers	Wake Forest University	1081-33664-11000000073		$7,253
93.866	Alzheimer's Disease Sequencing Project Phenotype Harmonization Consortium	Vanderbilt University Medical Center	VUMC95837		$335,468
93.866	Alzheimer's Gut Microbiome Project	Duke University	A034437, A035122		$22,990
93.866	Asian Cohort for Alzheimer's Disease (ACAD R56)	University Of Pennsylvania	580820 PO# 4685220		$44,328
93.866	Auracle An AI-Enabled Telecare System to Support the Independence and Safety of Individuals with AD/ADRD and Other Dementias	Gen-9, Inc.	184530		$77,427
93.866	Building a Platform for Precision Anesthesia for the Geriatric Surgical Patient				$295,328
93.866	Cardiovascular and Cerebrovascular Risk Factors for Mobility Limitation in the Jackson Heart Study			$113,084	$172,453
93.866	CD36-dependent neuroimmune pathway regulates disruption of gut motility in Alzheimers Disease				$21,695
93.866	Cellular senescence in chronic pain and aging				$1,353
93.866	Center for Advancing Socioedemographic and Economic Study of Alzheimers Disease and Related Dementias (CeASES-ADRD)	University of Southern California	SCON-00002087		$52,889
93.866	Characterizing sleep-wake activity patterns to detect early Alzheimer's disease innormal older individuals				$66,904
93.866	Clinical, Imaging, and Pathological Studies in the Oldest Old: The 90+ Study	University of California, Irvine	2022-1633		$61,687
93.866	COCOA flavanols to improve walking performance in PAD: the COCOA-PAD II Trial	Northwestern University	60059377 SU		$12,603
93.866	Cognitive, urinary, and functional trajectories of older women using pharmacologic treatment strategies for urgency incontinence	University of California San Francisco	13579sc		$11,701
93.866	Columbia University Science of Behavior Change Resource and Coordinating Center	Columbia University	1(GG015971-02); PO SAPO G16238		$219,337
93.866	Constructing, Validating, and Investigating the Added Explanatory Power of Life-Course Health Histories - US	Ohio State University	60079501		$60,433
93.866	Control of Muscle Stem Cells to Enhance Regeneration				$269,925
93.866	Cortical Hemodynamism and Oxygenation During Sleep and Cognition: Window to Cognitive Impairment and Neurodegeneration in Aging				$159,824
93.866	COVID-19 A New Database to Measure the Association Between Income, Race and Mortality: Inequality in Longevity During and Beyond the COVID-19 Pandemic	National Bureau of Economic Research	41890.01.00.00.Stanford		$3,722
93.866	Defining modifiers and mechanisms of RAN translation				$336,632
93.866	Determining the Role of TCAB1 in Shaping Telomerase Function				$311,292
93.866	Develop an ANS-based Personalized Cognitive Training for Mild Cognitive Impairment			$51,290	$208,275
93.866	Developing a framework to individualize surgical decision-making for older adults with primary hyperparathyroidism				$219,595
93.866	Development of a cost-effective and neurobiologically valid VR assessment tool forearly detection of AD				$302,433
93.866	Diagnosis and risk factors of hippocampal sclerosis of aging; a common Alzheimer's mimic in the oldest old	University of California, Irvine	2021-1458		$250,090
93.866	Dietary Modulation of Neuroinflammation in Age-Related Memory Disorders	Columbia University	GG014813,SAPO G13285		$126,092
93.866	Discovery of protein aggregates during vertebrate aging and neurodegeneration				$682,071
93.866	Disease, Disability and Death in an Aging Workforce			$262,846	$643,083
93.866	Disruption of neuronal signaling in Alzheimers disease and rescue by manipulating the innate immune receptor PirB				$68,615
93.866	Drug Benefit Design and Adherence Disparities in Older Adults	Kaiser Permanente	RNG210274-04		$9,706
93.866	Effects of attention and goal-state lapses on memory in healthy and pathological aging				$411,330
93.866	Effects of Job Quality in the Service Sector on Health-Related Outcomes Across the Life Course	Harvard University	100887-5119934 / R01 AG066898		$19,666
93.866	Effects of Western and Mediterranean Diets on Metabolic and Neuropathologic Risk Factors for Alzheimer's Disease in Nonhuman Primates	Wake Forest University	WFUHS 114989		$102,233
93.866	Elucidating Effects of Fibrosis on Aged Stem Cells with Dynamic Biomaterials				$117,787
93.866	Empower treatment effects evaluation of randomized clinical trials for elderly patients with integrated real-world data	North Carolina State University	2019-3095-02		$32,182
93.866	Evaluating the Effectiveness of an Online Small-Group Self-Management Workshop for Rural Caregivers of Individuals with Alzheimer's Disease and Related	University of California, San Francisco	10987sc		$35,107
93.866	Evolutionary Conserved Mechanisms of Neuronal Degeneration and Regeneration				$200,826
93.866	Forming science-industry partnerships to link everyday behaviors to well-being				$95,230
93.866	Glycemic Control and Dementia: The Role of Pharmacotherapy and Vascular Complications	Kaiser Foundation Research Institute	RNG210618-Stanford		$14,805
93.866	Health and Health Care Utilization Effects of Medical Debt Forgiveness	University of California, Los Angeles	1182 G ZA121		$983,428
93.866	High-Resolution Imaging of Hippocampal Mechanisms in Age-Related Memory Decline				-$2,019
93.866	Hip Fracture Pathology in Chronic Kidney Disease	University of California, San Diego	704928		$14,123
93.866	Hippocampal-dependent memory decline in aging and early Alzheimer's disease				$477,211
93.866	Identification of Brain Circuit Markers for Psychosis in Alzheimer's Disease by Leveraging Big Data and Machine Learning				$117,939
93.866	Identification of intrinsic and extrinsic regulators of TDP43 splicing function				$240,507
93.866	Identifying signatures of brain aging through heterochronic blood exchange	University of California, Santa Cruz	A21-0543-S002		$148,666
93.866	Identifying the Genetic Etiology of Neuropathology for Alzheimer Disease and Related Dementias	University of Miami	OS00000574; PO# SPC-002455		$345.497
93.866	Illuminating the APOE Locus: Long-Read Sequencing and Innovative Genomics				$1,013,611
93.866	Imaging the metabolic and phagocytic landscape of microglia in Alzheimer's disease				$128,192
93.866	Impact of microbiota-dependent molecules on mammalian host health and longevity				$74,417
93.866	Improving Medical Decision Making for Older Patients with End Stage Renal Disease	Boston Medical Center	7657 P#4300630001		$95,635
93.866	Innate immune signaling at the synapse in development and pathological Alzheimer's disease				$311,433
93.866	Innovating high-resolution novel imaging approaches to elucidate mechanisms of prion-like spreading of neurodegenerative disease				$528,109
93.866	Innovative technologies for active surveillance of older adults with low-risk skin cancer				$95,016
93.866	Insulin Resistance and Accelerated Cognitive Aging				$373,203
93.866	Interactions between goals, attention, and memory in younger and older adults				$31,407
93.866	Interactive Effects of Aging and AD on Brain Networks				$160,732
93.866	INTERmittent pneumatic ComprEssion for Disability rEversal in PAD: the INTERCEDE Trial	Northwestern University	60050890 STAN / R01 AG057693		$7,430
93.866	Interplay between amyloid precursor protein metabolism and ER-mitochondria contact				$179,408
93.866	Investigating whole-body innate immune activation in Alzheimer's disease using PET imaging and immune profiling				$152,293
93.866	Iron as an Imaging Biomarker for Inflammation in AD				$681,980
93.866	Link between epigenetic modifiers and fat metabolism for healthy aging			$65,030	$152,430
93.866	Long term fracture risk and change in peripheral bone in the oldest old men:The MrOS study	California Pacific Medical Center Research Institute	280201024-S277		$322,066
93.866	Management of Hypertension among Persons with and without Dementia in Long-Term Care			$354,205	$897,829
93.866	Mapping Molecular and Phenotypic Interactions in Alzheimers Disease			$34,723	$855,995
93.866	Mechanisms of Skeletal Stem Cell Aging				$10,508
93.866	Microglial lipid droplets in Alzheimers disease				$818,215
93.866	Microstructural changes in grey and white matter in aging and AD				$200,170
93.866	MIRIAD - Multiplexed Imaging of Resilience In Alzheimers Disease			$50,017	$867,731
93.866	Mobility in older hemodialysis patients				$209,592

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.866	Molecular Phenotyping in Alzheimer's Disease			$296	$385
93.866	Molecular Regulation of Stem Cell Aging			$630,410	$1,152,060
93.866	Molecular signature of parabiosis				$369,192
93.866	Multi-dimensional network framework for AD detection and progression				-$3,459
93.866	Multi-omic functional assessment of novel AD variants using high-throughput and single-cell technologies			$391,850	$1,100,600
93.866	National Alzheimer's Coordinating Center	University Of Washington	UWSC12994 BPO58593		$16,946
93.866	Neuropathologic substrates for motor and cognitive impairment in three existing cohort studies of Alzheimer's disease and related dementias			$754.735	$854,233
93.866	Next Generation Translational Proteomics for Alzheimers and Related Dementias	University Of Washington	UWSC11818; BPO 48322		$1,027,981
93.866	NIH/NIA R01AG055469 Efficacy and Mechanisms of Combined Aerobic Exercise and Cognitive Training in MCI	Arizona State University	ASUB00000956		$78,951
93.866	NIH/NIA R01AG059654 (PI: Li) Blood Biomarkers as Surrogate Endpoints of Treatment Responses to Aerobic Exercise and/or Cognitive Training in Amnestic Mild Cognitive Impairment(funded one, need establish subcontract)	University Of Minnesota	N006750804		$16,194
93.866	NIH/NIA U24 AG072701 Network for Emotional Wellbeing and Brain Aging (NEW Brain Aging)	University Of Rochester	SUB00000240 / GR531893		$84,369
93.866	Non-REM (NREM) on synapse plasticity and beta amyloid (A) accumulation in mice: impact on aging and Alzheimer's				$35,117
93.866	North American Prodromal Synucleinopathy Consortium for RBD, Stage 2 (NAPS2)	Washington University in St. Louis	WU-22-0259		$144,872
93.866	Novel exosome biomarkers of iron pathology in AD				$207,039
93.866	Open Drug Discovery Center for Alzheimer's Disease	Emory University	A537402		$150,185
93.866	Origins of Genome Instability in Progeria				$113,600
93.866	Palliative care needs and outcomes for dementia patients.				$888,877
93.866	Prazosin for Disruptive Agitation in AD (PEACE-AD) Trial	University of California, San Diego	87750190; PO #S9002309		-$578
93.866	Prevalence, Etiology, and Clinical Implications of Low Count Monoclonal B-cell Lymphocytosis (MBL)	Mayo Clinic	STA-244577-04/PO #68137001		$35,551
93.866	Probing Alzheimer synaptopathy in neurons derived from engineered human iPS cells				$601,224
93.866	Project 5 Title: Multimorbidity, as part of Health and Aging in Africa (HAALSI), Project 5 Multimorbidity, NIH#1P01AG041710	Harvard School of Public Health	116360-5109417- Project 5		$34,835
93.866	Proteostasis in Aging and Neurodegenerative Disease	Northwestern University	60057525 STAN, 60052294 STAN, 60052293 STAN		$541,740
93.866	Proteostasis in the aging brain				$183,459
93.866	Public Insurance Design and Health at Older Ages				$129,899
93.866	Quantitative assessment of early structural and functional changes in aging skeletal muscle				$105,290
93.866	Racial Bias in Risk Adjustment Algorithms and Implications for Racial Health Disparities: Evidence from Dual-Eligible Medicare/Medicaid Long-term Care Patients in New York				$40,544
93.866	RCT of the Effectiveness of Stepped-Care Sleep Therapy In General Practice (RESTING)				$491,914
93.866	Regulation of cholesterol by γ-secretase and ApoE: Implications for AD pathogenesis and synaptic function				$687,436
93.866	Regulation of eicosanoid signaling lipids to improve skeletal muscle function and increase healthspan during aging				$870,007
93.866	Regulation of immune cell metabolism in aging and Alzheimer's disease: role of the kynurenine pathway				$137,585
93.866	Relationship between lawful handgun ownership and risk of homicide victimization in the home				$196,835
93.866	Reprogramming myeloid cell metabolism to prevent cognitive aging and Alzheimers disease				$925,193
93.866	Resolving selective vulnerability and disease progression in human Alzheimer's brain via single-cell RNA-seq				$403,451
93.866	Reversing Skeletal Aging by Restoring Functional Skeletal Stem Cell Diversity				$109,444
93.866	Role of beta-adrenergic receptors in modulation of cognition and central and peripheral immune systems in Alzheimer's disease				$447,895
93.866	SCAN: Standardized Centralized Alzheimer's and Related Dementias Neuroimaging	University of California, Berkeley	00010826/U24AG067418		$326,425
93.866	Simulation framework of exoskeleton gait assistance for older adults with knee osteoarthritis				$59,861
93.866	Socioemotional Functioning in Adulthood and Old Age			$33,046	$564,060
93.866	Stanford Aging & Ethnogeriatrics Transdisciplinary Collaborative Center (SAGE)			$96,128	$1,003,102
93.866	Stanford Alzheimer's Disease Research Center			$229,186	$3,764,292
93.866	Stanford Training Program in Aging Research				$340,478
93.866	Statistical and computational methods for integrative analysis of Alzheimer's Disease genetics				$791,829
93.866	T cells in the aging brain				$517,476
93.866	Targeting CD22 to Restore Brain Homeostasis in Alzheimer's Disease			$201,630	$670,542
93.866	Targeting Senescence pathways in Alzheimer's disease				$439,474
93.866	Tfh dysfunction in HIV and Aging	University of Miami	OS00000393; PO# SPC-001712		$74,120
93.866	The Cosmos/Vue Smart Eyeglass -HAM System Phase IIB	Gen-9, Inc.	SPO# 127056		-$95
93.866	The effect of donor age on the function and therapeutic efficacy of human hepatocyte-like cells				$70,036
93.866	The impact of early medial temporal lobe Tau in human cognitive aging				-$6,367
93.866	The impact of treatment choice on long-term outcomes in older adults with primary hyperparathyroidism				-$55
93.866	The long-term health effects of the New Deal: An 80 year follow-up of 4 cohorts			$130,330	$437,328
93.866	The Neighborhoods Study: Contextual Disadvantage and Alzheimer's Disease and Related Dementias (ADRD)	University of Wisconsin-Madison	0000001239 / R01 AG070883		$87,339
93.866	The NEIGHBORS (NationwidE analysis of ImmiGrants on Health and neighBORhoods of all AmericanS) Study	Rutgers University	9006 / PO 25050970		$8,229
93.866	The Phenotypic Landscape of Cognitive Decline as Revealed by Next-Generation Multiplexed Ion Beam Imaging				$435,916
93.866	The role of aging in mitochondrial response to exercise training assessed by noninvasive 31P Magnetic Resonance Spectroscopy.	Pennington Biomedical Research Center	AG069476-SU01		$63,711
93.866	The Role of Gamma-Secretase in Human Neuronal Physiology				$30,480
93.866	The role of TREM1 signaling in the development of Alzheimer's disease				-$281
93.866	The Stanford Extreme Phenotypes in Alzheimer's Disease (StEP AD) Cohort			$123,026	$421,700
93.866	Ultralong-term single-molecule imaging of amyloid precursor protein (APP) processing in Alzheimer's disease				$68,545
93.866	Uncoupling Age- Versus Cognitive-Related Cellular Senescence in Alzheimer's Disease				$502,034
93.866	Understanding Long-term Mortality Dynamics and Improving Old-age Mortality Forecasts				$35,321
93.866	Use of prescription opioids following surgery and associated adverse patient outcomes in older adults	Harvard University	153374.5119149.0005		$64,137
93.866	Volunteering as an Avenue for Improving Views of Aging				$2,584
93.866	Wisconsin Alzheimer's Disease Research Center	University of Wisconsin-Madison	0000001408		$51,455
93.867	172929_Mahajan_Proteomic Biomarkers of Eye Disease			$159,049	$520,154
93.867	Activity-Dependent Mechanisms of Memory Consolidation			$153,481	$433.557
93.867	Activity-Dependent Tagging of Cerebellar Neurons for Studying Signal Processing and Learning				$259,556
93.867	Afferent and Efferent Visual Systems During Abnormal Vision Development			$46,513	$698,011
93.867	Age-related Changes in Human Retinal Microvasculature	Icahn School of Medicine at Mount Sinai	0255-3021-4609		$44,211
93.867	Assessing Photoreceptor Structure and Function in Normal and Diseased Retinae	Medical College of Wisconsin	5R01EY017607-13		-$495
93.867	Autophagy and Mechanotransduction in the Trabecular Meshwork	Duke University	303000366		$1,509

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.867	Bi-directional neural interface for probing parallel visual pathways			$85,881	$347,868
93.867	Characterization of corneal stromal stem cells encapsulated within bioorthogonally crosslinked collagen gels for delivery to the ocular surface				$43,768
93.867	Clinical and Genetic Analysis of Retinopathy of Prematurity	Oregon Health & Science University	1016626_STANFORD		$21,339
93.867	Clinical glaucoma management enabled by visible-light OCT	Northwestern University	60060095 STAN		$67,056
93.867	Corneal Scar Repair through SPAACKL: Sutureless, Pro-regenerative Anterior Additive Collagen gel KeratopLasty				$36,514
93.867	Descemet Endothelial Thickness Comparison Trial (DETECT)				$420,873
93.867	Developing Novel Neuroprotective Strategies for EAE/Optic Neuritis				$261,809
93.867	Development and Characterization of Silicone Oil-Induced Reversible Ocular Hypertension Glaucoma Model			$57,860	$107,868
93.867	Development and regeneration of retinal ganglion cells in the vertebrate retina				$74,303
93.867	Development of Face Perception: Cross-sectional and Longitudinal Investigations				$683,365
93.867	Development of Visual Connections				$65,478
93.867	Disparity Processing in Human Visual Cortex				$277,519
93.867	Dissecting Neural Circuit Computations in the Peripheral Visual System				$301,365
93.867	Effects of Hyperbilirubunemia on Visuocortical Functioning in High-Risk Infants	Smith-Kettlewell Eye Research Institute	6012201S / HJD6G4D6TJY5		$168,846
93.867	Elucidating Neuron-Intrinsic Molecular Mechanisms of Optic Nerve Regeneration				$540,142
93.867	Enhanced Identification of Ocular Phenotypes and Outcomes in Electronic Health Record Data	University of Michigan	SUBK00015736/PO 3007066356		$6,934
93.867	Function and circuitry of adaptive inhibition in the retina				$285,956
93.867	Functional-neuroanatomy of high-level visual cortex: a quantitative multimodal approach				$347,537
93.867	Gene Expression Regulatory Pathways and Retinal Ganglion Cell Neuroprotection				$392,772
93.867	Goldberg U01 Molecular Discovery for Optic Nerve Regeneration			$13,633	$30,325
93.867	Imaging Photoreceptor Function	University Of Pennsylvania	579681; PO# 4698915		$19,556
93.867	Improving rigor and reproducibility in adaptive optics ophthalmoscopy			$100,468	$464,835
93.867	In Situ Bioconjugation as a Therapeutic Delivery Modality to Enhance Ocular Wound Healing				$146,813
93.867	Increasing the isoplanatic patch in adaptive optics ophthalmoscopy			$39,920	$259,124
93.867	Inflammatory Gene Transcription in the Retina			$69,944	$328,891
93.867	Interacting neural mechanisms of selective visual attention and value-based decision-making				-$151
93.867	Interaction of Visual and Oculomotor Signals in Cortex				$341,927
93.867	K08-Minimally Invasive Keratoprosthesis				$152,917
93.867	Large-Scale Patterned Electrical Stimulation for Design of Retinal Prostheses				-$1,862
93.867	Large-Scale Patterned Electrical Stimulation for Design of Retinal Prostheses			$16,133	$16,133
93.867	Long-term Suppressive Valacyclovir Treatment for Herpes Zoster Ophthalmicus	New York University	106171		$9,907
93.867	Low Latency Eye-Motion Compensation				$440,152
93.867	Mechanisms regulating the plasticity of postmitotic cells in mammalian retina				$587,657
93.867	Molecular and functional regeneration of the accessory optic pathway	Johns Hopkins University	2003564303		$5,331
93.867	Molecular mechanism of Norrin signaling through Frizzled4 and LRP5/6				$36,645
93.867	Neural coding of interneuron populations in the retina				$405,397
93.867	Neuroimaging and histological investigations of human visual cortex development				$42,604
93.867	Neuroprotection by Modulating ER Stress in Glaucoma				$549,158
93.867	Optineurin dysfunction induces neurodegeneration in normal tension glaucoma by a novel molecular mechanism				$132,081
93.867	Optoretinography: All-optical measures of functional activity in the human retina	University Of Washington	UWSC13335 BPO 61344		$259,858
93.867	Pediatric Eye Disease Investigator Group	Jaeb Center for Health Research	PEDIG Site #360		$552
93.867	Personalized predictions for Glaucoma progression using Artificial Intelligence for electronic health records.				$238,486
93.867	Phosphoinositide signaling in glaucoma: rescue strategies for Lowe syndrome				$274,631
93.867	Probing visual computations and electrical stimulation in the central macaque retina for high fidelity vision restoration				$27,875
93.867	Processing of Thalamocortical Inputs by Intracortical Circuits				$6,479
93.867	Relating spontaneous activity to electrical stimulation properties of primate retinal ganglion cells				$39,494
93.867	Representation and integration of diverse visual features in circuits and behavior				$45,817
93.867	Retinal Ganglion Cell Replacement in Optic Neuropathies			$783,994	$1,523,191
93.867	Retinal vessel features as a marker of idiopathic intracranial hypertension treatment response: a secondary analysis of the idiopathic intracranial hypertension treatment tria			$67,390	$178,173
93.867	Robust AI to develop risk models in retinopathy of prematurity using distributed deep learning	Massachusetts General Hospital	237342 / R21 EY031883		$18,162
93.867	RPE Energy Metabolism and Cell Phenotype				$217,883
93.867	Secondary Analyses of data from the Infant Aphakia Treatment Study: Patching in Children with Unilateral	George Mason University	E2058212 / 1R21EY032152-01A1		$3,635
93.867	SPO 124972_Photovoltaic Subretinal Prosthesis with High Pixel Density				$306,874
93.867	Stanford Vision Research Core				$752,188
93.867	Stanford Vision Training Program				$276,945
93.867	Steroids and Cross-linking for Ulcer Treatment (SCUT II)	University of California, San Francisco	13122sc		$165,822
93.867	Structural and functional tests of ganglion cell damage in glaucoma				$396,549
93.867	The role of primary cilia in glaucoma pathogenesis				$20,053
93.867	Transcriptional activation for rare disease rescue				$78,282
93.867	Unique physiological properties of novel ganglion cell types in primate retina			$213,090	$540,393
93.867	Vision disorders in adolescents follow concussion -- A planning grant	Ohio State University	60080241		$13,139
93.867	Visual Cortex as a Window to Microstructural and Functional Development of the Human Brain				$106,708
93.867	VRC: The Role of Perinuclear cAMP in Retinal Ganglion Cell Neuroprotection and Optic Nerve Regeneration				$366,692
93.874	Robust Statistical Methods to Identify and Use Surrogate Markers in Diabetes	Rand Corporation	SCON-00000164 (9920190021)		$13,489
93.879	A Mobile Game for Domain Adaptation and Deep Learning in Autism Healthcare				$889,623
93.879	Advancing Knowledge Discovery for Postoperative Pain Management				$773,491
93.879	Automated data curation to ensure model credibility in the Vascular Model Repository			$69,977	$344,182
93.879	Biomedical Data Science Graduate Training at Stanford (BD2K)				$9
93.879	Biomedical Informatics Training at Stanford				$1,265,988
93.879	Creating an artificial intelligence therapy-to-data feedback loop for child developmental healthcare				$737,273
93.879	Deep Curation via an Integrated Whole-Cell Computational Model			$140,611	$444,001
93.879	Deep Learning for Pulmonary Embolism Imaging Decision Support: A Multiinstitutional Collaboration			$13,292	$226,404
93.879	From Enrichment to Insights				$242,784
93.879	Image tools for computational cellular barcoding and automated annotation	J. David Gladstone Institutes	SC-00069 / R01 LM013617		$10,082
93.879	Machine Learning Clinical Order Recommendations for Specialty Consultation Care				$127,856
93.879	Novel Algorithmic Fairness Tools for Reducing Health Disparities in Primary Care				$1,730
93.879	Novel machine learning and missing data methods for improving estimates of physical activity, sedentary behavior and sleep using accelerometer data				$442,616
93.879	OmniLife App and CDS for deceased donor organ evaluation and procurement for transplant	Healthtech Solutions Inc	214242		$1

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
93.879	Pacific Symposium on Biocomputing				$23,307
93.879	Statistical Methods for Modern Evidence Syntheses with Multiple Biases				$304,724
93.879	The Metadata Powerwash Integrated tools to make biomedical data FAIR				$382,542
93.879	Toward improved understanding of sex differences in drug response: developing gene and pathway-based informatics methods to examine sex-differential genetic effects				-$18,975
93.884	Stanford MSPA Primary Care Training and Enhancement - Physician Assistant Rural Training (PCTE-PAR) Program				$9,307
93.889	Western Regional Alliance for Pediatric Emergency Management (WRAP-em)	University of California, San Francisco	11655sc / U3REP190616-02		$42,763
93.989	Global Health Fellows and Scholars Research Training - Mentoring Fellowship Supplement	University of California, Berkeley	00009518/BB01006362	$126,658	$216,829
93.994	CA Maternal Mortality Review				$18,110
93.994	Regional Perinatal Programs of CA	California Department of Public Health	19-10475		$492,424
93.RD	AIM-AHEAD Coordinating Center Data Infrastructure Core	National Alliance Against Disparities in Patient Health	2021-AA-004		$247,447
93.RD	Biorepository of human induced pluripotent stem cells for cardiovascular diseases				$977,717
93.RD	Center for Influenza Vaccine Immunology and Development	Icahn School of Medicine at Mount Sinai	0258-A428-4609		$1,506
93.RD	Characterization of Neoantigens in Virus-Related Malignancies	Leidos Biomedical Research Inc.	17X074F6		$270,034
93.RD	Collaborative Influenza Vaccine Innovation Centers (CIVICs) Component A: Vaccine Center	Icahn School of Medicine at Mount Sinai	0258-A443-4609		$332,945
93.RD	COVID-19 ABFM - CDC - Stanford Cooperative Agreement: COVID-19 Outpatient Electronic Health Record Data from Primary Care and Family Medicine Practices to Support CDC's COVID-19 Emergency	American Board of Family Medicine	23898 / 75D30121P10944		$964,863
93.RD	COVID-19 Advancing a lead broad spectrum antiviral PI-kinase inhibitor to the clinic for enteroviruses and COVID-19			$467,688	$2,613,312
93.RD	COVID-19 Convalescent Plasma to Limit Coronavirus Associated Complications: A Randomized Double-Blind, Phase 2 Study Comparing the Efficacy and Safety of High-Titer Anti-SARS-CoV-2 Plasma vs. Placebo in Emergency Room Patients	University of Pittsburgh	AWD00002607-2		$134,649
93.RD	COVID-19 Medical Imaging and Data Resource Center (MIDRC) for Rapid Response to COVID-19 Pandemic	University of Chicago	AWD101462-D / 75N92020D00021		$573,024
93.RD	COVID-19 Pathology and Pathogenesis of Coronavirus Infections in Animal Models			$19,402	$479,939
93.RD	COVID-19 Sequelae and immunopathology of Ebola virus infections				$782,288
93.RD	Fragile X Registry and Database	National Fragile X Foundation	FXCRC (2)		$12,010
93.RD	Highly Accurate Low Cost ctDNA Diagnostics With Magnetic Nanoparticle Enabled Automated Sample Preparation Assays	NVIGEN, Inc.	140396		$34,208
93.RD	Leidos CEDAR Template	Leidos Biomedical Research Inc.	17X074 TO#5 MOD 04		$60,727
93.RD	MACRA Episode Groups and Resource Use Measures	Acumen, LLC.	MIDS-19F0004-T0005-1		$59,204
93.RD	Nanoparticles for radiation oncology	Intelligent Fiber Optic Systems Corporation	Prime: 75N91019C00051		-$1,705
93.RD	National Sleep Research Resource (NSRR)	Brigham and Women's Hospital	122255		$53,012
93.RD	Neuropsychological Assessment System for Cancer Patients	Creare Inc	S677 PO 106415		$65,585
93.RD	NIAID Centers of Excellence for Influenza Research and Response	University Of Pennsylvania	53816; PO# 4710318		$372,567
93.RD	Quality Reporting Program Support for the Long-Term Care Hospital, Inpatient Rehabilitation Facility, Skilled Nursing Facility QRPs and Nursing Home Compare	Acumen, LLC.	MIDS-19F0003-T0010		$11,317
93.RD	ReCePI Cerus Study	Cerus Corporation	Work Order #1 PO 206124		$421,454
93.RD	Stanford Human Cancer Models Initiative Center	Leidos Biomedical Research Inc.	19X015Q		$65,847
93.RD	The CBER Biologics Effectiveness and Safety (BEST) Initiative: Conduct Surveillance Activities for Safety and Effectiveness of Biologics"	Acumen, LLC.	FDA-20F19003-T0004		$277,166
93.RD	The Women's Health Initiative (WHI)- Regional Centers				$1,038,006
93.RD	TOGETHER: Track Outcomes & Guidance, Enabled Technology for Health & Effective Resources	Medable, Inc.	SPO#133314		$32,339
93.RD	TrialNet Screening and DPT-1 Follow Up Studies	University of South Florida	PO 261241; 253349		$21,315
93.RD	Using vaccinated and survivor populations of filovirus diseases to inform regulatory science and development of next-generation vaccines and other medical countermeasures	University of California, Los Angeles	1935-S-YA527		$95,354
Department of Homeland Security					**$101,460**
97.061	Effects of Organizational Dynamics on Terrorist Threats and Counterterrorism Responses	University of Nebraska Omaha	44-0108-1001-409		$42,987
97.061	How Organizational Dynamics in a Multi-Actor Environment Shape Terrorist Threats and Counterterrorism Responses	University of Nebraska Omaha	44-0108-1001-420		$58,473
Department of Justice					**$78,592**
16.560	Bio-inspired Material-integrated Magnetic Beads for Differential Extraction of Sperm in Forensic Applications				$78,592
Department of State					**$535,674**
19.019	Estimating the Prevalence of Human Trafficking in Brazilian Agriculture	University of Georgia Research Foundation, Inc.	SUB00002413		$44,357
19.019	GFEMS CAFE-Comprehensive Action towards Forced labor Eradication	Global Fund To End Modern Slavery	G12-001-Stanford-220101		$309,173
19.019	Working Title: Program to End Modern Slavery PRIF Expansion				$115,381
19.040	Strengthening the Capacity of African Civil Society to Counter Chinese Propaganda and Disinformation	Institute for War & Peace Reporting US	133-20-15-HU		$66,763
Department of the Interior					**$359,333**
15.506	Linking Anaerobic Wastewater Treatment to Non-Potable and Potable Wastewater Reuse	Silicon Valley Clean Water	SPO 163392		$162,248
15.805	The Use of NMR Logging Measurements to Estimate Hydraulic Conductivity in Glacial Aquifers	University of California Office of the President	SA17-3744-01		$16,826
15.807	Subduction zone earthquake sequence modeling				$79,005
15.808	51668: Grove - Stanford-USGS: Micro-Isotopic Analytical Center (SUMAC)				$33,748
15.808	Collaborative research on earthquakes and lithospheric seismic properties in Saudi Arabia				$55,057
15.933	Connected through Confinement: An archaeology of the Gila River Incarceration Camp				$12,449
Department of Transportation					**$2,915,574**
20.108	Air Navigation Based on Global Navigation Satellite Systems				$2,143,292
20.109	Jet Noise Modeling to Support Low Noise Supersonic Aircraft Technology Development				$237,539
20.109	Open-source data collection, analysis and mitigation of aviation environmental impacts				$366,582
20.109	Shock Tube and Flow Reactor Studies of the Kinetics of Jet Fuels: Stanford University Team				$165,309
20.614	Use of Discharge Instructions to Increase Seat Belt Use	American College of Emergency Physicians	ACEP Account Code 7-08-405614		$2,852
National Aeronautics and Space Administration					**$18,453,425**
43.001	142144 Lapotre-NASA-Eolian:The Effects of Atmospheric Density on Eolian Ripple Formation and Morphology			$11,573	$162,992
43.001	158019 NASA Columbia - Gentine - Understanding memory effects and climatic drivers of net primary productivity and respiration enabled by SMAP vegetation optical depth	Columbia University	1(GG017016)/PO-SAPO G15119		$20,544
43.001	168583 NASA TWSC Arrigo Research Coordination Network for Ocean Worlds				$52,265
43.001	178212 Holtzman NASA FINESST - Unraveling the role of plant hydraulic traits in transpiration using microwave radiometry				$46,999
43.001	197768 NASA Konings - Intermediate complexity schemes for modelling the diversity of vegetation drought response				$81,616
43.001	211019 NASA-CRAT: Linking crater basin winds, dune morphology, and stratigraphy	Texas A&M University	M2200119		$8,329

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
43.001	211628 Caltech-NASA - Konings - Bridging the gap between carbon cycle models and remote sensing observations	California Institute of Technology	S538120		$13,723
43.001	216427 NSF Famiglietti / Konings - Quantifying and mitigating the role of parametric uncertainty in forecasts of the terrestrial carbon cycle				$23,576
43.001	238222 Arrigo - NASA - Detecting Harmful Algal Blooms in the Pacific Sector of the Arctic Ocean				$19,515
43.001	A Breakthrough Target for Bowshock Studies	Smithsonian Astrophysical Observatory	GO8-19049X		$62,829
43.001	A Remarkable Pulsar-powered Filament	Smithsonian Astrophysical Observatory	GO1-22054X		$31,003
43.001	Advancing Focal Plane TRL for LiteBIRD and other Next Generation CMB Space Missions	University of California, Berkeley	00009784		$80,901
43.001	Advancing Time Transfer and Optical Atomic Clocks for Space	Jet Propulsion Laboratory	Sub No. 1583357		$25,315
43.001	Assessing Paleointensity Variability During the Lunar High Field Epoch (FINESST)				$24,325
43.001	Assessing the habitability of post-impact hydrothermal systems using the Chicxulub crater as a natural laboratory			$68,300	$97,097
43.001	Biosynthesis of 3-Methylhopanoids by Purple Non-Sulfur Anoxygenic Phototrophs				$3,518
43.001	Building a Legacy Progenitor-Selected Cluster Sample at z>1	Smithsonian Astrophysical Observatory	GO1-22131B		$19,353
43.001	Collaborative Research to Evaluate the Effects of Injection Strategies on Mixing in ARC-Heaters at the AMES Research Center				$81,303
43.001	Consequences of Flows and Fields in the Interior and Exterior of the Sun (COFFIES)			$346,882	$517,602
43.001	Deep Observations of a New Dynamically Relaxed Galaxy Cluster at High Redshift	Smithsonian Astrophysical Observatory	GO2-23113A		$3,899
43.001	Development of integrated readout electronics for next generation X-ray CCDs			$39,854	$203,842
43.001	Diagnosing, Addressing and Forecasting CIB Contamination in Spectral Measurements of the Sunyaev Zel'dovich Effect	Rochester Institute of Technology	32447-02		$17,023
43.001	Electric-Current Neutralization in Solar Active Regions and its Relation to Magnetic Shear and Eruptive Activity			$76,142	$138,300
43.001	Experimental Constraints for Improving Terrestrial Exoplanet Photochemical Models (ExCITEPM)	University of California, Riverside	S-001525		$36,525
43.001	Fermi and the Search for Lost Magnetar Giant Flares	University of Maryland, Baltimore County	NASA0066-02		$25,853
43.001	Frequency-Dependent Helioseismic Analysis on Solar Meridional Flow, Center-to-Limb Effect, and Sunspots			$50,000	$140,835
43.001	Giant Planet Demographics from an Analysis of the Gaia Astrometric Survey			$48,306	$85,203
43.001	Helioseismic and Magnetoacoustic Waves in and above Sunspots: Origin, Up-Channeling, and Reflection			$7,395	$131,131
43.001	High Resolution Vegetation Water Content and Tree Mortality Estimation using Synthetic Aperture Radar				$11,250
43.001	Identifying the biosynthetic pathway of brGDGT biomarker lipids				$66,021
43.001	Improving Linkages Between Earth Observations and Ecosystem Service Models with Essential Biodiversity Variables				$9,221
43.001	Improving X-ray Polarization Sensitivity and an IXPE Application to the physics of Blazar Jets				$23,097
43.001	Integration of InSAR with Airborne Geophysical Data for the Development of Groundwater Models			$29,882	$200,209
43.001	Intra-Binary Shock Emission in the Black Widow Population				$17,619
43.001	Investigating mechanisms for producing metallic Fe enrichments and magnetic anomalies within planetary crustal materials	Washington University in St. Louis	WU-20-515 / PO ST00000019		$1,404
43.001	Joint inversion of seismicity and geodetic observations for imagin volcanic intrusions				$89,124
43.001	Joint radar and model investigations of Greenland basal water conditions				$95,286
43.001	Laboratory measurement of opacities and pressure-induced line broadening parameters at exoplanetary atmospheric conditions			$28,170	$132,126
43.001	Linking Active Regions and Solar Cycles to Understand How Variable Flows in the Solar Interior Affect Surface Magnetic Field Evolution			$111,630	$184,530
43.001	Measuring magnetar distance from the dust echo of a bright burst	Smithsonian Astrophysical Observatory	GO9-20052X		$9,931
43.001	Modeling of Cosmic-Ray Propagation and Galactic Diffuse Gamma-Ray Emission in Support of Current and Future NASA Missions, Phase 3				$180,882
43.001	Modeling the radio/infrared/gamma-ray correlation at sub-galactic scales for the Milky Way and starforming galaxies				$48,701
43.001	Modeling the Universe Interfacing Numerical Simulations, Theory, Statistical Methods, and Observations	University of Arizona	532505		$38,203
43.001	Multi-Messenger 3D Modeling of the Interstellar Medium of the Milky Way				$25,213
43.001	NASA Food Security and Agriculture Consortium (FSAC)	University of Maryland	54308-Z6059203		$177,863
43.001	Next-generation event characterization for X-ray imaging observatories				$23,591
43.001	NUSTAR Too observations of luminous blazars				$20,142
43.001	Observing the Rarest Clusters at z>1 with Chandra	Smithsonian Astrophysical Observatory	GO0-21124B		$1,837
43.001	On-line real-time FERMI-LAT GRB Catalog: A legacy for FERMI				$23,510
43.001	Optimized Cluster Cosmology with the Planck Satellite				$100,226
43.001	Persistent Scatterer InSAR: Maximizing Coverage and Enabling Applications Through User-friendly Data Products				$160,502
43.001	Probing the central engines of luminous active galaxies with far-infrared polarimetry ID: 07_0032	Universities Space Research Association	SOFIA Grant 07-0032		-$11,958
43.001	Providing Enabling & Enhancing Technologies for a Demonstration Model of the Athena X-IFU				$1,321
43.001	PSR J1959+2048: A Black Widow's IntraBinary Shock				$59,205
43.001	Quantifying the Rate of Nearby Dual AGN	Smithsonian Astrophysical Observatory	GO1-22096B		$116,756
43.001	Quasi-Periodic Oscillations Around Supermassive Black Holes				-$289
43.001	Quiescent solar gamma-ray emission: Probing cosmic rays and solar environment				$31,893
43.001	Radiation Hard and High Temperature Tolerant Thermal Imagers	Jet Propulsion Laboratory	CREI 1631670		$98,357
43.001	Real World, Real Science: Using NASA Data to Explore Weather and Climate	Gulf of Maine Research Institute	30-NASARS-21 S		$141,172
43.001	Reliving The Past: Experimental Evolution of Major Transitions In The History of Life	Georgia Institute of Technology	RH809-G4		-$4,943
43.001	Scale enrichment of incompressible large eddy simulations				$27,390
43.001	Shock structure, the electron-ion equilibration timescale and the disintegrating cool core in A2146	Smithsonian Astrophysical Observatory	GO8-19110E		-$71
43.001	Simulating active longitudes by coupling magnetograms with a nonlinearMHD tachocline model: a data assimilation approach	University Corporation of Atmospheric Research	SUBAWD002075		$34,744
43.001	Simulating Energy Buildup and Eruptions in Solar Active Regions	University of Michigan	SUBK00008007/PO# 3005157018		$24,999
43.001	Simulating pre-solar-storm patterns of magnetic toroids from surface sunspot observations	University Corporation of Atmospheric Research	SUBAWD003043		$54,917
43.001	Single-Source, Astro-Stationary Orbits for Astrophysical Observations				$1,152
43.001	Slow Slip Events in Cascadia: Observation and Hazard Analysis Derived from InSAR, With GPS and Seismic Data Constraints				$67,706
43.001	Solar Storms and Terrestrial Impacts Center (SOLSTICE)	University of Michigan	PO3005977491,SUBK00011258		$51,090
43.001	Study of Global-Scale Surface Flows and Migration of Polar Crown Filaments of the Sun in Past 10 Solar Cycles in Comparison with Helioseismology Results in 2 Recent Cycles	New Jersey Institute of Technology	(NP) 997277		$50,743
43.001	Studying the Progenitors of Our Favorite Clusters at z > 1				$23,194
43.001	Suprathermal Seeds for Solar Energetic Particles: Two-stage Acceleration from Flares to CME-Shocks	Bay Area Environmental Research Institute	NASA-80NSSC21K1327		$45,849
43.001	The Airborne InSAR and PolSAR Permafrost Dynamics Observatory	University of Colorado, Boulder	1554878,PO 1000792321		$57,317

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
43.001	The Answer is Blowing in the Wind	Smithsonian Astrophysical Observatory	GO8-19050A		$17,223
43.001	The Gemini Planet Imager Exoplanet Survey: Completion and Analysis			$32,324	$141,701
43.001	The M-dwarf Opportunity: Characterizing Nearby M-dwarf Habitable Zone Planets	Johns Hopkins University Applied Physics Laboratory	169752		$22,463
43.001	The Moving Filament of the Guitar Nebula	Smithsonian Astrophysical Observatory	GO1-22055A		$40,324
43.001	The next stage of X-ray reverberation: Mapping a sample of supermassive black holes				$18,949
43.001	Toward a Consensus for Multi-Sourced Photospheric Magnetic Field Cross-Calibrations				$11,285
43.001	Toward Fast, Low-Noise, Radiation-Tolerant X-ray Imaging Arrays for Lynx: Raising Technology Readiness Further	Massachusetts Institute of Technology	S5074 - PO 481322		$316,014
43.001	Tropical controls on the atmospheric growth rate and implications for carbon-climate feedbacks	Jet Propulsion Laboratory	CREI 1585339		$4,036
43.001	Understanding the Role of Helicity Flux in Solar Eruptions from Active Regions			$27,304	$195,861
43.001	Unveiling the AGN population in the highest redshift, mature, massive galaxy cluster	Smithsonian Astrophysical Observatory	GO0-21088X		$2,060
43.001	US contributions towards studies of the Athena WFI instrumental background and transient source populations	Pennsylvania State University	S001536-NASA		$184,900
43.001	Using earth observations and ecosystem modeling to improve the sustainability of agribusiness and extractive industries in working landscapes				$12,773
43.001	Using Model-Data Fusion to Determine Plant Hydraulic Traits and Transpiration				$104,717
43.001	What Life Wants: Exploring the Natural Selection of Elements	University of Wisconsin-Madison	0000002170		$4,980
43.002	Low-Speed Flight Characteristics and Noise Design Tools for the Integrated Configuration Shaping of Commercial Supersonic Aircraft	University Of Washington	UWSC11500 // BPO 43773		$68,790
43.002	Safe Aviation Autonomy with Learning-enabled Components in the Loop: from Formal Assurances to Trusted Recovery Methods			$805,605	$1,339,875
43.002	Scalable Hierarchical CFD Solvers for Future Exascale Architectures				$48,801
43.002	Validation of wall models for LES with application to the NASA Common Research Model				$647,721
43.003	Countermeasure Development against Myocardial Mitochondrial Stress by Space Radiation Exposure	Baylor College of Medicine	NNX16AO69A / 7000001427		$78,288
43.003	Effects of chronic high LET radiation on the human heart	Baylor College of Medicine	7000001223		$655,349
43.003	Gas Diffusion Electrochemical Cells for CO2 to Acetate Conversion				-$123
43.003	Mechanisms underlying charged particle-induced disruption of CNS function	University of California, Irvine	2015-3277		$98,226
43.003	Using human stem-cell derived vascular, neuronal and cardiac 3D tissues to determine countermeasures for radiation	Baylor College of Medicine	7000001222 / NNX16AO69A		$91,380
43.007	Exploring Uranus through SCATTER: Sustained ChipSat/CubeSat Activity Through Transmitted Electromagnetic Radiation				$51,946
43.007	Microgravity Crystal Growth of Photovoltaic Semiconductor Materials: Controlled Defect Homogeneity in CuInS2	Center for the Advancement of Science in Space	GA-2019-0858		$11,320
43.008	Fidelity-Adaptive Models for Supersonic Combustion				$47,227
43.008	NASA STEM Pathway Activities-Consortium for Education (NSPACE) - Biopolymer Research for In-Situ Capabilities (BRIC)	Oklahoma State University	SPOCS-SU/P1274240		$10,687
43.009	Networking and Navigation for Spacecraft Swarms				-$2,087
43.012	137652_Pavone_NASA_Risk-Sensitive Learning and Decision Making for Autonomous Space Robots			$11,409	$46,694
43.012	Advancing Computational Methods for Supersonic Retropropulsion				$61,244
43.012	Advancing the State of the Art in the Simulation of Parachute Inflation and Descent Dynamics: Multiscale Modeling, Performance Acceleration, and Validation				$182,289
43.012	Aftshell Radiative Heating During Planetary Entry				$56,500
43.012	Autonomous Nanosatellite Swarming using Radio Frequency and Optical Navigation				$192,563
43.012	Broadband mid-infrared silicon metalenses based on data-driven inverse design for space deployment			$52,851	$112,304
43.012	Center for the Utilization of Biological Engineering in Space	University of California, Berkeley	00009564/PO#BB01347866		$214,256
43.012	Collaborative Manipulation for Space Exploration and Construction				$56,630
43.012	Electrochemical membrane reactors for in-situ resource utilization of wastewater in space				$76,256
43.012	Electrodeionization Salt Removal from Water				$65,741
43.012	High-Fidelity Combustion Modeling for LOX/Methane In-Space Propulsion Systems				$64,428
43.012	High-Fidelity Modeling of High-Energy Density Plasma Systems for Fusion Propulsion				$72,988
43.012	Integrated acoustic technology for boil-off control, mass gauging, and structural health monitoring in cryogenic fuel tanks				$481,011
43.012	Invariant Funnels For Robust Interplanetary Transfer, Flyby, Capture, and Landing				$63,521
43.012	Joint Advanced Propulsion Institute	Georgia Institute of Technology	AWD-002637-G5 // PO-5217407		$25,275
43.012	Kinetic models of the facility effects and beam neutralization for high-power electric propulsion systems				$67,097
43.012	Micro-scale modeling of ablative thermal protection systems during atmospheric entry				$75,793
43.012	Motion Planning in Unknown Environments				$62,515
43.012	NASA SPACE TECHNOLOGY RESEARCH FELLOWSHIPS (NSTRF) - Fall 2018 Textile-Composite Capacitive Sensors for Proprioceptive Origami-based Rovers				$4,814
43.012	Physics-informed Modeling of Multi-nozzle Plume Physics with Quantifiable Uncertainties from Supersonic Retropropulsion Tests				$42,378
43.012	ReachBot: Small Robot for Large Mobile Manipulation Tasks in Martian Cave Environments				$96,815
43.012	Real-time predictive modeling of Hall effect thrusters for thruster performance estimation and optimization				$69,190
43.012	Robust and Efficient GNC Algorithms for Autonomous Formation Flying using Electric Propulsion				$63,684
43.012	SelfGuided Beamed Propulsion for Breakthrough Interstellar Missions	Texas Engineering Experiment Station	M2000336		$57,884
43.012	Versatile Inverted-Hand Robotic Design for Mobile Manipulation in Space Environments				$79,411
43.RD	"The Moving Filament of the Guitar Nebula"	Space Telescope Science Institute	HST-GO-16426.001-A		$20,514
43.RD	211251 JPL/NASA Characterizing and quantifying lagged processes regulating the tropical land carbon sink responses to climatic variability and atmospheric CO2	Jet Propulsion Laboratory	1671875		$30,217
43.RD	Active Source Seeking in Multi-Robot Exploration Missions	Jet Propulsion Laboratory	1677375		$55,086
43.RD	Advanced Design tools for Electrosail Propulsion Systems	Particle Matters, Inc.	STTR20NS01		$11,668
43.RD	Advanced Telescope for High-ENergy Astrophysics				$354,397
43.RD	Consequences of Fields and Flows in the Interior and Exterior of the Sun (COFFIES)				$19,698
43.RD	Europa Clipper Geodesy Focus Group co-chair	Jet Propulsion Laboratory	1660909		-$760
43.RD	Gamma-Ray Large Area Space Telescope (GLAST) Fligh			$249,430	$1,699,371
43.RD	Helioseismic and Magnetic Imager For Solar Dynamics Observatory,3RD Extended Mission			$51,806	$4,698,400
43.RD	Intelligent Sensor Systems	Intelligent Fiber Optic Systems Corporation	SPO 183350		$49,965
43.RD	Interior working group telecon co-chair	Jet Propulsion Laboratory	1655926		$9,489
43.RD	IRIS small explorer mission	Lockheed Martin Corporation	Sub 8100003073 Line #6		$122,244
43.RD	Lunar Vertex Mission	Johns Hopkins University Applied Physics Laboratory	173019		$9,278
43.RD	Mini Radio Frequency Instrument for Lunar Orbiter	Johns Hopkins University Applied Physics Laboratory	164323 CLIN 1 PROJECT LJH08		$10,732
43.RD	Petal-Type Radio-Frequency	Jet Propulsion Laboratory	1680934		$28,531

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
43.RD	REASON (Radar for Europa Assessment and Sounding: Ocean to Near Surface) REASON	University of Texas at Austin	UTA16-001083		$22,776
43.RD	Starshade Inner Disk Subsystem (IDS) Optical Shield Engineering Support	Jet Propulsion Laboratory	1681202		$564
43.RD	VERITAS (Venus Emissivity, Radio science, InSAR, Topography And Spectroscopy)	Jet Propulsion Laboratory	1669789		$12,082
43.RD	WFIRST Extragalactic Potential Observations (EXPO) Science Investigation Team	University of California, Santa Cruz	A16-0381-S003-P0590505		$16,758
National Endowment for the Humanities					**$6,034**
45.149	Digitize Street & Smith Dime Novels	Board of Trustees of Northern Illinois University	G2B66828-2		$6,034
National Science Foundation					**$81,700,783**
47.041	A Shock Tube Study of Laminar Flames in Transportation Fuels at Engine Relevant Temperatures				$86,295
47.041	Assessing Urban Post-Earthquake Community Recovery to Inform Pre-Disaster Planning				$71,274
47.041	Blockchain-Enabled Machine Learning on Confidential Data	Onu Technology, Inc.	181514 / Prime #2026404		$79,602
47.041	CAREER: Data Analytics for Distribution Systems Management and Operations				$172,098
47.041	CAREER: Enabling the Design of Future Robotic Transportation Systems via Spatial Queueing Network Theory				$29,831
47.041	CAREER: Healthcare Decision Models with High Dimensional Data				$2,768
47.041	Career: Integrated water, energy, and emissions decision making for a low carbon future with coal-fired power plants				$312,175
47.041	CAREER: Mixed-bonded IV-VI semiconductors for hybrid heterostructures				$160,915
47.041	CAREER: Multiphysics Mechanics of Magnetic Shape Memory Polymers				$33,045
47.041	CAREER: Quantum Acoustic Information Processing with Phononic Crystal Devices				$126,619
47.041	CAREER: Regulation of stem cell migration by extracellular matrix plasticity				$97,291
47.041	CAREER: Revealing a Reduced-Order Model for Chaotic Electroconvection and its Applications				$1,722
47.041	CAREER: Sculpting light in biological tissue: an ultrasound-mediated traveling light source for spatiotemporally precise in vivo gene editing				$158,315
47.041	CAREER: Soft Robotic Fingertips with High-Resolution, Calibrated Shape and Force Sensing for Dexterous Manipulation				$90,519
47.041	CAREER: Structures as Sensors: Elder Activity Level Monitoring through Structural Vibrations				$76,906
47.041	CAREER: UrbanEMOS: An Urban Energy Management Operating System for understanding and co-optimizing building, energy and human systems at multiple scales				$128,948
47.041	CAS: Towards sustainable sunscreens: identifying chemical structures in sunscreens linked to phototoxicity in corals				$97,988
47.041	CDS&E: Physics-driven computational tools for photonic design				$5,698
47.041	Center for Turbulence Research Summer Program				$61,878
47.041	Co-funding for: Quantifying the Contribution of Disinfection Byproducts to the Toxicity of Wastewaters Purified for Potable Reuse: Which Byproduct Classes Matter?	Water Research Foundation (WaterRF)	Project 04737		$6
47.041	Collaborative Research: Bottom-up Construction of a Synthetic Neuron and Programmable Neuronal Network				$143,517
47.041	Collaborative Research: Engineering Fully Biobased Foams for the Building Industry				$4,500
47.041	Collaborative Research: Ensuring Sustainable Energy Storage Operations in the US Electricity Grid				$8,291
47.041	Collaborative Research: Examination of the Multi-physical Properties of Microgravity-synthesized Graphene Aerogels				$1,846
47.041	Collaborative Research: INFEWS: N/P/H2O: Remote and autonomous sensing for managing the economic and environmental consequences of salinity-impacted agricultural waterways				$109,184
47.041	Collaborative Research: Mixed-Autonomy Traffic Networks: Routing Games and Learning Human Choice Models				$4,777
47.041	Collaborative Research: Nonlinear Coupling and Relaxation Mechanisms in Micro-Mechanics				$149,239
47.041	Collaborative Research: RAPID: Coronavirus Persistence, Transmission, and Circulation in the Environment				$73,508
47.041	Collaborative Research: RECODE: Directing and Controlling Cardiac Differentiation Through Cellular and Microenvironmental Manipulation and Application of Machine-Learning				$70,112
47.041	Collaborative Research: Simulating crack propagation in steel structures under ultra-low cycle fatigue and low-triaxiality loading from earthquakes and other hazards				$24,840
47.041	Conference: Western States Section of the Combustion Institute Spring Meeting 2022				$10,000
47.041	CPS: Medium: Collaborative Research: Optimization-Based Planning and Control for Assured Autonomy: Generalizing Insights From Autonomous Space Missions				$72,330
47.041	CPS: Medium: Secure Smart Machining				$458,140
47.041	Creep in shale across space and time				$152,154
47.041	DMREF/Collaborative Research: Designing Mutable Metamaterials with Photo-Adaptive Meta-Atoms				-$3,945
47.041	DMREF: Collaborative Research: Programming mesostructured colloidal soft matter through complex quenching and annealing	University of California, Santa Barbara	KK2269		$48,681
47.041	Dynamic Matching Problems with Application to Kidney Allocation	Northwestern University	60059615 STAN		$109,745
47.041	EAGER: Embedded Deep Neural Nets for Predicting Reynolds Stresses in Complex Flows				$56,797
47.041	EAGER: Neuromodulation in the second near-infrared window				$49,511
47.041	ECO-CBET: Collaborative Research: Towards a Circular Nitrogen Bioeconomy: Tandem Bio- and Chemocatalysis for Sustainable Nitrogen Recovery and Nitrous Oxide Mitigation				$147,362
47.041	eFellows Postdoctoral Fellowship - Roya Fallah Firoozi	American Society for Engineering Education	2127509		$105,722
47.041	EFRI ACQUIRE: Distributed Quantum Computation Using Ion Chips and Integrated Photonics	University of Maryland	52220-Z3075201		-$5,190
47.041	EFRI DCheM: Engineering interfaces between plasma, catalysts, and reactor design for natural gas conversion to liquid products	Princeton University	SUB0000425		$53,803
47.041	EFRI DChem: Re-Engineering the Nitrogen Cycle: Distributed Electrochemical Nitrogen Refineries for Ammonia Synthesis and Water Purification				$331,584
47.041	EFRI NewLAW: CMOS-Compatible Electrically Controlled Nonreciprocal Light Propagation With 2D Materials	North Carolina State University	2017-1718-03		$11,701
47.041	EFRI NewLAW: Mid-infrared topological plasmon-polaritons with 2D materials	University Of Minnesota	A006382203		-$1,708
47.041	EFRI NewLaw: Non-reciprocal, topologically protected propagation using atomically thin materials for nanoscale devices	Emory University	T881192		$49,068
47.041	Extreme-environment carbide device fabrication validation	University of Arkansas	UA2022-294		$15,248
47.041	FW-HTF Theme2:Collaborative Research: Enhancing Human Capabilities through Virtual Personal Embodied Assistants in Self-Contained Eyeglasses-Based AR Systems				$26,602
47.041	Generation of food-based chlorination disinfection byproducts (F-DBPs) during food processing				$190,545
47.041	Haptics in Telerobotics for Improved Remote Dexterity	Tangible Research, Inc.	181398		$33,997
47.041	High-through scalable manufacturing of high-performance organic devices	University of California, Davis	201602722-01(A17-0377-S)		$482
47.041	I-Corps: An in vivo central nervous system drug screening platform with noninvasive imaging				$15,550
47.041	I-Corps: Developing technology for social-emotional learning for young children				$5,555
47.041	I-Corps: On-farm production of nitrogen fertilizer from air, water, and renewable electricity				-$44,444
47.041	I-Corps: Scheduling software to enable visualization of changes for the construction industry				$11,481
47.041	Integrated Modeling and Control of Aftertreatment Systems for Clean, Efficient and High-Performing Gasoline Direct Injection Engines				$43,050
47.041	Laser Frequency Metrology of Vapor Cells	Vapor Cell Technologies, LLC	SPO 193423		$61,340
47.041	Micromechanics of Interactions Between Hard Magnetic Particles and Soft Matrix on Magneto-Mechanical Actuation				$211,355
47.041	MsRI - Design: National Full-Scale Infrastructure for Community Hardening in Extreme Wind and Wind-Water Events	Florida International University	000561/FIU01-0000240921		$94,221
47.041	National Science Foundation's Alan T. Waterman Award				$135,838
47.041	NHERI Computational Modeling and Simulation Center	University of California, Berkeley	00010842; BB01598236		$494,320

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
47.041	NNCI: nano@stanford				$1,137,999
47.041	NNCI: Stanford Nano Shared Facilities				-$1,225
47.041	Norovirus persistence in surface water				$86,999
47.041	NRI: FND: COLLAB: Wearable Multi-Scale Haptics				$7,963
47.041	NRI: FND: Computational and Interactive Design of Soft Growing Robot Manipulators				$208,040
47.041	NRI: INT: COLLAB: Mesh Of Robots on a Pneumatic Highway (MORPH): An Untethered, Human-Safe, Shape-Morphing Robotic Platform				$190,946
47.041	NRI: INT: COLLAB: SYNDROME: SYNergetic DROne Delivery Network in Metropolis				-$181
47.041	NRI: INT: Individualized Co-Robotics	Carnegie Mellon University	1122591-399765		$2,259
47.041	NSF Center for Power Optimization for Electro-Thermal Systems (POETS)	University of Illinois at Urbana Champaign	2014-00555-03		$631,441
47.041	NSF Engineering Research Center for Re-Inventing America's Urban Water Infrastructure			$668,648	$1,680,193
47.041	Physics-based Scale Enrichment for Eddy-Resolving Turbulence Simulations				$35,402
47.041	Planning Grant: Engineering Research Center for Digital Twins in Engineering and Medicine				$4,803
47.041	Programmable Surfaces by Scalable Self-assembly of Particles Printed by Two-photon Polymerization				$174,460
47.041	Q-WHIRL: Quantifying Wind Hazard Interference effects in ReaL urban environments				$127,724
47.041	RAISE: TAQS: Engineering high quality, practical qubits in diamond				-$14,461
47.041	RAISE: TAQS: Engineering high quality, practical qubits in diamond			$192,784	$192,784
47.041	RAISE: TAQS: Inverting the design paradigm: Tunable qubits in hybrid photonic materials as a scalable platform for quantum photonic devices	University of Delaware	51696		-$6,149
47.041	RECODE: Real-time analysis and environmental feedback for directed differentiation of liver organoids				$485,240
47.041	RET Site: Teaching Engineering Design & Innovation				$33,507
47.041	SBIR Phase II: An Ingestible Intraluminal Bioelectronic Capsule (IBC) for Closed-Loop Diagnosis and Treatment of Gastrointestinal Disorders	Niche Biomedical Inc.	SPO 226852 / Prime #2052272		$17,483
47.041	Scalable diamond quantum systems				$65,188
47.041	Scopi				$50,796
47.041	SenSE: Artificial Intelligence-enabled Multimodal Stress Sensing for Precision Health				$218,170
47.041	Shock-Tube Studies of High-Temperature Flames Applicable to Next-Generation Energy Systems				$11,445
47.041	Swirling Propulsion in Complex Fluids and Micro-Swimming Rheometry				$55,207
47.041	The Dynamics of Curved Fluid Films Between Complex Interfaces				$51,479
47.041	Transport of Non-Spherical Particles in Wavy Flows				$341
47.041	Understanding neurodegeneration across the scales				$112,663
47.041	Understanding the impact of mechanical constraints on the dendrite formation in lithium metal anodes				$96,711
47.041	Universal meshes for crack propagation problems and their application to fracking				$17,808
47.049	133975_New Inks for 3D Bio-Printing based on Bio-orthogonal Click Chemistry				$69
47.049	134033_Structure-property relationships in novel conjugated mixed conductors				$20,203
47.049	244343 NSF Markland Quantum dynamics and spectroscopy of reactive species in heterogeneous environments				$20,039
47.049	Additive Combinatorics and Ramsey theory				$38,914
47.049	Asymptotic in Probability: walks and graphs, disordered dynamics, interacting particles				$96,082
47.049	Branching Processes, Random Partial Differential Equations and Applications				$5,916
47.049	CAREER: Chemical Synthesis and Biophysical Study of Noncanonical Membrane Lipids				$329,737
47.049	CAREER: Controlling Polymer Degradation, Microstructures, and Sequences via Living Alternating Polymerization of Cyclopropenes and Low-Strain Cyclic Olefins				-$1,204
47.049	CAREER: Dielectric screening in structured polymer electrolytes				$109,300
47.049	CAREER: Investigating the structure and dynamics of proton defects in heterogeneous environments with accelerated quantum simulations				-$48,202
47.049	CAREER: New statistical approaches for studying evolutionary process: statistical inference, attribution and computation				$36,605
47.049	CAREER: Two Higgs are Better than One: Investigating Electroweak Symmetry Breaking at the LHC and Beyond with Real-Time Charged Particle Reconstruction				$46,938
47.049	CAS: Improving the Efficiency of Supported Palladium Catalysts for Methane Complete Combustion Using Monodisperse Nanocrystals				$175,274
47.049	CCI Center in Selective C-H Functionalization	Emory University	A374186		$212,837
47.049	CCI Phase I: Center for First Principles Design of Quantum Processes				-$499
47.049	CCI Phase I: NSF Center for Adapting Flaws into Features	Rice University	PO X03043173 (218233)		$73,243
47.049	CCI Phase II: Center for Genetically Encoded Materials (C-GEM)	University of California, Berkeley	2002182/00010389/BB01559009		$334,525
47.049	Chiral Quantum Networks	University of California, Santa Barbara	KK1924		$7,834
47.049	Coherent Control of Cold Collision by Preparing Molecular Eigenstates Using Stark-Induced Adiabatic Passage				$391,904
47.049	Collaborative Research: Axion Resonant InterAction DetectioN Experiment (ARIADNE) - a continuation proposal				$70,851
47.049	Collaborative Research: DMREF: Developing Damage Resistant Materials for Hydrogen Storage and Large-scale Transport.				$67,511
47.049	Collaborative Research: Enabling multi-scale studies of magnetic reconnection with interpretable data-driven models				$93,545
47.049	Collaborative Research: Fusing massive disparate data and fast surrogate models for probabilistic quantification of uncertain hazards				$16,530
47.049	Collaborative Research: LSC Center for Coatings Research				$50,887
47.049	Collaborative Research: Magnetically Assisted Self-Assembly for Facile 2D Membrane Protein Crystallization				$20,797
47.049	Collaborative Research: Optical Transitions in Metallic Nanoclusters at High Pressure				$103,495
47.049	Collaborative Research: Scalable Linear Algebra and Neural Network Theory				$47,384
47.049	Collaborative Research: Stanford-Florida program in Support of LIGO on Coatings and Core Optics				$221,699
47.049	Collaborative Research: Statistical Optimization for Barcoding and Decoding Single-Cell Dynamics via CRISPR Gene Editing				$66,845
47.049	Collaborative Research: Transferable, Hierarchical, Expressive, Optimal, Robust, Interpretable Networks				$32,374
47.049	Combinatorics: Thresholds and Hamming Cubes				$28,659
47.049	Conference Proposal: Kylerec student workshop in symplectic and contact geometry				$1,156
47.049	Conjugated Systems Containing Antiaromatic Cyclobutadienoids: Synthesis and Study of the Multifaceted Effects of Local Antiaromaticity				$97,802
47.049	CQIS: Quantum Chaos and Quantum Gravity from Entanglement				$49,959
47.049	Crystal orientation and defect control in active and passive plasmonic systems				$111,576
47.049	Dark Sectors and More with the ATLAS Experiment				$17,258
47.049	Deep Learning for Inverse Problems				$188,012
47.049	Defect Characterization and Control in Metastable GeSn Optoelectronic Alloy Nanostructures				$131,498
47.049	Design Rules for Obtaining White Light from Layered Perovskites and Related Lattices				$134,751
47.049	DFG/NSF: Novel Low Loss Coatings - Enabling the Third Generation of Gravitational-Wave Detectors				$6,299
47.049	Diverse Degradable Polymers from Versatile Ring-Opening Metathesis (Co)Polymerization of Electron-Rich Cyclic Olefins				$147,484
47.049	DMREF: Collaborative Research: Accelerating Thermoelectric Materials Discovery via Dopability Predictions	Colorado School of Mines	401279 - 5801		$40,461

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
47.049	DMREF: Collaborative research: Data driven discovery of synthesis pathways and distinguishing electronic phenomena of 1D van der Waals bonded solids				$116,610
47.049	DMS-EPSRC: Fast martingales, large deviations and randomized gradients for heavy-tailed target distributions				$49,744
47.049	Dynamics of Ions and Molecules in Concentrated Electrolyte and Acid Solutions				$202,997
47.049	EAGER: Superlattice-induced polycrystalline and single-crystalline structures in conjugated polymers				$127,165
47.049	Efficient Monte Carlo algorithms for Bayesian inference				$41,467
47.049	Enabling Quantum Leap: Q-AMASE-i: Quantum Foundry	University of California, Santa Barbara	KK2245		$70,175
47.049	Engineering Cytoskeletal Active Materials	University of Chicago	AWD100425 (SUB00000120)		$37,889
47.049	Enhancing helicity-dependent optical interactions in inversion-asymmetric materials				$7,912
47.049	Evolutionary Dynamics and Diversity in High Dimensions				$179,207
47.049	Exploring Excited-State 1D Dipolar Quantum Matter with Dysprosium Gases				$84,133
47.049	Flexible Statistical Modelling				$62,486
47.049	FRG: Collaborative Research: Generative Learning on Unstructured Data with Applications to Nature Language Processing and Hyperlink Prediction				$18,605
47.049	Functional Materials Through Synthesis Informed Design				$304,957
47.049	Galois Representations and Automorphic Forms				$53,082
47.049	Geometric and Arithmetic Langlands program				$28,354
47.049	Geometry & Statistics				$253,654
47.049	GOALI: CAS: Organocatalytic Reactions and Processes for Polymer Chemistry				$189,999
47.049	High Throughput Structure Determination for Low Thermal Noise Coatings				$65,212
47.049	IAS/Park City Mathematics Institute	Institute for Advanced Study	7456-2305-1915835		$104,608
47.049	Imaging correlations and charge order in transition metal dichalcogenide moir systems				$183,392
47.049	Interfacing Spins with Photons: Quantum Many-Body Physics with Non-Local Interactions				$114,812
47.049	Investigation of Thermodynamic Conditions in an Arc Discharge Plasma	Texas Engineering Experiment Station	M2201408-28-513400-00007		$21,832
47.049	Laplace Eigenfunctions and Unique Continuation				$90,196
47.049	Large Scale Geometry of Scalar Curvature and Minimal Surfaces				$3,979
47.049	Large Synoptic Survey Telescope (LSST) Project	Association of Universities for Research in Astronomy	N51908C		$793,537
47.049	Laser Control of Quantum Evolution in Molecules				$391,753
47.049	Long Time Behavior for Differential Equations in Random Media				$160,529
47.049	Mathematical Problems in General Relativity				$67,022
47.049	Matrix completion with non-uniform missing patterns, a new measure of conditional dependence, and applications to feature selection				$220,315
47.049	Measurements of current-phase relationships in Josephson junctions				$18,711
47.049	Methods in Extremal Combinatorics				$61,867
47.049	Microlocal Analysis and Applications				$112,942
47.049	Modulating and engineering Luttinger liquid plasmons in low dimensional materials				$7,209
47.049	Moduli Problems in Algebraic Geometry, their Structures and their Applications				$56,921
47.049	Moduli Spaces of Pseudoholomorphic Maps				$6,393
47.049	MRI: Development of Layered Quantum Materials Synthesis Facility				$61,519
47.049	MRI: Development of the Gemini Planet Imager Upgrade	University of Notre Dame	203717SJU		$20,186
47.049	MSIP: Innovation to Achieve the Full Science Reach of the BICEP Array Stage 3 CMB Polarization Experiment			$1,667,011	$1,806,057
47.049	Multivariate histograms and inference with finite sample guarantees				$65,216
47.049	Nanoscale Control over Surface Functionalization by Molecular Layer Deposition				$232,918
47.049	New Invariants of Knots and 3-Manifolds				$133,555
47.049	New Strategies for Electrocatalytic Reactions with Transition-Metal Hydrides				$243,455
47.049	New Techniques And Analyses For Random Sampling				$81,704
47.049	Novel, engineered bio-inks for 3D printing of complex, perfusable structures				$209,643
47.049	NSF/DMR-BSF: Theory of quantum materials				$164,539
47.049	NSF-BSF: Investigation of Streaming Instabilities for tailoring the profile of high-energy laser-generated proton beams				$100,507
47.049	Placing spins in semiconductors				$190,450
47.049	Polymer Physics Across Scales: Bridging Atomistic and Coarse-Grained Polymer Models				$142,782
47.049	Properties of approximate inference for complex high-dimensional models				$120,415
47.049	QLCI-CI: Enhanced Sensing and Distribution Using Quantum States Stanford sub-award	University of Colorado, Boulder	1559523 PO#1001397680		$477,979
47.049	Quantum input-output modeling in the ultra-fast domain: theoretical foundations and experimental validation				$123,489
47.049	Questions and Methods in Probabilistic Combinatorics				$25,992
47.049	QuIC-TAQS: Integrated Lithium Niobate Quantum Photonics Platform	Harvard University	124381- 5119997		$6,971
47.049	Renewal of Understanding Gravity at the Smallest Scale				$157,597
47.049	Research in Particle Theory, Cosmology, and Quantum Gravity				$726,365
47.049	Ricci Flows and Steady Ricci Solitons				$28,659
47.049	RNMS: Geometric Structures and Representative Varieties				$34,152
47.049	Robust Diagnosis in Electronic Health Records Integrating Physics-based Missing Data Multiple Imputation, Fast Inference for Hemodynamic Models, and Differential Privacy	University of Notre Dame	203615SU		$21,589
47.049	Robust Wasserstein Profile Inference				$113,742
47.049	Searching for Dark Matter Subhalos in Distant Strong Gravitational Lenses				$966
47.049	Stanford Program in Support of LIGO - Seismic Isolation and Controls			$96,318	$629,718
47.049	Strong spin-orbit coupling and high mobility via complex oxide heteropitaxy				$191,565
47.049	Student workshop in symplectic and contact geometry				$23,930
47.049	Superconductor-(Metal)-Insulator Transitions: Understanding the Emergence of Anomalous Metallic States				$40,613
47.049	Symplectic Topology of Weinstein manifolds and related topics				$32,241
47.049	Symplectic, conformal symplectic, contact structures and foliations in interaction				$95,912
47.049	The Multi-Mission Maximum Likelihood framework (3ML): a tool to explore the high-energy Universe in the era of Multi Messenger Astrophysics				$111,915
47.049	The Role of Catalyst Microstructure in Gas Diffusion Electrosynthesis of C2+ Products				$119,919
47.049	The Structure of the Gromov-Witten Invariants				$71,678
47.049	The SuperCDMS SNOLAB Experiment	University of California, Berkeley	00008790 PO# BB01304587		$809,175
47.049	Theoretical and Computational Modeling of Supercoiling, Topology, and Active Fluctuations in Chromosomal Organization and Dynamics				$118,810
47.049	Topics in Number Theory				$61,545
47.049	TRIPODS+X:RES: Collaborative Research: The Future of the Road - A Data-Driven Redesign of the Urban Transit Ecosystem				$26,310
47.049	Turbulent structure formation in the magnetic interstellar medium: a multi-tracer approach				$142,921
47.049	Two-dimensional KPZ evolution, fluctuation lower bounds, and ultrametricity				$19,901
47.049	Two-Dimensional Synthetic Quantum Matter				$1,274
47.049	U.S. ATLAS Operations: Discovery and Measurement at the Energy Frontier	Stony Brook University, State University of New York	76749/1136652/2		$246,503

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
47.049	Unraveling the principles of catalytic diversity in the carotenoid oxygenase superfamily	University of California, Irvine	Subaward 2021-1589		$5,814
47.049	Yang-Mills existence, KPZ universality, and related problems				$37,307
47.050	144924 NCAR/UCAR Early Career A prospective and resilience longitudinal study of environmental coastal threats on health	National Center for Atmospheric Research	SUBAWD002260 // P2013240		$88,256
47.050	166851 Pamukcu: NSF-Collaborative Research: How are Rhyolites Generated? Evaluating Models for the Volcanic-plutonic Connection in the Searchlight Magmatic System, Nevada				$52,671
47.050	178461 NSF Arrigo Collaborative Research: Quantifying N2 fixation rates of non-cyanobacterial diazotrophs and environmental controls on their activity				$129,458
47.050	201048 NSF Univ South Carolina - Collaborative Research: US GEOTRACES GP17-OCE: Mapping nitrous oxide sources and sinks through isotopic measurements in the Pacific Ocean				$40,343
47.050	204973 NSF - CAREER: Retention and Mobility of Beryllium in Soils and Sedimentary Environments				$162,162
47.050	204979 NSF - RRR: Collaborative Research: From rock to regolith to rivers: weathering, grain size, and controls on soil production and fluvial incision				$21,006
47.050	204985: EAGER SitS: Soil Soundscapes from Seismic Arrays				$57,457
47.050	212698 NSF FSU - Collaborative Research: Quantifying nitrous oxide sources across an oxygen gradient in the northern Benguela upwelling system				$38,075
47.050	216879 NSF-FRES: Collaborative Research: Testing the reduction of aerobic habitat as a common kill mechanism for major mass extinction events				$67,464
47.050	232543 NSF - CAREER: Tracking deep-time environmental change through statistical analyses of the sedimentary geochemical record				$31,450
47.050	Belmont Forum Collaborative Research: Risk mapping and targeted snail control to support schistosomiasis elimination in Brazil and Cote d'Ivoire under future clmate change				$11,336
47.050	CalTech/NSF MRI: Development of a 150 GHz Receiver for the BICEP Array CMB Polarimeter SPO#127760	California Institute of Technology	S401848		$41
47.050	CAREER: Crossing over into the geochemical milieu: Using the molecular genomic record to inform the geologic biomarker record				$34,215
47.050	CAREER: Cross-Instrument Synthesis of Antarctic Radar Sounding Observations				$69,903
47.050	CAREER: Microbial activity and chemoautotrophy in the deep sea: who, how, and how much?				$51,280
47.050	CEDAR: Investigation of Atmospheric Neutral Density Dynamics Through Meteor Observations				$122,508
47.050	Center for Chemical Currencies of a Microbial Planet (C-CoMP)	Woods Hole Oceanographic Institution	A101552		$63,048
47.050	Characterization of Meteoroids and Meteors Through Simulations and Remote Sensing Using High-Power Large-Aperture Radars"				$165,473
47.050	CNH-L Coupling Global Climate Mitigation and Local Societal Co-Benefits	University of California, San Diego	92908921 (PO# S9001719)		-$3,223
47.050	Co-Director of the Southern California Earthquake Center	University of Southern California	91270823 / PO 10617840		$74,047
47.050	Colaborative Research: Identifying and harnessing local refuges from oceanographic extremes for coastal marine species and fisheries				$112,085
47.050	Collaborative Research/EAGER: Toward Long-Distance Ocean and Seismic Sensing on Optical Telecommunications Infrastructure				$12,842
47.050	Collaborative Research: Changes in hyporheic exchange and nitrous oxide generation due to streambed alteration by macro-roughness elements				$135,851
47.050	Collaborative Research: Cobalamin and Iron Co-Limitation Of Phytoplankton Species (CICLOPS) in Terra Nova Bay				$64,029
47.050	Collaborative Research: From Silicate Melts Properties to the Dynamics and Evolution of an Early Basal Magma Ocean				$894
47.050	Collaborative Research: GP-IN: Connected to Earth: Cross-Cultural Knowledge Exchange for Advancing Earth Science Learning				$31,198
47.050	Collaborative Research: Hydrologic Disturbance in Tropical Peatlands: Linking Drainage, Soil Moisture, Flammability, and Carbon Fluxes				$155,476
47.050	Collaborative Research: Imaging the Beginning of Time from the South Pole: The next Stage of the BICEP Program				$635,347
47.050	Collaborative Research: Improved observation and parameterization of bottom boundary layer turbulence and particle properties for sediment fate and transport modeling			$87,005	$127,635
47.050	Collaborative Research: Investigating Magmatic Differentiation in a Fossil Upper-Crustal Silicic Magma System: Stillwater Range, NV				$18,462
47.050	Collaborative Research: Kelp forest hydrodynamics: observations of drag and cross-shore exchange on the inner shelf				$143,107
47.050	Collaborative Research: Management and implementation of the US GEOTRACES Pacific Meridional Transect				$104,282
47.050	Collaborative Research: Measurement of Particle Aggregation in Laboratory-scale Flows for Improved Models of Volcanic Ash Fallout and Entrainment				$9,563
47.050	Collaborative Research: Predicting the global location of heat tolerant corals: Palau patch reefs as a general model			$7,883	$103,652
47.050	Collaborative research: Revisiting the low-frequency variability of the extratropical circulation using non-EOF modes and linear response functions				$68,741
47.050	Collaborative Research: The central Apennines Earthquake cascade under a new microscope				$10,120
47.050	Collaborative Research: Tsunami Hazard to West Antarctic Ice Shelves				$24,507
47.050	Collaborative Research: US GEOTRACES PMT: Investigating geochemical tracers of the Pacific nitrogen cycle and budget				$70,193
47.050	Community-based educational infrastructure for numerical simulation in the Earth Sciences: a reactive transport use case	Colorado School of Mines	401654-5801		$29,071
47.050	Computational simulations of volcanic eruptions and infrasound				$105,323
47.050	CoPe RCN: New technology to inform Coastal Science and Management	University of California, Santa Barbara	KK2268		$15,712
47.050	CubeSat Ideas Lab: Collaborative Research: Space Weather Atmospheric Reconfigurable Multiscale Experiment (SWARM-EX) CubeSats				$152,511
47.050	CubeSat Ideas Lab: Collaborative Research: VIrtual Super-resolution Optics with Reconfigurable Swarms (VISORS)				$95,355
47.050	Development and Validation of an In-Situ Particle Tracking Velocimetry System for Ocean Turbulence Measurement				$29,876
47.050	DISES: Pathways and constraints to adaptation on coastal social-environmental systems			$75,129	$160,502
47.050	Earthquake Sequence Simulations with Thermomechanical Coupling and Fault-Zone Fluid Transport				$50,434
47.050	Estimation of Antarctic Ice Melt Using Stable Isotopic Analyses of Seawater				$1,401
47.050	FUSE: Food-water-energy for Urban Sustainable Environments				$105,096
47.050	Geophysics of Iron in the Earth's Core				$30,646
47.050	Insights into Episodic Caldera Collapse and Magmatic Systems from the 2018 Eruption of Klauea Volcano				$94,283
47.050	INSIGT: Investigating Shear-margin Interactions with Grounding-line Transitions				$125,154
47.050	Investigating the Large-Scale Solar Magnetic Field During the Transition to Solar Cycle 25				$118,639
47.050	Moving from correlation to mechanism: testing the role of temperature and oxygen change in the Great Ordovician Biodiversification Event				$93,474
47.050	NSFGEO-NERC: Collaborative Research: Energy transfer between submesoscale vortices and resonantly-forced inertial motions in the northern Gulf of Mexico				$47,332
47.050	NSFPLR-NERC: The Future of Thwaites Glacier and its Contribution to Sea-level Rise	University of California, Santa Cruz	A18-0296-S004-P0668401		$48,612
47.050	NSFPLR-NERC: TIME - Thwaites Interdisciplinary Margin Evolution - The role of shear margin dynamics in the future evolution of Thwaites drainage basin	University of California, Santa Cruz	A18-0296-S002-P0668511		$69,883
47.050	OCE-PRF Beyond the light: ecological and evolutionary insights into RuBisCO from the dark ocean				$10,519
47.050	OCE-PRF: Lighting up the ocean: resonant nanophotonic metasurfaces for autonomous in situ measurement of aquatic phycotoxins				$24,393
47.050	Participation of Sonia M. Tikoo-Schantz on IODP Expedition 391	Columbia University	102D(GG009393-04)/POSAPOG14700		$37,005

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
47.050	Prediction of solar eruptions with machine-learning algorithms combining physical models and observations			$40,244	$59,369
47.050	REU Site: Stanford Earth Summer Undergraduate Research in Geoscience and Engineering (SURGE)				$216,265
47.050	RUI: Collaborative Research: Building a mechanistic understanding of water column chemistry alteration by kelp forests				$7,609
47.050	Seafloor Fiber Optic Array in Monterey Bay (SEAFOAM)			$55,180	$73,280
47.050	Submesoscale instabilities near the sea-floor and their effects on the ocean circulation and mixing				$3,504
47.050	Surface elevation history of the northern North America Cordillera as constraint for Eocene tectonic and climatic boundary conditions				$16,807
47.050	Towards a process-based understanding of different eruptive regimes at persistently degassing volcanoes				$60,678
47.050	Transdisciplinary Training Collaboratory: Building Common Ground			$47,600	$187,924
47.050	Using stable isotope incubations to quantify methane and acetate oxidation in the deep subsurface of the Guaymas Basin, Mexico	Columbia University	102C(GG009393-04)		$8,888
47.050	Wavy turbulent flow over a coral reef: vertical structure and fluxes				$148,000
47.070	138090_Sidford_NSF CAREER_Theory of Fast Graph Optimization				$72,269
47.070	170022 NSF Sheshadri. Collaborative Research: Framework: Improving the understanding and representation of atmospheric gravity waves using high-resolution observations and machine learning				$172,138
47.070	AF: Medium: Collaborative Research: Beyond Sparsity: Refined measures of complexity for linear algebra				$60,486
47.070	AF: Medium: Collaborative Research: Exploiting Opportunities in Pseudorandomness				$50,788
47.070	AF: Small: Robust and Secure Learning				$122,987
47.070	AF:Medium:Collaborative Research:The Quest for Statistically Optimal Algorithms				$125,953
47.070	AF:SMALL:Geometry of Polynomials and Algorithm Design				$192,274
47.070	AitF: Collaborative Research: Efficient High-Dimensional Integration using Error-Correcting Codes				-$1,265
47.070	Automatically Detecting Security Events and Trends in Network Telescope Data	University of Michigan	SUBK00010794 / 3005341607		$8,032
47.070	BIGDATA: F: Computationally efficient algorithms for large scale crossed random effects models				$174,216
47.070	BIGDATA: F: Reliable Inference with Big Data: Reproducibility, Data Sharing, Heterogeneity				$269
47.070	CAREER: A Runtime for Fast Data Analysis on Modern Hardware				$28,165
47.070	CAREER: A Unified Compiler for Sparse Array Operations and Relational Algebra				$53,934
47.070	CAREER: Advancing Accessible Making for People with Visual Impairments via Tactile Shape Displays				$20,787
47.070	CAREER: Discrete Convexity in Algorithm Design				$67,841
47.070	CAREER: Frontiers of Unconditional Derandomization				$368,233
47.070	CAREER: High Integrity Navigation for Autonomous Vehicles				$119,335
47.070	CAREER: Modeling and Inference for Large Scale Spatio-Temporal Data				$193,712
47.070	CAREER: New Fundamentals in Coding Theory				$144,186
47.070	CAREER: Optimal Estimators Using Sum-of-Squares Proof Systems				$20,697
47.070	CAREER: Safe and Influencing Interactions for Human-Robot Systems				$15,596
47.070	CAREER: Scarlet: Learned Protocols and Functional Architectures for Low-Latency Internet Video				$50,850
47.070	CAREER: Toward a Comprehensive Generalization Theory for Deep Learning				$41,868
47.070	CAREER: Understanding visual learning with self-supervised neural network models				$158,184
47.070	CAREER:Interactive Training of Semantic Parsers via Paraphrasing				$24,144
47.070	CCF-BSF: AF: CIF: Small: Low Complexity Error Correction				$26,343
47.070	CCRI: ENS: Activity-Centric Interactive Environments for Embodied AI				$304,543
47.070	CHS: Medium: Collaborative Research: Augmented Reality Agents with Pervasive Awareness, Appearance, and Abilities				$27,545
47.070	CHS: Medium: Collaborative Research: Charting a Research Agenda in Artificial Intelligence - Mediated Communication				$107,903
47.070	CHS: SMALL: Blending the Virtual & the Physical: Understanding and Designing Crowd-Based Open Innovation Systems for Physical Products				$65,635
47.070	CHS: Small: Collaborative Research: Wearable Fingertip Haptic Devices for Virtual and Augmented Reality: Design, Control, and Predictive Tracking				$208
47.070	CHS: Small: Learning and Leveraging Conventions in Human-Robot Interaction				$10,392
47.070	CIF: Small: Collaborative Research: Generative Adversarial Networks: From Art to Science				$185,631
47.070	CIF: Small: Collaborative Research: Generative Adversarial Privacy: A Data-driven Approach to Guaranteeing Privacy and Utility				$4,329
47.070	CIF: Small: Foundations of Decentralized Data Science: Optimizing Utility, Privacy and Communication Efficiency				$129
47.070	CIF: Small: Learning and estimation with rough non-convex objectives: Fundamental limits and efficient algorithms				$80,579
47.070	CIF:Medium: Collaborative Research: Learning in High Dimensions: From Theory to Data and Back				$130,179
47.070	CIFellow 2020: Incorporating User Experiences to Improve Automated Detection of Toxic Content Online	Computing Research Association	CIF2020-SU-28		$126,866
47.070	CNS Core: Large: Autonomy and Privacy with Open Federated Virtual Assistants				$849,203
47.070	CNS Core: Small: Online learning of cross-layer systems for robust and high-performance Internet video transmission				$127,870
47.070	Collaborative Research: AF: Medium: Foundations of Structured Optimization				$121,377
47.070	Collaborative Research: AF: Medium: Modern Combinatorial Optimization: Incentives, Uncertainty, and Smoothed Analysis				$90,002
47.070	Collaborative Research: CIF: Medium: An Information-Theoretic Foundation for Adaptive Bidding in First-Price Auctions				$78,180
47.070	Collaborative Research: CNS Core: Small: Algorithms and Models for Asking Questions of Modern Network Traffic.				$147,922
47.070	Collaborative Research: CPS: Medium: Closing the Teleoperation Gap: Integrating Scene and Network Understanding for Dexterous Control of Remote Robots				$53,697
47.070	Collaborative Research: Framework: Software: CINES: A Scalable Cyberinfrastructure for Sustained Innovation in Network Engineering and Science				$77,153
47.070	Collaborative Research: Learning by Touch: Preparing Blind Students to Participate in the Data Science Revolution				$71,311
47.070	Collaborative Research: Multifidelity Uncertainty Quantification Through Model Ensembles and Repositories				$38,938
47.070	Collaborative Research: NRI: Robot-Assisted Feeding: Towards Efficient, Safe, and Personalized Caregiving Robots				$6,521
47.070	Collaborative Research: PPoSS: Planning: Fixpoint: an operating system and architecture for data-centric computing				$93,149
47.070	Collaborative Research: SaTC: Core: Large: Building Rapid-Response Frameworks to Support Multi-Stakeholder Collaborations for Mitigating Online Disinformation				$89,908
47.070	Collaborative Research: SHF: Small: Leveraging Satisfiability Modulo Theories for Design Synthesis and Optimization of Emerging Computing Technologies				$37,513
47.070	CompSustNet: Expanding the Horizons of Computational Sustainability	Cornell University	72954-10597		$4,783
47.070	Computing Innovation Fellows 2020 Project	Computing Research Association	CIF2020-SU-03		$132,616
47.070	Computing Innovation Fellows 2021 Project	Computing Research Association	2021CIF-Stanford-48		$81,935
47.070	Computing Innovation Fellows 2021 Project: Combating the Spread of Disinformation on Encrypted Messaging Apps	Computing Research Association	2021CIF-Stanford-16		$89,686
47.070	COVID-19 RAPID: Pinpointing Expected Covid-19 Related Voter Turnout Problems				$40,536

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
47.070	CPS: Medium: Collaborative Research: Building Information, Inhabitant, Interaction and Intelligent Integrated Modeling (BI5M)				$104,911
47.070	CPS: Medium: Sufficient Statistics for Learning Multi-Agent Interactions				$23,426
47.070	CPS: Small: Collaborative Research: Information Design and Price Mechanisms in Platforms for CyberPhysical Systems with Learning Agents				$126,015
47.070	CPS: Small: Collaborative Research: Models and System-Level Coordination Algorithms for Power-in-the-Loop Autonomous Mobility-on-Demand Systems				$183,719
47.070	CRCNS: Collaborative Research: Naturalistic computation and signaling by neural populations in the primate retina				$29,591
47.070	CRII: RI: Active Learning of Preferences for Human-Aware Autonomy				$119,964
47.070	Data-driven Contact Modeling				-$1,186
47.070	Doctoral Consortium at the 2020 International Symposium on Experimental Robotics (ISER 2020)				$8,000
47.070	E2CDA: Type I: Collaborative Research: Energy Efficient Learning Machines (ENIGMA)				$1,335
47.070	EAGER: Dryad BRIDGE: Building Repository Interconnections with Dryad Guidance and Extensions	Metadata Game Changers	SPO #228508		$91,407
47.070	Elements: AMR-H: Adaptive multi-resolution high-order solver for multiphase compressible flows on heterogeneous platforms				$149,308
47.070	Enabling data accountability and governance in machine learning.				$52,410
47.070	Expeditions: Coherent Ising Machines for Optimization, Machine Learning and Neuromorphic Computing			$902,384	$1,671,182
47.070	Expeditions: Collaborative Research: Global Pervasive Computational Epidemiology				$96,257
47.070	Expeditions: Collaborative Research: Understanding the World Through Code				$128,114
47.070	Expeditions: Mind in Vitro Computing with Living Neurons	University of Illinois at Urbana Champaign	108555-18953		$39,340
47.070	FET Core: Small: Workshop on Emerging Technologies of Post Von-Neumann Ising Machines				$30,453
47.070	FMitF: Collaborative Research: Track I: Finding and Eliminating Bugs in Operating Systems				-$4,189
47.070	FMitF: Track II: Scaling Formal Hardware Security Verification with CheckMate from Research to Practice				$12,992
47.070	FW-HTF-P/Collaborative Research: Exploring Tools to Help Workers and Organizations Adapt to AI-enabled Robots				$77,198
47.070	III: Small: A System for Rapid Audiovisual Analysis of Large-Scale Video Collections				-$50,487
47.070	III: Small: Learning From Diverse Populations: A Complexity-Theoretic Perspective				$163,556
47.070	NeTS: Small: Massive Wireless Random Access: Principles and Protocols				$216,132
47.070	NRI: FND: COLLAB: Distributed Semantically-Aware Tracking and Planning for Fleets of Robots				$76,122
47.070	NSF Student Travel Grant for 2022 Theoretical Computer Science (TCS) Women Meeting at Symposium on Theory of Computing (STOC)				$1,400
47.070	NSF UCSD Lambda Computing				$133,487
47.070	NSF-BSF: AF: Small: Algorithmic Game Theory: Equilibria and Beyond				$61,041
47.070	NSF-BSF: AF: Small: Algorithms for Graph-Based Codes				$28,772
47.070	NSF-BSF: AF: Small: Mechanisms for Auctions and Markets - The Interplay of Incentives and Optimization				$133,447
47.070	NSF-BSF: Large Neural Networks				$114,065
47.070	NSF-BSF: SHF: Small: Efficient, Automatic, and Trustworthy Smart Contract Verification				$95,779
47.070	NSF-Princeton-IRIS-HEP 136890 - Institute for Research & Innovation in Software for High Energy Physics (S212)	Princeton University	SUB0000280		$168,731
47.070	OAC Core: Small: Enabling High-fidelity Turbulent Reacting Flows Simulations through Advanced Algorithms and High-order Methods for Extreme-scale Computing				$258,670
47.070	Planning for the Leadership-Class Computing Facility	University of Texas at Austin	UTA20-001116		$8,540
47.070	PPoSS: Planning: Eliminating the Bottlenecks to ML Usability and Scalability				$46,417
47.070	Random and Adaptive Projections for Scalable Optimization and Learning	University of Michigan	SUBK00009902/PO 3005179870		$4,712
47.070	RI: Medium: Collaborative Research: Object-Centric Inference of Actionable Information from Visual Data				$167,284
47.070	RI: Small: New tools for studying structural and inductive bias in NLP models				$174,942
47.070	RI: Small: Robustness and Confidence in Machine-Learned Systems				$325,812
47.070	RI: Small: Using and Gathering Data for Efficient Batch Reinforcement Learning				$111,745
47.070	RTML: Large: Collaborative: Harmonizing Predictive Algorithms and Mixed- Signal/Precision Circuits via Computation-Data Access Exchange and Adaptive Dataflows				$87,492
47.070	RTML: Large: Continuous Adaptation for Decision Streams				$568,943
47.070	S&CC-IRG Track 2: Smart & Connected Kids for Sustainable Energy Communities	Oregon State University	S1977A-A		$623
47.070	SaTC: CORE: Frontier: Collaborative: End-to-end Trustworthiness of Machine-Learning Systems				$399,516
47.070	SaTC: CORE: Medium: Collaborative: An algebraic approach to secure multilinear maps for cryptography				$18,061
47.070	SCH:INT: A gamified mobile system for real-time mental health data modeling and personalized autism care across sociocultural settings				$277,275
47.070	SI2-SSI Collaborative Research: The SimCardio open source multi-physics cardiac modeling package				$415,414
47.070	SII-Center: SpectrumX - The National Center for Spectrum Innovation	University of Notre Dame	204303SU		$84,316
47.070	Spokes: MEDIUM: WEST: Breaking down barriers for reproducible neuroimaging data analyses				$85,802
47.070	The Stanford Data Science Collaboratory				$435,859
47.074	A novel integration of fine scale ecological data, high-resolution precision mapping, and regional network modeling to investigate environmental drivers of schistosomiasis dynamics			$12,162	$361,630
47.074	An experimental facility to test the impacts of multiple physical stressors on physiology, ecology and genomics of marine species				$36,544
47.074	BIO: Determining the molecular mechanisms underlying the size-scaling of biosynthesis				$456,126
47.074	BIOROBOOST travel support for US-based researchers to workshops to develop standards in synthetic biology				$194
47.074	CAREER: Dissecting the Mechanism of Replication Initiation in Vertebrates via Single Molecule Imaging				$58,854
47.074	CAREER: Elucidating Large-Scale Spatial Patterns of Ecosystem Traits with Data Assimilation				$67,454
47.074	CAREER: From Ecology to Neurobiology: spatial cognition in rainforest frogs				$264,540
47.074	CAREER: Investigating Chromatin Dynamics Underlying Activity-Induced Neuronal Transcription Using CRISPR Technologies				$225,089
47.074	CAREER: When do mycorrhizal fungi influence plant community dynamics?				$259,072
47.074	Center for Cellular Construction	University of California, San Francisco	12599sc		$166,249
47.074	Center for the Environmental Implications of NanoTechnology	Duke University	14-NSF-1048		$3,715
47.074	Collaborative Proposal: MRA: Macroecology of microorganisms: Scaling fungal biodiversity from soil cores to the North American continent				$109,048
47.074	Collaborative Research: Climate effects on Mn oxidation states in soils and Mn/SOM interactions				$152,103
47.074	Collaborative research: defining the scope and consequences of ectomycorrhizal fungal control on forest organic matter decomposition				$110,519
47.074	Collaborative Research: Do defenses against herbivores and pathogens drive the commonness and rarity of tropical trees at local and regional scales?				$149,482
47.074	Collaborative Research: EAGER: Mapping small molecules in the root meristem				$72,620
47.074	Collaborative Research: From Molecules to Communities: How Levels of Selection Integrate to Tame Selfish Elements				$26,239
47.074	Collaborative Research: RUI: Quantifying performance in animals exposed to predictable and unpredictable variation in multiple environmental factors				$6,445
47.074	Collaborative Research: Structural and functional connectivity of squid chromatophores			$1,025	$15,637

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
47.074	Collaborative Research: Systematic Investigation of the Structure, Dynamics, and Energetics of Hydrogen Bonds and the Protein Interior Using Ketosteroid Isomerase and Model Systems				$68,258
47.074	Collaborative Research: Uncovering the Biophysical Mechanisms of Single-cell Wound-healing				$210,716
47.074	Connecting cell fate and epigenome drift through physical models of chromatin structure and dynamics	University of California, Irvine	2020-1358		$234,167
47.074	Cytokinesis without an actomyosin ring: studies in Chlamydomonas			$42,240	$210,288
47.074	Determining the function of sterol lipids in the bacterial domain				$275,151
47.074	Developmental Consequences of Sexual Conflict on Female Brain Cognition	University of Texas at Austin	UTA21-000022		$41,422
47.074	Dimensions: Collaborative Research: Assembly and function of nectar microbial communities				$153,602
47.074	Dissecting the biogenesis and function of circular RNA in simple eukaryotes				$46,543
47.074	EDGE CT: Developing transgenic and lineage tracing tools in planarians				$76,831
47.074	EDGE: Developing techniques for linking genotype to phenotype in amphibians			$79,453	$299,612
47.074	Effects of temperature on vector-borne disease transmission: Integrating theory with empirical data			$8,118	$8,118
47.074	FMRG: Genetically-targeted chemical assembly (GTCA) of functional structures in living cells, tissues, and animals				$616,838
47.074	Hemichordate neural organization: generating neural system diversity from conserved molecular patterning				$95,876
47.074	How land use change transforms the landscape of vector-borne disease			$25,134	$215,111
47.074	Impact of Matrix Viscoelasticity on Induced Pluripotent Stem Cell Morphogenesis				$196,252
47.074	Leveraging Microfluidics for High-Throughput in Vitro Investigations of Transcriptional Regulation				$89,387
47.074	MIM: Systematic Dissection of Complex Synthetic Gut Bacterial Communities				$495,051
47.074	Molecular mechanisms that boost systemic immunity in plants				$194,623
47.074	MTM 1: The sandy beach microbiome: physical, chemical and biological controls on diversity and function				$78,613
47.074	NeuroNex Technology Hub: Integrated Circuit Cracking (ICC) with Linked Tools for Diverse Systems			$644,723	$1,773,229
47.074	NeuroNex: Enabling Identification and Impact of Synaptic Weight in Functional Networks	University of Texas at Austin	UTA20-000889		$255,121
47.074	NSF2026: EAGER: Material morphogenesis using biohybrid vesicles as building blocks				$200,401
47.074	NSF-IOS: Natural selection on the social interactions that mediate collective behavior: ecological pressures and genomic architecture				$57,068
47.074	Organization and Dynamics in Photosynthetic Reaction Centers and Model Membrane Architectures				$433,801
47.074	RCN-UBE Incubator: Building the San Francisco Bay Network for Student Opportunities in Avian Research (SOAR) to enhance STEM education and assess urban impacts on avian ecology			$13,381	$27,239
47.074	RCN-UBE Incubator: Diversifying and Integrating Marine Education at Stations along a a latitudinal gradient			$2,037	$9,508
47.074	RoL: Regulation of cell envelope homeostasis in the alpha-proteobacterium Sinorhizobium meliloti				$513,045
47.074	Scaling from cell physiology to community stability in a natural gut microbiome	Carnegie Institution of Washington	05-10995-02		$31,071
47.074	SemiSynBio: Highly scalable random access DNA data storage with nanopore-based reading				$132,293
47.074	Structural Dynamics of Ribosome Complexes By Using Time-resolved Serial Femtosecond X-ray Kinetic Crystallography	Hauptman-Woodward Medical Research Institute	6229		-$1,861
47.074	The role of non-coding RNA in the modulation of Anther & Pollen development in grasses	Donald Danforth Plant Science Center	23908-S		$248,407
47.074	Unraveling biofilm matrix composition, architecture, and function				$264,358
47.075	161808_Frank_REU Site: Language, Cognition and Computation				$58,130
47.075	180743 NSF Learning systems that enable healthcare workers to perfect safety-critical hospital work				$821,704
47.075	196586_Gweon_UTD NSF_Innovating Developmental Science with an Online, Scalable Meta-Science Platform for Investigating Cognitive Development During Early Childhood	University of Texas at Dallas	2008652; PO S314550		$16,237
47.075	199612 - NSF Career - GWP - CAREER: Understanding the Drivers and Consequences of Personal Adaptation Behavior to Environmental Extremes				$197,992
47.075	Advancing the Science of Organizations: Work and workshops coordinated with the CASBS Summer Institute on Organizations and Their Effectiveness				$1,205
47.075	ANES WEB: American National Election Studies 2018-2021			$107,543	$660,728
47.075	Auction Design for Complex Centralized Markets				$73,046
47.075	CAREER: Computational work design: How algorithms and crowdsourcing are changing organizational design and worker experience				$86,841
47.075	CAREER: Empirical Studies of Cities' and Neighborhoods' Influence on Income and Consumption Inequality: Research and Training	National Bureau of Economic Research	36344.00.00.00.7700		$57,209
47.075	CAREER: Macroeconomic Implications of Microeconomic Heterogeneity	National Bureau of Economic Research	36398.00.00.00.7700		$51,752
47.075	Central Banks in Uncharted Waters: Navigating a World with Large Reserves				$128,959
47.075	CHN2-S: Measuring adaptive responses that strengthen governance of marine resourses along the Baja California Peninsula	Duke University	333-2698		$31,441
47.075	Collaborative Research: High-performance computational standards for redistricting				$79,367
47.075	Collaborative Research: Deliberation online: how online foci shape conversation in a polarized era				$17,389
47.075	Collaborative Research: Linguistic Production, Perception, and Identity in the Career Mobility of Black Faculty in Linguistics and the Language Sciences				$53,234
47.075	Collaborative Research: NCS-FR: Beyond the ventral stream: Reverse engineering the neurocomputational basis of physical scene understanding in the primate brain				$181,534
47.075	Collaborative Research: Origins of Serial Sovereign Default				$3,723
47.075	Collaborative research: Time transect of ancient genomes of Indigenous North Americans				$31,453
47.075	Collaborative Research: Time-Sharing Experiments for the Social Sciences (TESS): Proposal for Renewed Support, 2020-2023				$149,483
47.075	Collaborative Research: Transparency and Misspecification in Structural Estimation				$126,891
47.075	Computer-intensive inference with applications to social sciences				$102,031
47.075	COVID - RAPID: Coupled Contagion, Behavior-Change, and the Dynamics of Pro- and Anti-Social Behavior During the COVID-19 Pandemic				-$1
47.075	COVID-19 - RAPID: Compounding crises: Facing hurricane season in the era of COVID-19			$3,194	$82,875
47.075	COVID-19 216360 NSF Conference - Collaborative Research: Predictive Intelligence for Pandemic Prevention, Theme 4: Social, Behavioral, and Policy Obstacles and Supports				$19,920
47.075	COVID-19 Collaborative Research: The Intergenerational Effects of COVID-19				$49,401
47.075	COVID-19 RAPID: Online Social Networks, Relationships, and the COVID-19 lock down				$97,304
47.075	COVID-19 RAPID: Using remote diary methods to understand how families navigate emergency-driven homeschooling driven by COVID19				$5,972
47.075	Cross-cultural trust and resource sharing; The Role of Ideal Affect				$105,122
47.075	Developing an Ethics and Society Review for Research				$81,170
47.075	DMUU: Climate and Energy Decision Making	Carnegie Mellon University	1122280-421711		$52,422
47.075	Doctoral Dissertation Research: "Assets for Peace: Biodiversity and Scientific Knowledge in Post-conflict Colombia"				$20,359
47.075	Doctoral Dissertation Research: Evidentiary Practices for Establishing Psychological Trauma in Asylum Claims				$25,836
47.075	Doctoral Dissertation Research: Experiences of Youth at the Intersection of the Child Welfare and Juvenile Justice Systems.				$594
47.075	Doctoral Dissertation Research: Plurality and Managed Integration Strategies in Urban Contexts				$24,217
47.075	Emotion as information: Young children's use of others' emotional expressions to guide their inference and exploration				$141,902

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
47.075	GDP-B: A New Well-being Metric in the Era of the Digital Economy				$104,637
47.075	Genealogical ancestors, admixture, and population history				$63,234
47.075	Global Urbanization and its Discontents: Wide View	Southern Methodist University	G001723-7505		$11,603
47.075	IBSS-L: Recruiting, Hiring, and Retaining Math and Science Teachers			$7,183	$7,183
47.075	Influencing Conflict-Related Emotional Dynamics			$62,855	$68,139
47.075	Intracranial EEG and Direct Cortical Stimulation Study of Stimulus-Driven and Cognitively-Modulated Emotional Processing in the Human Brain				$147,465
47.075	Neural investigations of face perception and attention using population receptive field modeling				$377
47.075	NSF Asylum Seeker and Refugee Integration in Europe				$31,327
47.075	NSF CAREER: The Effects of Public Policy on Families with Children: New Evidence from Multiple Large-Scale Data Sets				$113,360
47.075	NSF Career: Within City, Across Seasons or Across Borders: The Economics of Labor Movements				$120,322
47.075	Numerical Bootstrap and Constrained Estimation				$72,747
47.075	Radiocarbon Dating and Chronological Modelling of Neolithic atalhyk East				$43,080
47.075	Religion Under the Skin: How Does Christian Prayer Become Embodied? 2019				$14,178
47.075	RIDIR: Integrated Media Database and Computational Tools for Multimodal Analysis of Inter-media News Flow and Agenda Setting in Mass and Social Media				$27,500
47.075	SABLE: Sensor-based Assessment of Behavioral Lifestyles and Experiences	University of Texas at Austin	UTA18-001155		$13,611
47.075	SBE-UKRI: Understanding imprecise space and time in narratives through qualitative representations, reasoning, and visualisation				$8,485
47.075	SCISIPBIO: Can consultation create a fairer scientific peer-review process?				$210,387
47.075	Social Response to Environmental Variation				$448
47.075	Stanford Institute for Theoretical Economics Summer Workshop				$18,105
47.075	Strategic Information Disclosure				$54,610
47.075	The Cultural Life of Communism in Kerala				$20,958
47.075	Theoretical and Empirical Investigations of the Dynamics of Homophily and its Impact on Students' Achievement, Decisions, and Well-Being				$104,342
47.076	California Alliance for Graduate Education and the Professoriate-II	University of California, Berkeley	00009415		$25
47.076	Collaborative Research: A Partnership to Adapt, Implement and Study a Practice-based Professional Learning Model and Build District Capacity to Meet the Challenges of NGSS				$146,566
47.076	Collaborative Research: Advancing Ocean Literacy through Immersive Virtual Reality				$63,868
47.076	Collaborative Research: NSF INCLUDES Alliance: STEM Core Expansion	Saddleback College	SC-SUB-G1300		$81,139
47.076	Collaborative Research: Scaling the Early Research Scholars Program				$95,544
47.076	Collaborative Research: Supporting Rural Paraprofessional Educators and their Students with Computer Science Professional Learning and Expansively Framed Curriculum				$115,752
47.076	Effects of Combined Attention and Academic Interventions for Kindergarten Children with Significant Difficulties in Mathematics	Vanderbilt University	OSA00000037 / PO #: P23004624		$43,414
47.076	Facilitating Teacher Learning with Video Clips of Instruction in Science	Florida State University	R000002770		$35,932
47.076	Framing an Applied Science to Support Adult Working Learners				$49,828
47.076	GRFP: Graduate Research Fellowship Project				$19,134,947
47.076	NCS-FO: Integrated neurocognitive process models of individual differences in children's math problem solving strategies, learning and development			$17,203	$198,195
47.076	NRT: NeuroTech - Bringing Technology to Neuroscience				$566,127
47.076	Partnerships to support improvement in middle school mathematics	University of California, Riverside	S-001181		$15,414
47.076	SPO 173417: Collaborative Research: AGEP Transformation Alliance: Research Exchange				$71,689
47.078	211941 Arrigo-Courtney Payne NSF Doctoral Dissertation Research: Determining the functional relationship between simultaneous co-limitating light and nutrient conditions on phytoplankton growth				$17,176
47.078	211944 Lim NSF (PI Arrigo) Doctoral Dissertation Research: Dissolved organic nitrogen uptake by harmful algal blooms in the Chukchi Sea				$13,825
47.078	Collaborative Research: Investigating four decades of Ross Ice Shelf subsurface change with historical and modern radar sounding data				$21,527
47.078	How much does nest density matter? Using novel technology to collect whole-colony data on Adelie penguins	Point Blue Conservation Science	1935870		$6,966
47.078	The Tale of Three Systems: Fate of Primary Production in the Chukchi Sea				$36,258
47.079	SII Planning Grant: National Center for Radio Spectrum Innovations (NCRSI)	University of Notre Dame	203949SU		$9,075
47.079	Stanford-Colombia Collaboratory on Chronic Disease Prevention	CRDF Global	OISE-19-66188-1		-$52
47.083	A multi-scale open knowledge network for precision medicine	University of California, San Francisco	12431sc		$50,265
47.083	Center for Dark Energy Biosphere Investigations (C-DEBI)	University of Southern California	66468074/PO# 10392717		$203,821
47.083	Collaborative Research: FW-HTF-P: Supporting future crisis line work through the inclusive design of worker-facing tools that empower self management of wellbeing and performance				$37,577
47.083	GCR: Collaborative Research: The Convergent Impact of Marine Viruses,Minerals, and Microscale Physics on Phytoplankton Carbon Sequestration				$33,954
47.083	NSF Convergence Accelerator - Track C: Quantum Networks to Connect Quantum Technology (QuanNeCQT)	University of Maryland	111309-Z3811202		$28,554
47.083	NSF Convergence Accelerator Track C: Interconnecting Quantum Computers for the Next-Generation Internet	University of Maryland	93599-Z3687201		$47,633
47.083	NSF Convergence Accelerator Track F: Adapting and Scaling Existing Educational Programs to Combat Inauthenticity and Instill Trust in Information	Massachusetts Institute of Technology	s5530 PO 723059		$125,962
47.084	Green manufacturing of recyclable high-performance composites				$6,939
Social Security Administration					**$34,704**
96.007	Paid Family Leave and Family Health Shocks	National Bureau of Economic Research	51460.03:NB21-15-Stanford		$34,704
United States Agency for International Development					**$184,240**
98.001	Applied Research on Disinfection of Surfaces and Hands to Prevent Novel Coronavirus Transmission	Tufts University	AI0007 PO#EP0208886		$89,433
98.001	Examining the Utility of Satellite-based Assessments in a Maize/Peanut Agroecosystem for Estimated Crop Response and Aflatoxin Contamination Levels in Dry Land and Irrigated Fields in Malawi	North Carolina State University	2019-1691-01		$27,504
98.001	Quality Health Services Project	University Research Corporation	FY14-A05-7017		-$3,425
98.001	USAID W&M Bureau for Food Security	College of William and Mary in Virginia	740681-74171D		$70,728
United States Environmental Protection Agency					**$566,682**
66.034	Energy Modeling Forum Research Program on Energy and Integrated Assessment Modeling				$21,909
66.509	211633 GWP EPA - Evaluating the effectiveness of interventions on reducing wildfire smoke exposure and health risks in low-income hard-to-reach communities			$203,514	$538,410
66.516	Electro-Assisted Wastewater Nutrient Recovery				$6,363

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
Other Federal Awards					**$4,463,739**
Department of Defense					**$10,911**
12.900	STARTALK Teacher: Stanford University Teacher Leadership Seminar				$10,911
Department of Education					**$1,013,063**
84.015A	National Resource Centers and Foreign Language and Area Studies Fellowships				$446,706
84.015B	National Resource Centers and Foreign Language and Area Studies Fellowships				$566,357
Department of Health & Human Services					**$2,274,725**
93.084	Prevention Policy Modeling Lab			$782,141	$1,496,977
93.268	Improving implementation of immunization practice standards by national pharmacy and organizations - Phase I Needs Assessment Survey	Auburn University	20-PHAR-201329-Stanford		$24,825
93.421	COVID-19 Policy Modeling and Forecasting for Public Health Decision Making	Council of State and Territorial Epidemiologists	PO# 7723, 7458	$325,786	$485,859
93.U01	Constructing Support for California Tribe Efforts on Suicide Prevention			$63,172	$267,064
Department of State					**$639,985**
19.703	Afghanistan Legal Education-Refining & Expanding AUAF Law Program			$128,731	$639,985
Library of Congress					**$111,657**
42.002	Teaching with Primary Sources				$111,657
National Archives & Records Administration					**$150,719**
89.003	Martin Luther King, Jr., Papers Project				$150,719
National Endowment for the Arts					**$30,000**
45.024	Forgiveness and Reconciliation				$30,000
National Endowment for the Humanities					**$78,611**
45.161	Papers of Martin Luther King, Jr.				$2,745
45.161	The Papers of Civil Rights Leader Martin Luther King, Jr. (1929-1968)				$51,203
45.169	Transnational Japanese Diaspora: Preserving the Brazilian Nikkei Literary and Cultural Heritage				$24,663
The Institute of Museum and Library Services					**$147,359**
45.301	Stanford University Archaeology Collections Inventory Project				$145,601
45.312	Lighting the Way: illuminating the future of discovery and delivery for archives				$1,758
United States Environmental Protection Agency					**$6,709**
66.950	ee360 Leadership and Training Collaborative: Building a Stronger and More Inclusive Movement (year 5)	North American Association for Environmental Education	124668		$6,709

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2022

Federal Grantor / Assistance Listing Number	Federal Program Name	Name of Pass-through Entity	Pass-Through Entity Identifying Number/ Additional Award Identification	Amount Passed Through to Subrecipients	Total Federal Expenditures
Student Financial Assistance Cluster					**$69,654,454**
Department of Education					**$10,258,769**
84.007	189776 SEOG FY21-22				$1,616,540
84.007	SEOG FY20-21				-$565,341
84.033	189772 PELL FY21-22				$7,285,764
84.033	189774 FWS FY20-21				$581,113
84.033	189774 FWS FY21-22				$960,205
84.033	189774 FWS FY22-23				$190,749
84.033	FWS FY19-20				-$720
84.033	TEACH FY22-23: Teacher Education Assistance for College and Higher Education				$27,347
84.063	189772 PELL FY20-21				$31,805
84.379	TEACH: Teacher Education Assistance for College and Higher Education				$131,307
Department of Education (Loans and Loan Programs)					**$59,364,599**
84.038	Department of Education - Federal Perkins Loan Program - Administrative Allowance				$0
84.038	Department of Education - Federal Perkins Loan Program - New Loans Issued				$0
84.038	Department of Education - Federal Perkins Loan Program - Outstanding Balance as of 9/1/2021				$12,125,463
84.268	Department of Education - Federal Direct Student Loan Program - PLUS Loans - Graduate and Parent - New Loans Issued				$27,225,663
84.268	Department of Education - Federal Direct Student Loan Program - Subsidized Stafford Loans - New Loans Issued				$497,648
84.268	Department of Education - Federal Direct Student Loan Program - Unsubsidized Stafford Loans - New Loans Issued				$19,515,825
Department of Health & Human Services (Loans and Loan Programs)					**$31,086**
93.342	Department of Health and Human Services - Health Professions Student Loans				$0
93.342	Department of Health and Human Services - Loans for Disadvantaged Students - New Loans Issued				$0
93.342	Department of Health and Human Services - Loans for Disadvantaged Students - Outstanding Balance as of 9/1/2021				$31,086
Grand Total				**$82,567,845**	**$936,746,258**

Schedule of Expenditures of Federal Awards
Part B, Federal Loan Program Year End Balances

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART B - FEDERAL LOAN PROGRAMS YEAR END BALANCES
Year Ended 8/31/2022

Federal Grantor/CFDA Number	Federal Program Name	Outstanding Loan Balance as of 08/31/2022
Department of Education		
84.038	Federal Perkins Loan Program - Outstanding Balance	**$8,560,901**
Department of Health and Human Services		
93.342	Loans for Disadvantaged Students - Outstanding Balance	**$14,642**
Total		**$8,575.543**

Stanford University
Notes to the Schedule of Expenditures of Federal Awards
Year Ended August 31, 2022

1. Basis of Presentation

The accompanying Schedule of Expenditures of Federal Awards (the "Schedule") Part A, Award Expenditures by Federal Program, Part B, Federal Loan Program Year End Balances, has been prepared in accordance with the requirements of Title 2 U.S. Code of *Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Therefore, amounts presented in the Schedule may differ from amounts presented in, or used in the preparation of, Stanford University's ("Stanford") financial statements, as they relate to the various federal loan programs, as well as other awards. The purpose of the Schedule is to present a summary of those activities by Stanford for the year ended August 31, 2022, that have been financed by the U.S. Government ("federal awards").

Consistent with the provisions of Uniform Guidance, the Schedule does not include expenditures of SLAC National Accelerator Laboratory that were funded by a Department of Energy ("DOE") contract. SLAC National Accelerator Laboratory, a national laboratory operated and managed by Stanford under contract directly with DOE, represents a government-owned, contractor operated ("GOCO") facility. GOCOs are excluded from the provisions of the Uniform Guidance. The Schedule does not include federal expenditures of Stanford Health Care and Lucille Packard Children's Hospital because a discrete schedule of expenditures in accordance with Uniform Guidance is issued for these entities.

Stanford applies its predetermined approved facilities and administrative rate when charging indirect costs to federal awards rather than the 10% de minimis cost rate as described in Section 200.414 of Uniform Guidance.

The accompanying Schedule has been prepared on the accrual basis of accounting, which is consistent with Stanford's financial statements. Assistance Listing Numbers and pass-through numbers are provided when available. Negative amounts presented as expenditures represent subsequent period adjustments, transfers, or vendor credits.

2. Loan Programs

The federal student loan programs listed in the Schedule are administered directly by the University and balances and transactions relating to these programs are included in Stanford's consolidated financial statements. Included within the Schedule Part A are the loan beginning balances, new loans and administrative cost allowances from the Perkins Loans Program and Loans for Disadvantaged Students. Included within the Schedule Part B are the loan balances for the year ended August 31, 2022.

II. Internal Control and Compliance

Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

To The Board of Trustees of the Leland Stanford Junior University

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States, the consolidated financial statements of The Leland Stanford Junior University and its subsidiaries ("Stanford"), which comprise the consolidated statement of financial position as of August 31, 2022, and the related consolidated statements of activities and of cash flows for the year then ended, including the related notes (collectively referred to as the "consolidated financial statements"), and have issued our report thereon dated December 6, 2022, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 10, 2023.

Report on Internal Control Over Financial Reporting

In planning and performing our audit of the consolidated financial statements, we considered Stanford's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the consolidated financial statements, but not for the purpose of expressing an opinion on the effectiveness of Stanford's internal control. Accordingly, we do not express an opinion on the effectiveness of the Stanford's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether Stanford's consolidated financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Stanford's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Stanford's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

PricewaterhouseCoopers LLP

San Francisco, California
December 6, 2022, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 10, 2023

Report of Independent Auditors on Compliance for Each Major Program and on Internal Control Over Compliance Required by Uniform Guidance

To The Board of Trustees of the Leland Stanford Junior University

Report on Compliance for Each Major Federal Program

Opinion on Each Major Federal Program

We have audited The Leland Stanford Junior University and its subsidiaries' ("Stanford") compliance with the types of compliance requirements identified as subject to audit in the OMB *Compliance Supplement* that could have a direct and material effect on each of Stanford's major federal programs for the year ended August 31, 2022. Stanford's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

In our opinion, Stanford complied, in all material respects, with the compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended August 31, 2022.

Basis for Opinion on Each Major Federal Program

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America (US GAAS); the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Our responsibilities under those standards and the Uniform Guidance are further described in the Auditors' Responsibilities for the Audit of Compliance section of our report.

We are required to be independent of Stanford and to meet our other ethical responsibilities, in accordance with relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on compliance for each major federal program. Our audit does not provide a legal determination of Stanford's compliance with the compliance requirements referred to above.

Other Matter – Federal Expenditures Not Included in the Compliance Audit

Stanford's consolidated financial statements include the operations of Stanford Health Care and Lucile Salter Packard Children's Hospital at Stanford, which are not included in Stanford's schedule of expenditures of federal awards during the year ended August 31, 2022. Our compliance audit, described in the Opinion on Each Major Federal Program section of our report, does not include the operations of Stanford Health Care and Lucile Packard Children's Hospital at Stanford because discrete reports in accordance with Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) are issued for these entities.

Responsibilities of Management for Compliance

Management is responsible for compliance with the requirements referred to above and for the design, implementation, and maintenance of effective internal control over compliance with the requirements of laws, statutes, regulations, rules and provisions of contracts or grant agreements applicable to Stanford's

federal programs.

Auditors' Responsibilities for the Audit of Compliance

Our objectives are to obtain reasonable assurance about whether material noncompliance with the compliance requirements referred to above occurred, whether due to fraud or error, and express an opinion on Stanford's compliance based on our audit. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with US GAAS, *Government Auditing Standards*, and the Uniform Guidance will always detect material noncompliance when it exists. The risk of not detecting material noncompliance resulting from fraud is higher than for that resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Noncompliance with the compliance requirements referred to above is considered material, if there is a substantial likelihood that, individually or in the aggregate, it would influence the judgment made by a reasonable user of the report on compliance about Stanford's compliance with the requirements of each major federal program as a whole.

In performing an audit in accordance with US GAAS, *Government Auditing Standards*, and the Uniform Guidance, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material noncompliance, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding Stanford's compliance with the compliance requirements referred to above and performing such other procedures as we considered necessary in the circumstances.
- Obtain an understanding of Stanford's internal control over compliance relevant to the audit in order to design audit procedures that are appropriate in the circumstances and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of Stanford's internal control over compliance. Accordingly, no such opinion is expressed.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and any significant deficiencies and material weaknesses in internal control over compliance that we identified during the audit.

Report on Internal Control Over Compliance

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the Auditors' Responsibilities for the Audit of Compliance section above and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant

deficiencies in internal control over compliance. Given these limitations, during our audit we did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above. However, material weaknesses or significant deficiencies in internal control over compliance may exist that were not identified.

Our audit was not designed for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, no such opinion is expressed.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

PricewaterhouseCoopers LLP

San Francisco, California
May 10, 2023

III. Findings

Section I – Summary of Auditor's Results

Consolidated Financial Statements

Type of auditor's report issued:	Unmodified
Internal control over financial reporting:	
Material weakness(es) identified?	No
Significant deficiency(ies) identified that are not considered to be material weaknesses?	None reported
Noncompliance material to financial statements noted?	No

Federal Awards

Internal control over major programs:	
Material weakness(es) identified?	No
Significant deficiency(ies) identified that are not considered to be material weaknesses?	None reported
Type of auditor's report issued on compliance for major programs:	Unmodified
Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)?	No

Identification of major programs:

Assistance Listing Number(s)	**Name of Federal Program or Cluster**
Various	Research and Development Cluster

Dollar threshold used to distinguish between Type A and Type B programs:	$3,000,000
Auditee qualified as low-risk auditee?	Yes

Stanford University
Schedule of Findings and Questioned Costs
August 31, 2022

Section II – Financial Statement Findings

None noted.

Section III – Findings and Questioned Costs for Federal Awards

None noted.

Stanford University
Summary Schedule of Prior Audit Findings
August 31, 2022

Finding 2021-001: Entrance Counseling not Completed Prior to Disbursing Direct Loans

Cluster/Grantor: Student Financial Assistance/Department of Education

Award Name: Federal Direct Student Loans

Award Year: September 1, 2020 – August 31, 2021

Award Number: N/A

Assistant Listing Number: 84.268

A sample of 60 students was selected to test federal student financial aid disbursements. One instance was noted where the financial aid recipient did not receive entrance counseling prior to the first disbursement of their direct loan. For this exception, the student received $20,284 in direct unsubsidized loan funds and $116,271 direct plus loan funds.

PwC recommend Stanford evaluate its systematic controls and processes to ensure all students requiring entrance counseling under the regulations are identified and receive counseling prior to any applicable disbursements being made.

Status of Prior Year Audit Findings for the Year Ended August 31, 2021

The Financial Aid Office at the Graduate School of Business has reconfigured the trigger definition in the PeopleSoft system to ensure that the loan entrance counseling requirement is assigned to all students with federal Direct loans in either “offered” or “accepted” status. This system adjustment was implemented in November 2021. The finding was documented in the aid-year set up procedures to ensure the trigger is also checked before they begin the loan process each academic year.

Additionally, the Financial Aid Office at the Graduate School of Business performed a 100% review of all borrowers for the 2022-2023 academic year to confirm that the Entrance Counseling was received prior to disbursement. This review confirmed that the trigger is corrected and working properly.