Stanford University

Stanford, California
Reports on Federal Awards in Accordance with the Uniform Guidance
August 31, 2023
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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, 2023 and 2022, 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 financial position of Stanford as of August 31, 2023 and 2022, 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, 2023 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 Information

Management is responsible for the other information included in the annual report. The other information comprises the information included in the August 31, 2023 Stanford Annual Financial Report (not presented herein), but does not include the consolidated financial statements and our auditors' report thereon. Our opinion on the consolidated financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the consolidated financial statements or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated December 6, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024 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, 2023. 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, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

At August 31, 2023 and 2022 (in thousands of dollars)

	2023	2022
ASSETS		
Cash and cash equivalents	$ 1,738,944	$ 2,285,765
Accounts receivable, net	2,176,591	2,007,638
Prepaid expenses and other assets	566,158	506,861
Pledges receivable, net	2,781,116	2,201,736
Student loans receivable, net	37,527	37,524
Faculty and staff mortgages and other loans receivable, net	1,098,851	997,576
Assets limited as to use	651,980	450,390
Investments at fair value	52,826,274	52,180,412
Right-of-use assets	1,064,424	1,038,384
Plant facilities, net of accumulated depreciation	14,184,041	13,377,434
Works of art and special collections	—	—
TOTAL ASSETS	**$ 77,125,906**	**$ 75,083,720**
LIABILITIES AND NET ASSETS		
LIABILITIES:		
Accounts payable and accrued expenses	$ 2,855,495	$ 2,805,757
Liabilities associated with investments	878,955	863,746
Lease liabilities	1,133,933	1,093,986
Deferred income and other obligations	2,018,011	1,991,260
Accrued pension and postretirement benefit obligations	582,483	562,496
Notes and bonds payable	8,551,143	8,271,006
TOTAL LIABILITIES	**16,020,020**	**15,588,251**
NET ASSETS:		
Without donor restrictions	36,083,147	35,519,294
With donor restrictions	25,022,739	23,976,175
TOTAL NET ASSETS	**61,105,886**	**59,495,469**
TOTAL LIABILITIES AND NET ASSETS	**$ 77,125,906**	**$ 75,083,720**

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

CONSOLIDATED STATEMENTS OF ACTIVITIES

For the years ended August 31, 2023 and 2022 (in thousands of dollars)

	2023	2022
NET ASSETS WITHOUT DONOR RESTRICTIONS		
OPERATING REVENUES:		
TOTAL STUDENT INCOME, NET	**$ 760,534**	**$ 715,465**
Sponsored support:		
Direct costs - University	1,094,064	971,253
Direct costs - SLAC National Accelerator Laboratory	571,654	524,943
Indirect costs	347,576	315,562
TOTAL SPONSORED SUPPORT	**2,013,294**	**1,811,758**
TOTAL HEALTH CARE SERVICES, primarily net patient service revenue	**10,100,570**	**9,232,029**
TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS	**275,630**	**278,501**
Net assets released from restrictions:		
Payments received on pledges	226,717	224,177
Prior year gifts released from donor restrictions	148,404	81,402
TOTAL NET ASSETS RELEASED FROM RESTRICTIONS	**375,121**	**305,579**
Investment income distributed for operations:		
Endowment	1,749,583	1,475,411
Expendable funds pools and other investment income	144,784	276,740
TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS	**1,894,367**	**1,752,151**
TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME	**923,811**	**1,036,678**
TOTAL OPERATING REVENUES	**16,343,327**	**15,132,161**
OPERATING EXPENSES:		
Salaries and benefits	9,761,082	8,881,869
Depreciation	853,821	851,818
Other operating expenses	5,438,459	4,863,755
TOTAL OPERATING EXPENSES	**16,053,362**	**14,597,442**
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 289,965**	**$ 534,719**

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

CONSOLIDATED STATEMENTS OF ACTIVITIES, Continued

For the years ended August 31, 2023 and 2022 (in thousands of dollars)

	2023	2022
NET ASSETS WITHOUT DONOR RESTRICTIONS (continued)		
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ 289,965**	**$ 534,719**
NON-OPERATING ACTIVITIES:		
Increase (decrease) in reinvested gains	268,816	(743,938)
Donor advised funds, net	(41,846)	34,611
Current year gifts not included in operations	822	5,053
Capital and other gifts released from restrictions	48,799	71,100
Pension and other postemployment benefit related changes other than service cost	(9,096)	89,504
Transfer to net assets with donor restrictions, net	(57,781)	(70,233)
Swap interest and change in value of swap agreements	63,609	138,866
Other	565	7,288
NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS	**563,853**	**66,970**
NET ASSETS WITH DONOR RESTRICTIONS		
Gifts and pledges, net	1,636,548	1,679,138
Decrease in reinvested gains	(229,519)	(1,255,771)
Change in value of split-interest agreements, net	31,158	(63,311)
Net assets released to operations	(397,520)	(321,244)
Capital and other gifts released to net assets without donor restrictions	(48,799)	(71,100)
Transfer from net assets without donor restrictions, net	57,781	70,233
Other	(3,085)	(3,904)
NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS	**1,046,564**	**34,041**
NET CHANGE IN TOTAL NET ASSETS	**1,610,417**	**101,011**
Total net assets, beginning of year	59,495,469	59,394,458
TOTAL NET ASSETS, END OF YEAR	**$61,105,886**	**$59,495,469**

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

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ended August 31, 2023 and 2022 (in thousands of dollars)

	2023	2022
CASH FLOW FROM OPERATING ACTIVITIES		
Change in net assets	$ 1,610,417	$ 101,011
Adjustments to reconcile change in net assets to net cash provided by (used for) operating activities:		
Depreciation	853,821	852,123
Amortization of bond premiums, discounts and other	18,317	28,637
Net losses (gains) on investments	(1,420,202)	884,229
Change in fair value of interest rate swaps	(68,761)	(161,455)
Change in split-interest agreements	15,999	(28,173)
Change in deferred tax asset and liability	5,873	(23,182)
Investment expense for restricted purposes	(22,919)	(48,573)
Gifts restricted for long-term investments	(1,007,624)	(723,823)
Gifts of securities and properties	(5,423)	(22,698)
Other	88,583	20,681
Premiums received from bond issuance	58,451	—
Changes in operating assets and liabilities:		
Accounts receivable	(172,667)	(239,528)
Pledges receivable, net	(120,354)	(345,886)
Prepaid expenses and other assets	(76,402)	(88,117)
Accounts payable and accrued expenses	85,535	213,018
Accrued pension and postretirement benefit obligations	19,987	(67,355)
Lease liabilities	46,411	(43,160)
Deferred income and other obligations	11,053	(33,402)
NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES	**(79,905)**	**274,347**
CASH FLOW FROM INVESTING ACTIVITIES		
Additions to plant facilities, net	(1,621,683)	(925,020)
Faculty, student and other loans: new loans made	(157,369)	(179,502)
Faculty, student and other loans: principal collected	63,341	77,313
Purchases of investments	(15,391,722)	(17,466,423)
Sales and maturities of investments	16,186,356	18,336,816
Change associated with short term investments	(130,304)	111,202
Swap settlement payments, net	(5,095)	(19,811)
NET CASH USED FOR INVESTING ACTIVITIES	**(1,056,476)**	**(65,425)**
CASH FLOW FROM FINANCING ACTIVITIES		
Gifts and reinvested income for long-term purposes	563,640	595,107
Proceeds from borrowing	768,114	268,547
Repayment of notes and bonds payable	(592,440)	(263,377)
Contributions received for split-interest agreements	9,791	20,402
Payments made under split-interest agreements	(57,454)	(58,334)
Commercial paper and variable rate debt proceeds (repayments), net	(12,299)	—
Securities lending collateral sold, net	(2,151)	(7,696)
Other	(13,500)	(9,401)
NET CASH PROVIDED BY FINANCING ACTIVITIES	**663,701**	**545,248**
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	**(472,680)**	**754,170**
Cash and cash equivalents, beginning of year	2,619,895	1,865,725
CASH AND CASH EQUIVALENTS, END OF YEAR	**$ 2,147,215**	**$ 2,619,895**
SUPPLEMENTAL DATA:		
Cash and cash equivalents as shown in the *Statements of Financial Position*	$ 1,738,944	$ 2,285,760
Restricted cash and cash equivalents included in assets limited as to use	269,202	134,410
Restricted cash included in other assets	16,725	20,530
Cash and restricted cash included in investments	122,344	179,195
TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE STATEMENTS OF CASH FLOWS	**$ 2,147,215**	**$ 2,619,895**
Interest paid, net of capitalized interest	$ 300,243	$ 286,217
Change in payables for plant facilities	$ 49,228	$ 25,300
Right-of-use assets obtained in exchange for lease liabilities	$ 178,329	$ 172,836

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". LPCH and its controlled entities comprise and are known in the marketplace as Stanford Medicine Children's Health. 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, 2019.

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, 2023 and 2022 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, 2023 and 2022, $703.7 million and $733.1 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 at both August 31, 2023 and 2022, and were recorded in specific investment categories. The assets held under split-interest agreements, where LPCH is the trustee, were $11.4 million and $12.8 million at August 31, 2023 and 2022, 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*, and were $632.7 million and $662.6 million at August 31, 2023 and 2022, respectively, and were classified as Level 2 in the Fair Value Hierarchy (see *Note 6*). At August 31, 2023 and 2022, the University used discount rates of 5.0% and 3.8%, respectively, based on the Charitable Federal Midterm Rate. The LPCH discount rate used during the years ended August 31, 2023 and 2022 was 5.0% and 3.3%, respectively, determined using Charitable Federal Midterm Rate for fiscal year 2023 and the Treasury bill rate for fiscal year 2022.

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 2023 and 2022, the discounted present value of new University gifts subject to split-interest agreements, net of any income beneficiary share, was $6.4 million and $17.2 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, 2023 and 2022, deferred rental income was $898.1 million and $919.3 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 $382.8 million and $316.0 million as of August 31, 2023 and 2022, 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, 2023 and 2022, Stanford has recognized a net repurchase obligation of $158.0 million and $142.3 million, respectively, to repurchase its interests in these residential units, net of home mortgage financing assistance provided by the University of $233.9 million and $222.8 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, 2023 and 2022, interest accretion was $16.3 million and $13.3 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, 2023 and 2022, the University had asset retirement obligations of $11.7 million and $17.2 million, respectively. SHC had asset retirement obligations of $114.4 million and $111.3 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 general and cyber liability risks, postretirement medical benefits, 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 $32.7 million and $13.9 million for the years ended August 31, 2023 and 2022, 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:

	2023	2022
Student income:		
Undergraduate programs	$ 469,415	$ 445,406
Graduate programs	431,993	404,204
Room and board	284,542	267,386
Student financial aid	(425,416)	(401,531)
TOTAL STUDENT INCOME, NET	**$ 760,534**	**$ 715,465**

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, 2023 and 2022, federal sponsored support was $1.6 billion and $1.4 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 the years ended August 31, 2023 and 2022 was $1.3 billion and $1.1 billion, respectively.

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, 2023 and 2022, the University recognized $147.5 million and $144.6 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 $571.7 million and $524.9 million was recognized for the years ended August 31, 2023 and 2022, respectively.

Deferred income of $222.6 million and $209.1 million was recorded at August 31, 2023 and 2022, respectively, for payments received from sponsors that have not been earned. During the years ended August 31, 2023 and 2022, $153.7 million and $126.0 million of revenue was recognized that was included in the prior year deferred income balance, respectively. In addition, as of August 31, 2023 and 2022, the University had been awarded $1.4 billion and $1.3 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, 2023 and 2022, other income includes $0 and $205.0 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.

Reference rate reform

ASU 2020-04, 2021-01, and 2022-06, FASB Issue Date: March 2020, January 2021, December 2022, Effective Date: All contracts as of March 12, 2020 through December 31, 2024

ASC 2020-04 and 2021-01 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.

ASU 2022-06 extends the effective date of ASC 848 from December 31, 2022 to December 31, 2024. In fiscal year 2023, Stanford transitioned away from using LIBOR rates and elected to not treat transitions as loan modifications.

Discount rate guidance for lessees that are not public business entities (Amendments to ASC 842)

ASU 2021-09, FASB Issue Date: November 2021, Effective Date: Fiscal Year 2023

This ASU allows a lessee that is a not-for-profit entity or not a public business entity the option to elect a risk-free discount rate by class of underlying asset rather than for all leases at the entity-wide level. Stanford opted not to implement this accounting policy election.

Lessors' accounting for certain leases with variable lease payments
ASU 2021-05, FASB Issue Date: July 2021, Effective Date: Fiscal Year 2023
This ASU amends ASC 842 so that lessors are no longer required to recognize a selling loss upon commencement of a lease with variable lease payments that, prior to the amendments, would have been classified as a sales-type lease or direct financing lease. This new guidance was adopted in fiscal year 2023 and did not have any impact on the *Consolidated Financial Statements*.

Equity method investments
ASU 2020-01, FASB Issue Date: January 2020, Effective Date: Fiscal Year 2023
This ASU clarifies the accounting treatment of certain equity securities upon application or discontinuation of the equity method of accounting and clarifies accounting of forward contracts and purchased options for securities that will be accounted for under the equity method of accounting upon settlement or exercise. The new guidance was adopted in fiscal year 2023 and it did not have any impact on 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, 2023 and 2022, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
Financial assets:				
Cash and cash equivalents	$ 745,015	$ 611,592	$ 382,337	$ 1,738,944
Assets limited as to use available for current use	193,732	—	—	193,732
Accounts receivable, net	270,383	1,042,786	695,849	2,009,018
Pledges receivable available for operations	288,527	—	31,942	320,469
Investments available for current use	496,267	2,163,730	698,875	3,358,872
Endowment payout in support of operations	1,809,400	—	83,878	1,893,278
Financial assets available to meet cash needs for general expenditure within one year	3,803,324	3,818,108	1,892,881	9,514,313
Liquid resources available for use:				
Taxable commercial paper	439,544	150,000	—	589,544
Tax-exempt commercial paper	292,700	—	—	292,700
Revolving credit facilities	421,114	100,000	200,000	721,114
TOTAL FINANCIAL ASSETS AND LIQUID RESOURCES AVAILABLE WITHIN ONE YEAR	**$ 4,956,682**	**$ 4,068,108**	**$ 2,092,881**	**$ 11,117,671**
2022				
Financial assets:				
Cash and cash equivalents	$ 1,355,180	$ 536,803	$ 393,777	$ 2,285,760
Assets limited as to use available for current 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	—	51,156	344,820
Investments available for current use	458,637	1,408,067	677,928	2,544,632
Endowment payout in support of operations	1,748,400	—	76,963	1,825,363
Financial assets available to meet cash needs for general expenditure within one year	4,207,366	2,968,438	1,799,411	8,975,215
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**	**$ 1,999,411**	**$ 10,470,160**

3. Accounts Receivable

Accounts receivable, net of allowances for doubtful accounts, at August 31, 2023 and 2022, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
U.S. government sponsors	$ 137,320	$ 33,750	$ 2,573	$ 173,643
Non-federal sponsors and programs	66,916	3,974	—	70,890
Accrued interest on investments	25,286	—	—	25,286
Student	15,034	—	—	15,034
Patient and third-party payers	—	1,042,786	682,349	1,725,135
Other	60,405	103,797	10,927	175,129
	304,961	1,184,307	695,849	2,185,117
Less allowance for doubtful accounts	(8,526)	—	—	(8,526)
ACCOUNTS RECEIVABLE, NET	**$ 296,435**	**$ 1,184,307**	**$ 695,849**	**$ 2,176,591**
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**

4. Pledges Receivable

Pledges are recorded at discounted rates ranging from 0.6% to 5.7%. At August 31, 2023 and 2022, pledges receivable, net of discounts and allowances, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2023					
One year or less	$ 611,158	$ 19,883	$ 61,434	$ (57,964)	$ 634,511
Between one year and five years	1,713,800	29,352	98,459	(10,895)	1,830,716
More than five years	619,837	1,250	25,014	—	646,101
	2,944,795	50,485	184,907	(68,859)	3,111,328
Less discounts and allowances	(313,839)	(5,303)	(11,070)	—	(330,212)
PLEDGES RECEIVABLE, NET	**$ 2,630,956**	**$ 45,182**	**$ 173,837**	**$ (68,859)**	**$ 2,781,116**
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**

During fiscal year 2022, John and Ann Doerr pledged $1.1 billion to support the new Stanford Doerr School of Sustainability. The gift was recorded in the financial statements as milestones in establishing the school were completed. In fiscal year 2023 and 2022, $1.0 billion and $99.6 million of the gift was recorded, respectively. The University had total conditional pledges of $16.3 million and $1.0 billion at August 31, 2023 and 2022, respectively, which are subject to specified future events. SHC and LPCH had no conditional pledges at August 31, 2023 and 2022.

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, 2023 and 2022 the University held $68.9 million and $73.0 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, 2023 and 2022, in thousands of dollars, are as follows:

	2023	2022
Institutional loans	$ 31,405	$ 29,774
Federally-sponsored loans	7,718	9,459
	39,123	39,233
Less allowance for student loan losses	(1,596)	(1,709)
STUDENT LOANS RECEIVABLE, NET	**$ 37,527**	**$ 37,524**

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.

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 $1.1 billion and $969.3 million at August 31, 2023 and 2022, 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. For the years ended August 31, 2023 and 2022 SHC mortgage loans receivable were $9.5 million and $8.9 million, respectively, and LPCH mortgage loans receivable were $4.5 million and $4.6 million, respectively.

The August 31, 2023 and 2022 amounts are net of the University’s recorded obligation to repurchase certain residential units sold under long-term restricted ground leases of $233.9 million and $222.8 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 2023 and 2022 are presented below. Investments held by Stanford at August 31, 2023 and 2022, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2023					
Investment assets:					
Cash and short-term investments	$ 1,082,013	$ 55,905	$ 4,160	$ —	$ 1,142,078
Public equities	9,843,988	1,206,842	58,091	—	11,108,921
Derivatives	5,936	—	—	—	5,936
Fixed income	3,087,938	777,229	103,764	—	3,968,931
Real estate	9,954,369	—	5,887	—	9,960,256
Natural resources	1,369,379	—	6,931	—	1,376,310
Private equities	16,896,296	—	37,629	—	16,933,925
Absolute return	7,064,050	—	23,406	—	7,087,456
Assets held by other trustees	123,659	—	17,153	—	140,812
Other	1,073,699	27,950	—	—	1,101,649
Total	50,501,327	2,067,926	257,021	—	52,826,274
Hospitals' funds invested in the University's investment pools	(3,645,241)	2,580,599	1,056,898	7,744	—
INVESTMENTS AT FAIR VALUE	**$46,856,086**	**$ 4,648,525**	**$ 1,313,919**	**$ 7,744**	**$ 52,826,274**

	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**

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, 2023 and 2022, 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.

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 directly held private investments.

The following tables summarize Stanford's investment assets and liabilities within the fair value hierarchy and asset categories at August 31, 2023 and 2022, in thousands of dollars:

	LEVEL 1	LEVEL 2	LEVEL 3	TOTAL
2023				
Investment assets:				
Cash and short-term investments	$ 174,863	$ 959,966	$ —	$ 1,134,829
Public equities	3,618,065	5,034	—	3,623,099
Derivatives	—	5,936	—	5,936
Fixed income	562,576	3,399,733	—	3,962,309
Real estate	210,227	—	7,490,481	7,700,708
Natural resources	5,268	—	57,260	62,528
Private equities	66,075	—	1,731	67,806
Absolute return	—	—	23,736	23,736
Assets held by other trustees	—	—	140,812	140,812
Other	14,346	5,438	1,069,494	1,089,278
INVESTMENTS SUBJECT TO FAIR VALUE LEVELING	**$ 4,651,420**	**$ 4,376,107**	**$ 8,783,514**	**17,811,041**
Investments measured using Net Asset Value[1]				35,015,233
TOTAL CONSOLIDATED INVESTMENT ASSETS				**$ 52,826,274**

	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**

[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, 2023 and 2022, in thousands of dollars:

FAIR VALUE MEASUREMENTS USING SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3)	BEGINNING BALANCE AS OF SEPTEMBER 1, 2022	PURCHASES AND ADDITIONS	SALES AND MATURITIES	NET REALIZED AND UNREALIZED GAINS (LOSSES)	TRANSFERS IN*	TRANSFERS OUT*	ENDING BALANCE AS OF AUGUST 31, 2023
Real estate	$ 7,721,395	$ 22,143	$ (16,487)	$ (236,570)	$ —	$ —	$ 7,490,481
Natural resources	67,375	—	(3,390)	(6,725)	—	—	57,260
Private equities	12,852	—	(67)	(11,054)	—	—	1,731
Absolute return	24,616	—	(3,901)	3,021	—	—	23,736
Assets held by other trustees	142,936	518	(10,826)	7,236	948	—	140,812
Other	958,390	50,214	(26,077)	86,967	—	—	1,069,494
TOTAL	**$8,927,564**	**$ 72,875**	**$ (60,748)**	**$ (157,125)**	**$ 948**	**$ —**	**$ 8,783,514**

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**

**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, 2023 and 2022, the change in unrealized gains (losses) for Level 3 investments still held at August 31, 2023 and 2022 was $(101.1) million and $1.2 billion, 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, 2023 and 2022, 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		WEIGHTED AVERAGE	IMPACT TO VALUATION FROM AN INCREASE IN INPUT[2]
				MIN	MAX		
2023							
Real estate	$ 6,599,473	Discounted cash flow	Discount rate	5.9%	20.0%	7.5%	Decrease
			Capitalization rate	6.0%	8.5%	6.6%	Decrease
Assets held by other trustees	140,812	Net present value	Discount rate	5.0%	5.0%	N/A	Decrease
TOTAL AMOUNT WITH SIGNIFICANT UNOBSERVABLE INPUTS	**$6,740,285**						
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
TOTAL AMOUNT WITH SIGNIFICANT UNOBSERVABLE INPUTS	**$6,934,654**						

[1] *Level 3 investments of $2.0 billion and $1.9 billion at August 31, 2023 and 2022, respectively, 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, 2023, in thousands of dollars:

ASSET CLASS	FAIR VALUE	UNFUNDED COMMITMENT	REMAINING LIFE (YEARS)	REDEMPTION TERMS
Public equities	$ 7,446,430	$ 45,235	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	2,292,813	1,151,643	0 to 9	Not eligible for redemption
Natural resources	1,345,784	717,788	0 to 9	Not eligible for redemption
Private equities	16,830,168	5,529,580	0 to 20	Not eligible for redemption
Absolute return	7,064,050	343,715	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	**$34,979,245**	**$ 7,787,961**		

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, 2023 and 2022, in thousands of dollars:

	GROSS AMOUNTS OF ASSETS AND LIABILITIES	OFFSET AMOUNTS	NET AMOUNTS	COLLATERAL RECEIVED (PLEDGED)[2]	NET EXPOSURE
2023					
Assets:					
Derivatives[1]	$ 9,003	$ (3,067)	$ 5,936	$ 5,936	$ —
Repurchase agreements[3]	430,947	—	430,947	430,947	—
TOTAL	**439,950**	**(3,067)**	**436,883**	**436,883**	**—**
Liabilities:					
Derivatives[1]	3,067	(3,067)	—	—	—
TOTAL	**$ 3,067**	**$ (3,067)**	**$ —**	**$ —**	**$ —**
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)**	**$ —**

[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, 2023 and 2022, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
Investment income	$ 500,053	$ 125,657	$ 18,390	$ 644,100
Net realized and unrealized gains	1,078,952	208,298	53,215	1,340,465
TOTAL INVESTMENT RETURNS, NET	**$ 1,579,005**	**$ 333,955**	**$ 71,605**	**$ 1,984,565**
Reconciliation to *Statements of Activities:*				
Total investment income distributed for operations	$ 1,878,501	$ 3,691	$ 12,174	$ 1,894,366
Increase (decrease) in reinvested gains:				
Without donor restrictions	(96,173)	326,565	38,424	268,816
With donor restrictions	(252,663)	3,699	19,445	(229,519)
Change in value of split-interest agreements, net	29,596	—	1,562	31,158
Adjustments for actuarial re-evaluations and maturities of split-interest agreements	19,744	—	—	19,744
TOTAL INVESTMENT RETURNS, NET	**$ 1,579,005**	**$ 333,955**	**$ 71,605**	**$ 1,984,565**
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)**

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, 2023, in thousands of dollars, is as follows:

	FUTURE MINIMUM RENTAL INCOME			
YEAR ENDING AUGUST 31	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2024	$ 112,887	$ 5,092	$ 1,309	$ 119,288
2025	120,490	3,137	529	124,156
2026	112,426	2,316	522	115,264
2027	93,215	1,936	444	95,595
2028	92,845	1,275	80	94,200
Thereafter	1,242,628	8,504	—	1,251,132
TOTAL	**$ 1,774,491**	**$ 22,260**	**$ 2,884**	**$ 1,799,635**

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, 2023 and 2022, and gains and losses for the years ended August 31, 2023 and 2022, in thousands of dollars:

	NOTIONAL AMOUNT[1]	GROSS DERIVATIVE ASSETS[2]	GROSS DERIVATIVE LIABILITIES[2]	REALIZED AND UNREALIZED GAINS (LOSSES)[3]
2023	AS OF AUGUST 31			YEAR ENDED AUGUST 31
Foreign exchange contracts	$ 13,426	$ —	$ 275	$ (27)
Equity contracts	715,867	9,003	2,792	(34,093)
TOTAL	**$ 729,293**	**$ 9,003**	**$ 3,067**	**$ (34,120)**
2022				
Foreign exchange contracts	$ 102,873	$ 42	$ 913	$ (1,937)
Equity contracts	378,657	3,321	11,418	87,318
TOTAL	**$ 481,530**	**$ 3,363**	**$ 12,331**	**$ 85,381**

[1] *The notional amount is representative of the volume and activity of the respective derivative type during the years ended August 31, 2023 and 2022.*

[2] *Gross derivative assets less gross derivative liabilities of $5.9 million and $(9.0) million as of August 31, 2023 and 2022, 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."*

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, 2023, 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 $6.1 million and $9.7 million at August 31, 2023 and 2022, 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, 2023 and 2022 (see *Note 9*).

At August 31, 2023, 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 Secured Overnight Financing Rate (SOFR) plus an applicable 1-Month spread. The notional amount and the fair value of the exchange agreements are included in the table below. There was no cash collateral posted with counterparties at August 31, 2023 and 2022.

The following table presents amounts for debt-related derivatives including the notional amount, the fair values at August 31, 2023 and 2022, and gains and losses for the years ended August 31, 2023 and 2022, in thousands of dollars:

	AS OF AUGUST 31, 2023		YEAR ENDED AUGUST 31, 2023	AS OF AUGUST 31, 2022		YEAR ENDED AUGUST 31, 2022
	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	$ 12,433	$ 9,117	$ 97,000	$ 21,550	$ 21,707
SHC	573,050	86,262	59,644	573,725	145,906	139,748
TOTAL	**$ 670,050**	**$ 98,695**	**$ 68,761**	**$ 670,725**	**$ 167,456**	**$ 161,455**

[1] *The notional amount is representative of the volume and activity of the respective derivative type during the years ended August 31, 2023 and 2022.*

[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, 2023 and 2022, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
Land and improvements	$ 901,483	$ 156,441	$ 120,605	$ 1,178,529
Buildings and building improvements	10,601,370	4,242,155	1,974,474	16,817,999
Furniture, fixtures and equipment	2,294,268	1,828,646	512,912	4,635,826
Utilities	1,085,835	—	—	1,085,835
Construction in progress	553,721	419,997	108,845	1,082,563
	15,436,677	6,647,239	2,716,836	24,800,752
Less accumulated depreciation	(6,877,840)	(2,771,562)	(967,309)	(10,616,711)
PLANT FACILITIES, NET OF ACCUMULATED DEPRECIATION	**$ 8,558,837**	**$ 3,875,677**	**$ 1,749,527**	**$ 14,184,041**
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**

At August 31, 2023, $2.8 billion, $1.6 billion, and $489.1 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, in fiscal year 2022 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

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.

Notes and bonds payable for the University, SHC, and LPCH at August 31, 2023 and 2022, 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 * 2023/2022	OUTSTANDING PRINCIPAL 2023	2022
UNIVERSITY:				
Tax-exempt:				
CEFA Fixed Rate Revenue Bonds:				
Series S	2040	3.18%	$ 30,210	$ 30,210
Series T	2026-2039	4.28%-4.30%	137,135	188,900
Series U	2033-2046	2.71%-4.25%	1,043,090	1,043,090
Series V	2029-2051	1.83%-3.12%	983,775	742,230
CEFA Variable Rate Revenue Bonds and Notes:				
Series L	2023	1.20%	—	36,208
Series S	2040-2051	3.10%/1.20%-1.47%	141,200	141,200
Commercial Paper	2024	3.05%	7,300	—
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	2036	3.37%/3.29%	85,717	480
Commercial Paper	2024	5.40%-5.50%/2.32%-2.55%	60,456	30,055
Revolving Credit Facilities	2024-2025	5.71%	3,886	—
University notes and bonds payable			5,007,119	4,726,723
Unamortized issuance costs, premiums, and discounts, net			463,376	427,115
UNIVERSITY TOTAL			**$ 5,470,495**	**$ 5,153,838**
SHC:				
CHFFA Fixed Rate Revenue Bonds:				
2012 Series B	2023	2.57%	$ —	$ 7,430
2015 Series A	2052-2054	4.10%	100,000	100,000
2017 Series A	2024-2041	2.89%/2.87%	437,440	447,075
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	2.94%/1.38%	168,200	168,200
SHC notes and bonds payable			2,198,575	2,215,640
Unamortized issuance costs, premiums, and discounts, net			71,870	79,697
SHC TOTAL			**$ 2,270,445**	**$ 2,295,337**
LPCH:				
CHFFA Fixed Rate Revenue Bonds:				
2014 Series A	2025-2043	3.84%	$ 100,000	$ 100,000
2016 Series A	2016-2033	2.54%/2.48%	50,505	53,940
2016 Series B	2052-2055	3.34%	100,000	100,000
2017 Series A	2019-2057	3.14%/3.11%	188,175	190,940
2022 Series A	2023-2051	2.49%/2.47%	203,760	206,670
CHFFA Variable Rate Revenue Bonds:				
2014 Series B	2034-2043	4.09%/2.17%	100,000	100,000
LPCH notes and bonds payable			742,440	751,550
Unamortized issuance costs, premiums, and discounts, net			67,763	70,281
LPCH TOTAL			**$ 810,203**	**$ 821,831**
CONSOLIDATED TOTAL			**$ 8,551,143**	**$ 8,271,006**

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

The University's long-term ratings of AAA/AAA/Aaa were affirmed in May 2023 by S&P Global Ratings, Fitch Ratings, and 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 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 2023, SHC's long-term ratings were affirmed by S&P Global Ratings, Moody's Investors Service, and Fitch Ratings at AA-/Aa3/AA, respectively. In June and July 2023, LPCH's long-term ratings of A+/A1/AA- were affirmed by S&P Global Ratings, Moody's Investors Service, and Fitch Ratings, 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 June 2023, CEFA, on behalf of the University, issued its tax-exempt Series V-3 bonds in the amount of $241.5 million plus an original issue premium of $58.5 million, maturing on June 1, 2033. The series has a coupon rate of 5.00% and has a yield of 2.28% and will be used to finance or refinance certain capital projects of the university.

In March 2023, CEFA Series T-5 tax-exempt bonds in the amount of $51.8 million matured and were refunded with a portion of the proceeds of CEFA Series V-3 bonds.

In October 2022, CEFA Series L-6 and L-7 tax-exempt bonds in the amounts of $17.8 million and $18.4 million, respectively, matured and were repaid.

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 financing rate rate plus a specified margin. The amount outstanding on these credit facilities was $3.9 million and $0 at August 31, 2023 and 2022, respectively.

Variable rate debt subject to remarketing or tender

The University had $141.2 million of revenue bonds in variable rate mode outstanding at August 31, 2023. 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.

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, 2023 and 2022. Taxable commercial paper of $60.5 million and $30.1 million was outstanding at August 31, 2023 and 2022, respectively. Tax-exempt commercial paper of $7.3 million and $0 was outstanding at August 31, 2023 and 2022, respectively.

SHC

Debt issuances and repayment activity

SHC has a revolving line of credit facility, which has a maturity date of November 2024, for general corporate purposes. Drawdowns from the facility bear interest at the Bloomberg Short-Term Bank Yield Index (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, 2023 and 2022.

SHC also has a $150.0 million taxable commercial paper facility for general corporate purposes. There were no amounts outstanding as of August 31, 2023 and 2022.

Variable rate debt

At August 31, 2023, 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.

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, 2023 and 2022.

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 in "Other changes in net assets without donor restrictions" in the *Statements of Activities*.

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. Irrevocable standby letters of credit outstanding as of August 31, 2023 and 2022, in thousands of dollars, is as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
Security for workers compensation insurance	$ 12,520	$ 28,916	$ 10,988	$ 52,424
Collateral for interest rate exchange agreements	15,000	—	—	15,000
Other	4,145	2,210	1,422	7,777
TOTAL	**$ 31,665**	**$ 31,126**	**$ 12,410**	**$ 75,201**
Amounts drawn as of August 31, 2023	$ —	$ —	$ —	$ —
Amounts drawn as of August 31, 2022	$ —	$ —	$ —	$ —

INTEREST

Stanford's interest expense, which includes amortized bond issuance costs and amortized bond premium or discount, is recorded in "Other operating expenses". Interest expense for the years ended August 31, 2023 and 2022, in thousands of dollars, is as follows:

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
Interest expense, gross	$ 173,299	$ 74,100	$ 31,258	$ 278,657
Less:				
Interest income earned on unspent bond proceeds	(4,467)	—	—	(4,467)
Interest capitalized as a cost of construction	(7,083)	—	—	(7,083)
Interest expense which is classified as an investment expense	(3,954)	—	—	(3,954)
INTEREST EXPENSE, NET	**$ 157,795**	**$ 74,100**	**$ 31,258**	**$ 263,153**
2022				
Interest expense, gross	$ 164,162	$ 71,939	$ 31,042	$ 267,143
Less:				
Interest income earned on unspent bond 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**

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 $662.8 thousand and $3.2 million for the years ended August 31, 2023 and 2022, respectively. SHC net payments on interest rate exchange agreements were $5.1 million and $19.8 million for the years ended August 31, 2023 and 2022, respectively.

PRINCIPAL PAYMENTS

At August 31, 2023, scheduled principal payments on notes and bonds, in thousands of dollars, are as follows:

	PRINCIPAL PAYMENTS			
YEAR ENDING AUGUST 31	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2024 Commercial paper	$ 67,756	$ —	$ —	$ 67,756
2024 Variable debt subject to remarketing	141,200	168,200	100,000	409,400
2024 Other	159,639	13,475	9,570	182,684
2025	5,960	175,330	9,975	191,265
2026	81,527	18,480	10,470	110,477
2027	306,380	19,320	11,020	336,720
2028	6,596	20,260	12,080	38,936
Thereafter	4,238,061	1,783,510	589,325	6,610,896
TOTAL	**$ 5,007,119**	**$ 2,198,575**	**$ 742,440**	**$ 7,948,134**

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, 2023 and 2022, in thousands of dollars, are as follows:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2023					
NET ASSETS WITHOUT DONOR RESTRICTIONS					
Board designated endowment - Funds functioning as endowment	$ 16,841,959	$ —	$ 145,276	$ —	$ 16,987,235
Net investment in plant facilities and other plant funds	4,745,919	2,392,495	939,324	—	8,077,738
Operating funds	5,605,980	4,306,411	1,341,959	(236,176)	11,018,174
Total net assets without donor restrictions	27,193,858	6,698,906	2,426,559	(236,176)	36,083,147
NET ASSETS WITH DONOR RESTRICTIONS					
Subject to expenditure for specified purpose:					
Unspent gifts and gifts with undecided purpose restrictions	891,791	—	—	—	891,791
Plant facilities	393,541	8,356	156,411	—	558,308
Total	1,285,332	8,356	156,411	—	1,450,099
Subject to passage of time:					
Pledges receivable	1,314,014	45,182	112,932	(14,113)	1,458,015
Other funds	364,416	42,662	100,487	—	507,565
Total	1,678,430	87,844	213,419	(14,113)	1,965,580
Subject to University's spending policy:					
Accumulated appreciation	10,541,248	26,185	209,857	—	10,777,290
Subject to restrictions in perpetuity:					
Endowment funds	8,928,113	15,544	268,330	—	9,211,987
Pledges receivable	1,316,942	—	6,460	—	1,323,402
Other funds	294,381	—	—	—	294,381
Total	10,539,436	15,544	274,790	—	10,829,770
Total net assets with donor restrictions	24,044,446	137,929	854,477	(14,113)	25,022,739
TOTAL NET ASSETS	**$51,238,304**	**$6,836,835**	**$3,281,036**	**$ (250,289)**	**$ 61,105,886**

	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:					
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**

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 or completion of the donor restriction. 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.

Endowment funds by net asset classification at August 31, 2023 and 2022, in thousands of dollars, are as follows:

	2023	2022
University endowment		
Endowment funds without donor restrictions:		
Funds functioning as endowment	$ 16,841,959	$ 16,915,950
Endowment funds with donor restrictions:		
Original donor-restricted gift amount and gains maintained in perpetuity	8,928,113	8,454,185
Term endowment and related gains	276,442	259,640
Additional accumulated gains available for expenditure, subject to spending policy	10,448,379	10,709,019
Total endowment funds with donor restrictions	19,652,934	19,422,844
University endowment	36,494,893	36,338,794
LPCH endowment		
Endowment funds without donor restrictions:		
Funds functioning as endowment	145,276	144,650
Endowment funds with donor restrictions	482,181	477,209
LPCH endowment	627,457	621,859
SHC endowment funds with donor restrictions	41,729	41,281
TOTAL ENDOWMENT FUNDS	**$ 37,164,079**	**$ 37,001,934**

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, 2023 and 2022, in thousands of dollars, are as follows:

	NET ASSETS WITHOUT DONOR RESTRICTIONS	NET ASSETS WITH DONOR RESTRICTIONS	TOTAL
2023			
Endowment, beginning of year	$ 16,915,950	$ 19,422,844	$ 36,338,794
Total investment returns, net	378,870	786,411	1,165,281
Amounts distributed for operations	(689,138)	(1,047,208)	(1,736,346)
Gifts, transfers and other changes in endowment:			
Current year gifts and pledge payments	822	429,025	429,847
Transfers of prior year gifts	3,488	51,998	55,486
Added to FFE reserves	199,254	—	199,254
Other funds added to the endowment, net	32,713	9,864	42,577
Total gifts, transfers and other changes in endowment	236,277	490,887	727,164
Total net increase (decrease) in endowment	(73,991)	230,090	156,099
ENDOWMENT, END OF YEAR	**$ 16,841,959**	**$ 19,652,934**	**$ 36,494,893**
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 decrease in endowment	(640,974)	(808,419)	(1,449,393)
ENDOWMENT, END OF YEAR	**$ 16,915,950**	**$ 19,422,844**	**$ 36,338,794**

Approximately 14% 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 2023 was 5.25%. 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. In fiscal year 2023, the Board reverted back to one single payout rate for all 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, 2023 and 2022, in thousands of dollars, are as follows:

	2023	2022
Endowment, beginning of year	$ 41,281	$ 42,678
Total investment returns, net	1,511	(1,184)
Amounts distributed for operations	(1,063)	(384)
Gifts and pledge payments	—	171
Total net increase (decrease) in endowment	448	(1,397)
ENDOWMENT, END OF YEAR	**$ 41,729**	**$ 41,281**

LPCH

LPCH's endowment is intended to generate investment income to support its 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 endowment is subject to the same investment and spending strategies that the University employs 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, 2023 and 2022, in thousands of dollars, are as follows:

	NET ASSETS WITHOUT DONOR RESTRICTIONS	NET ASSETS WITH DONOR RESTRICTIONS	TOTAL
2023			
Endowment, beginning of year	$ 144,650	$ 477,209	$ 621,859
Total investment returns, net	4,837	17,592	22,429
Amounts distributed for operations	(4,211)	(12,174)	(16,385)
Gifts and pledge payments	—	9,582	9,582
Other	—	(10,028)	(10,028)
Total net increase in endowment	626	4,972	5,598
ENDOWMENT, END OF YEAR	**$ 145,276**	**$ 482,181**	**$ 627,457**
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**

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, 2012 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 using an All Patient Refined-Diagnosis Related Group (APR-DRG) methodology. 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 and an implicit pricing concession 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. 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
2023					
Patient care revenue, net:					
Medicare	$ —	$ 1,279,346	$ 2,770	$ —	$ 1,282,116
Medi-Cal	—	175,157	542,835	—	717,992
Managed care	—	5,723,278	1,742,559	—	7,465,837
Self pay and other	—	299,241	230,261	—	529,502
Physician services and support (see *Note 1*)	1,577,976	44,013	—	(1,621,989)	—
Total patient care revenue, net	1,577,976	7,521,035	2,518,425	(1,621,989)	9,995,447
Premium revenue	—	65,386	—	—	65,386
Other services and support	47,419	—	—	(7,682)	39,737
HEALTH CARE SERVICES REVENUE, NET	**$1,625,395**	**$7,586,421**	**$2,518,425**	**$ (1,629,671)**	**$ 10,100,570**
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**

For the years ended August 31, 2023 and 2022, SHC recognized net health care services revenue adjustments of $16.5 million and $6.1 million, respectively, as a result of prior years' favorable developments related to reimbursement and appeals. LPCH had no significant adjustments to revenue for the years ended August 31, 2023 and 2022.

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 $16.3 million and $16.2 million, and LPCH's estimated cost of providing charity care was $1.6 million and $1.3 million for the years ended August 31, 2023 and 2022, 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 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, 2023 and 2022 were $1.8 billion and $1.7 billion for SHC, respectively. For LPCH, estimated cost in excess of reimbursements for Medi-Cal and other publicly sponsored programs for the years ended August 31, 2023 and 2022 were $339.0 million and $284.1 million, 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 January 1, 2021 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 January 1, 2021 through August 31, 2023 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
2023			
Revenue	$ 118,859	$ 136,655	$ 255,514
Expense	(65,827)	(37,598)	(103,425)
TOTAL	**$ 53,032**	**$ 99,057**	**$ 152,089**
2022			
Revenue	$ 98,230	$ 93,730	$ 191,960
Expense	(54,850)	(24,127)	(78,977)
TOTAL	**$ 43,380**	**$ 69,603**	**$ 112,983**

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, 2023 and 2022, in thousands of dollars, is as follows:

	SHC	LPCH	CONSOLIDATED
2023			
Deferred revenue	$ 42,713	$ 38,397	$ 81,110
Prepaid expense	$ 38,074	$ 19,927	$ 58,001
2022			
Deferred revenue	$ 73,145	$ 86,628	$ 159,773
Prepaid expense	$ 44,121	$ 22,410	$ 66,531

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 (including pledge payments) 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, 2023 and 2022, per the *Consolidated Statements of Activities*, in thousands of dollars:

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2023					
Current year gifts in support of operations	$ 269,096	$ 506	$ 6,028	$ —	$ 275,630
Donor advised funds, net	(41,846)	—	—	—	(41,846)
Current year gifts not included in operations	822	—	—	—	822
Gifts and pledges, net - with donor restrictions	1,521,106	20,884	90,423	4,135	1,636,548
TOTAL	**$ 1,749,178**	**$ 21,390**	**$ 96,451**	**$ 4,135**	**$ 1,871,154**
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**

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, 2023 and 2022, in thousands of dollars, are as follows:

	SALARIES AND BENEFITS	DEPRECIATION	OTHER OPERATING EXPENSES	TOTAL OPERATING EXPENSES
2023				
UNIVERSITY				
Instruction and departmental research	$ 1,799,280	$ 142,171	$ 754,085	$ 2,695,536
Organized research - direct costs	937,254	78,377	567,347	1,582,978
Health care services	1,091,086	4,683	25,917	1,121,686
Auxiliary activities	219,265	137,968	365,722	722,955
Administration and general	386,500	55,269	229,610	671,379
Student services	219,170	7,218	175,802	402,190
Libraries	70,965	71,878	62,279	205,122
Development	110,538	4,527	22,598	137,663
SLAC construction	53,037	—	67,338	120,375
TOTAL EXPENSES	**4,887,095**	**502,091**	**2,270,698**	**7,659,884**
SHC				
Health care services	3,307,740	244,834	3,359,035	6,911,609
Administration and general	266,724	17,878	243,796	528,398
Development	1,335	—	15,498	16,833
TOTAL EXPENSES	**3,575,799**	**262,712**	**3,618,329**	**7,456,840**
LPCH				
Health care services	1,153,311	81,567	1,057,491	2,292,369
Administration and general	123,002	6,328	127,122	256,452
Development	21,875	1,123	11,540	34,538
TOTAL EXPENSES	**1,298,188**	**89,018**	**1,196,153**	**2,583,359**
ELIMINATIONS				
Health care services	—	—	(1,587,565)	(1,587,565)
Administration and general	—	—	(42,529)	(42,529)
Development	—	—	(16,627)	(16,627)
TOTAL ELIMINATIONS	**—**	**—**	**(1,646,721)**	**(1,646,721)**
CONSOLIDATED				
Instruction and departmental research	1,799,280	142,171	754,085	2,695,536
Organized research - direct costs	937,254	78,377	567,347	1,582,978
Health care services	5,552,137	331,084	2,854,878	8,738,099
Auxiliary activities	219,265	137,968	365,722	722,955
Administration and general	776,226	79,475	557,999	1,413,700
Student services	219,170	7,218	175,802	402,190
Libraries	70,965	71,878	62,279	205,122
Development	133,748	5,650	33,009	172,407
SLAC construction	53,037	—	67,338	120,375
TOTAL EXPENSES	**$ 9,761,082**	**$ 853,821**	**$ 5,438,459**	**$16,053,362**

	SALARIES AND BENEFITS	DEPRECIATION	OTHER OPERATING EXPENSES	TOTAL 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**

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 $234.2 million and $212.0 million for the years ended August 31, 2023 and 2022, 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, 2023 and 2022, there were no program assets. The University funds benefit payouts as they are incurred.

Postretirement Benefit Plan

The University provides medical, dental, and vision 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 legacy design or the defined dollar benefit design. The University provides Medicare and non-Medicare medical plans to eligible retirees and their dependents.

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
2023				
Fair value of plan assets, beginning of year	$ 216,200	$ —	$ 256,151	$ 472,351
Change in plan assets:				
Actual return on plan assets	5,989	—	18,394	24,383
Employer contributions	—	10,889	5,348	16,237
Plan participants' contributions	—	—	21,797	21,797
Benefits and plan expenses paid	(18,993)	(10,889)	(40,430) *	(70,312)
FAIR VALUE OF PLAN ASSETS, END OF YEAR	**203,196**	**—**	**261,260**	**464,456**
Benefit obligation, beginning of year	239,194	160,554	515,423	915,171
Change in projected benefit obligation:				
Service cost	823	8,883	16,653	26,359
Interest cost	10,421	7,212	23,486	41,119
Plan participants' contributions	—	—	21,797	21,797
Actuarial loss (gain)	(15,428)	(1,747)	8,228	(8,947)
Benefits and plan expenses paid	(18,993)	(10,889)	(40,430) *	(70,312)
BENEFIT OBLIGATION, END OF YEAR	**216,017**	**164,013**	**545,157**	**925,187**
NET LIABILITY RECOGNIZED IN THE *STATEMENTS OF FINANCIAL POSITION*	**$ (12,821)**	**$ (164,013)**	**$ (283,897)**	**$ (460,731)**

** Net of Medicare subsidy of $2.4 million*

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)
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)**

** Net of Medicare subsidy of $1.8 million*

The accumulated benefit obligation for the SRAP was $215.6 million and $238.6 million at August 31, 2023 and 2022, respectively.

Net periodic benefit expense and non-operating activities related to the Plans for the years ended August 31, 2023 and 2022, in thousands of dollars, includes the following components:

	SRAP	FRIP	PRBP	TOTAL
2023				
Service cost	$ 823	$ 8,883	$ 16,653	$ 26,359
PERIODIC BENEFIT EXPENSE	**823**	**8,883**	**16,653**	**26,359**
Non-operating:				
Interest cost	10,421	7,212	23,486	41,119
Expected return on plan assets	(10,018)	—	(16,650)	(26,668)
Amortization of:				
Prior service cost	850	—	373	1,223
Actuarial loss (gain)	880	(612)	(2,372)	(2,104)
Non-operating periodic benefit cost	2,133	6,600	4,837	13,570
NET PERIODIC BENEFIT COST[1]	**2,956**	**15,483**	**21,490**	**39,929**
Non-operating periodic benefit cost	2,133	6,600	4,837	13,570
Net actuarial loss (gain)	(11,399)	(1,747)	6,484	(6,662)
Amortization of:				
Prior service cost	(850)	—	(373)	(1,223)
Actuarial loss (gain)	(880)	612	2,372	2,104
TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES	**$ (10,996)**	**$ 5,465**	**$ 13,320**	**$ 7,789**
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 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)**

[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, 2023 and 2022, in thousands of dollars:

	SRAP	FRIP	PRBP	TOTAL
2023				
Prior service cost	$ 2,130	$ —	$ 1,755	$ 3,885
Net actuarial loss (gain)	30,713	(29,270)	(77,078)	(75,635)
ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST	**$ 32,843**	**$ (29,270)**	**$ (75,323)**	**$ (71,750)**
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)**

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	
	2023	2022	2023	2022	2023	2022
BENEFIT OBLIGATIONS						
Discount rate	5.31%	4.66%	5.35%	4.71%	5.37%	4.65%
Covered payroll growth rate	3.00%	3.00%	4.80%	4.80%	N/A	N/A
NET PERIODIC BENEFIT COST						
Discount rate	4.66%	2.34%	4.71%	2.43%	4.65%	2.67%
Expected returns on plan assets	5.00%	5.00%	N/A	N/A	6.50%	6.00%
Covered payroll growth rate	3.00%	3.00%	4.80%	4.80%	N/A	N/A

The expected long-term rate of return on asset assumptions for the SRAP and PRBP plans is 6.00% 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, 2023, a 8.90%, 6.30% and 4.10% 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 2023 with all three rates declining gradually to 4.00% by 2047 and remaining at this rate thereafter.

EXPECTED CONTRIBUTIONS

The University expects to contribute $15.9 million to the FRIP, $23.8 million to the PRBP, and does not expect to contribute to the SRAP during the fiscal year ending August 31, 2024.

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
2024	$ 27,870	$ 15,926	$ 25,991	$ 2,194
2025	19,101	16,559	27,599	2,267
2026	19,032	13,253	29,128	2,337
2027	17,909	10,673	30,657	2,435
2028	17,263	10,855	32,296	2,533
2029 - 2033	74,202	66,189	185,182	14,187

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, 2023, 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, 2023 and 2022, 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, 2023 and 2022 and actual allocations and weighted-average target allocations at August 31, 2023 are as follows:

	2023	2022	2023 ACTUAL ALLOCATION	2023 TARGET ALLOCATION
SRAP:				
Cash and cash equivalents	$ 2,147	$ 1,666	1%	—%
Public equities	88,553	94,677	44%	45%
Fixed income	112,496	119,842	55%	55%
Private equities	—	15	—%	—%
TOTAL	**203,196**	**216,200**	**100%**	**100%**
PRBP:				
Public equities	195,088	190,149	75%	75%
Fixed income	66,172	66,002	25%	25%
TOTAL	**261,260**	**256,151**	**100%**	**100%**
TOTAL PLAN ASSETS AT FAIR VALUE	**$ 464,456**	**$ 472,351**		

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 contributions under the plan, which are vested immediately to participants, were $192.9 million and $164.8 million, and LPCH contributed $74.3 million and $64.7 million for the years ended August 31, 2023 and 2022, 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. 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.

SHC has adopted an amendment to terminate the Pension Plan, effective as of March 31, 2023. Plan participants will elect to receive a lump sum distribution (if eligible) or have their benefits transferred to a third-party annuity provider. This will relieve SHC from any further obligations under the Pension Plan once it is fully settled. Final true-up contributions in connection with the annuity contract purchase are expected to be made by January 31, 2024.

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 legacy 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 were covered by a frozen noncontributory defined benefit pension plan (the "LPCH Frozen Pension Plan"). Benefits were based on years of service and the employee's compensation. Contributions to the plan were 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
2023			
Fair value of plan assets, beginning of year	$ 164,594	$ —	$ 13
Change in plan assets:			
Actual return on plan assets	(1,112)	—	—
Employer contributions	—	5,642	—
Plan participants' contributions	—	1,156	—
Benefits and plan expenses paid	(12,092)	(6,798) *	(13)
FAIR VALUE OF PLAN ASSETS, END OF YEAR	**151,390**	**—**	**—**
Benefit obligation, beginning of year	167,017	117,266	—
Change in projected benefit obligation:			
Service cost	894	5,478	—
Interest cost	7,533	5,322	—
Plan participants' contributions	—	1,156	—
Actuarial gain	(5,829)	(7,230)	—
Benefits and plan expenses paid	(12,092)	(6,798) *	—
Plan amendments	887	394	—
Plan curtailments	(856)	—	—
BENEFIT OBLIGATION, END OF YEAR	**157,554**	**115,588**	**—**
NET LIABILITY RECOGNIZED IN THE *STATEMENTS OF FINANCIAL POSITION*	**$ (6,164)**	**$ (115,588)**	**$ —**
** Net of Medicare subsidy of $79 thousand*			
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 loss (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*			

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, 2023 and 2022, in thousands of dollars:

	2023	2022
SHC	$ 85,337	$ 86,276
LPCH	30,251	30,990
TOTAL	**$ 115,588**	**$ 117,266**

The accumulated benefit obligation for the Pension Plan was $157.6 million and $166.1 million at August 31, 2023 and 2022, respectively.

Net periodic benefit cost and non-operating activities related to the Plans for the years ended August 31, 2023 and 2022, in thousands of dollars, includes the following components:

	STAFF PENSION PLAN	PRMB	LPCH FROZEN PENSION PLAN
2023			
Service cost	$ 894	$ 5,478	$ —
PERIODIC BENEFIT EXPENSE	**894**	**5,478**	**—**
Non-operating:			
Interest cost	7,533	5,322	—
Expected return on plan assets	(7,370)	—	—
Amortization of:			
Prior service cost	—	3,553	—
Actuarial loss (gain)	349	(1,193)	—
Non-operating net periodic benefit cost (income)	512	7,682	—
NET PERIODIC BENEFIT COST[1]	**1,406**	**13,160**	**—**
Non-operating net periodic benefit cost	512	7,682	—
Net actuarial loss (gain)	1,797	(7,230)	—
New prior service cost	887	394	—
Amortization of:			
Prior service cost	—	(3,553)	—
Actuarial gain (loss)	(349)	1,193	—
TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES	**$ 2,847**	**$ (1,514)**	**$ —**
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 (income)	(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)**

[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, 2023 and 2022, in thousands of dollars:

	SHC	LPCH	TOTAL
2023			
Net periodic benefit cost	$ 9,450	$ 3,710	$ 13,160
Amounts recognized in non-operating activities	(6,374)	(2,822)	(9,196)
TOTAL AMOUNT RECOGNIZED IN NET PERIODIC BENEFIT COST AND NON-OPERATING ACTIVITIES	**$ 3,076**	**$ 888**	**$ 3,964**
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**

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, 2023 and 2022, in thousands of dollars:

	STAFF PENSION PLAN	PRMB
2023		
Prior service cost	$ 887	$ 33,987
Net actuarial loss (gain)	54,125	(26,554)
ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST	**$ 55,012**	**$ 7,433**
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**

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	
	2023	2022	2023	2022	2023	2022
BENEFIT OBLIGATIONS						
Discount rate	5.33%	4.68%	5.34%	4.69%	N/A	N/A
Covered payroll growth rate	3.00%	3.00%	N/A	N/A	N/A	N/A
NET PERIODIC BENEFIT COST						
Discount rate	4.68%	2.46%	4.69%	2.39%	N/A	2.34%
Expected return on plan assets	4.00%	4.00%	N/A	N/A	N/A	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 is 4.00%. 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, 2023, a 6.60% for Medical Pre-65 and 6.08% for Medical Post-65 annual rates of increase in the per capita cost of covered health care were assumed for calendar year 2023, declining gradually to 4.00% by 2047 and remaining at this rate thereafter.

EXPECTED CONTRIBUTIONS

SHC expects to contribute $6.3 million to the PRMB and $8.8 million to the Pension Plan during the fiscal year ending August 31, 2024.

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
2024	$ 161,398	$ 8,561	$ 196
2025	—	8,496	74
2026	—	8,784	65
2027	—	9,074	56
2028	—	9,378	49
2029 - 2033	—	51,559	154

INVESTMENT STRATEGY

Given the Pension Plan's short time horizon, due to the upcoming planned termination, the focus of the asset allocation is on funded status stabilization. The Pension Plan's asset allocation has been revised to reflect the termination status of the plan. The Pension Plan's assets are invested in cash and fixed income to minimize investment risk during plan termination. 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 their 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, 2023, the Pension Plan does 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, 2023 and 2022, are all categorized as Level 1 investments. The fair value of plan assets by asset category, in thousands of dollars, at August 31, 2023 and 2022 and actual allocations and weighted-average target allocations at August 31, 2023 are as follows:

	2023	2022	2023 ACTUAL ALLOCATION	2023 TARGET ALLOCATION
STAFF PENSION PLAN:				
Cash and cash equivalents	$ —	$ 430	—%	—%
Public equities	—	16,406	—%	—%
Fixed income	151,390	147,758	100%	100%
PLAN ASSETS AT FAIR VALUE	**$ 151,390**	**$ 164,594**	**100%**	**100%**
LPCH FROZEN PENSION PLAN:				
Cash and cash equivalents	$ —	$ 13	—%	—%
Fixed income	—	—	—%	—%
PLAN ASSETS AT FAIR VALUE	**$ —**	**$ 13**	**—%**	**—%**

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
2023					
Operating lease	$ 429,183	$ 318,150	$ 206,915	$ (116,838)	$ 837,410
Finance lease	227,014	—	—	—	227,014
TOTAL LEASE RIGHT-OF-USE ASSETS	**$ 656,197**	**$ 318,150**	**$ 206,915**	**$ (116,838)**	**$ 1,064,424**
Operating lease	$ 459,339	$ 330,012	$ 220,386	$ (116,838)	$ 892,899
Finance lease	241,034	—	—	—	241,034
TOTAL LEASE LIABILITY	**$ 700,373**	**$ 330,012**	**$ 220,386**	**$ (116,838)**	**$ 1,133,933**

	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**

	UNIVERSITY		SHC		LPCH	
	2023	2022	2023	2022	2023	2022
WEIGHTED-AVERAGE REMAINING LEASE TERM IN YEARS:						
Operating lease	23.23	22.98	6.17	5.57	7.04	7.87
Finance lease	26.19	26.55	N/A	0.17	N/A	N/A
WEIGHTED-AVERAGE DISCOUNT RATE:						
Operating lease	3.10%	2.38%	3.68%	2.14%	2.69%	2.19%
Finance lease	2.71%	2.59%	N/A	1.79%	N/A	N/A

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

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
Operating lease cost	$ 44,248	$ 82,782	$ 38,084	$ 165,114
Finance lease cost:				
Amortization of leased assets	14,771	12	—	14,783
Interest on lease liabilities	6,238	—	—	6,238
Variable lease cost	5,399	11,338	6,360	23,097
Short-term lease cost	27,599	11,696	809	40,104
Sublease income	(7,023)	(3,949)	(4,532)	(15,504)
TOTAL LEASE COST	**$ 91,232**	**$ 101,879**	**$ 40,721**	**$ 233,832**
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**

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

	UNIVERSITY	SHC	LPCH	CONSOLIDATED
2023				
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash flows from operating leases	$ 35,806	$ 84,650	$ 37,256	$ 157,712
Operating cash flows from finance leases	6,238	—	—	6,238
Financing cash flows from finance leases	8,968	12	—	8,980
Obtaining right-of-use assets in exchange for lease liabilities:				
Operating leases	$ 316	$ 143,898	$ 33,370	$ 177,584
Finance leases	745	—	—	745
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

Maturities of lease liabilities for periods subsequent to August 31, 2023, in thousands of dollars, are as follows:

	MATURITY OF LEASE LIABILITIES				
YEAR ENDING AUGUST 31	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
2024	$ 58,261	$ 80,028	$ 36,932	$ (19,510)	$ 155,711
2025	55,404	66,158	36,644	(18,989)	139,217
2026	54,463	55,650	34,301	(18,222)	126,192
2027	54,513	47,680	29,767	(15,900)	116,060
2028	50,840	36,536	29,757	(16,175)	100,958
Thereafter	761,409	86,015	74,227	(45,924)	875,727
TOTAL LEASE PAYMENTS	**1,034,890**	**372,067**	**241,628**	**(134,720)**	**1,513,865**
LESS IMPUTED INTEREST	**(334,517)**	**(42,055)**	**(21,242)**	**17,882**	**(379,932)**
TOTAL	**$ 700,373**	**$ 330,012**	**$ 220,386**	**$ (116,838)**	**$ 1,133,933**

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, 2023 and 2022 was $275.2 million and $251.4 million for the University, $3.9 million and $2.8 million for SHC, and $1.5 million and $1.4 million for LPCH, respectively. See *Note 6* for future minimum rental income under non-cancellable leases.

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.

LABOR AGREEMENTS

Approximately 6% of the University's, 33% of SHC's and 44% 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 2026 and the agreements with the Committee for Recognition of Nursing Achievement (CRONA) will expire in 2025. SHC's agreement with California Nurses Association (CNA) will expire in 2024.

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, 2023, the University had contractual obligations of approximately $462.7 million in connection with major construction projects. Remaining expenditures on construction in progress are estimated to be $1.3 billion, 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 $143.5 million for SHC and $119.9 million for LPCH at August 31, 2023. SHC had contractual obligations of approximately $665.7 million to support SHC's operations, such as maintenance, food services, software subscription related services, valet services and other purchased services at August 31, 2023.

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, 2023, $438.0 million was recorded to property and equipment of which $172.0 million was recorded to construction in progress and $266.0 million was capitalized to property and equipment. Estimated cost of the renewal project 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 $300.4 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

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, 2023 and 2022, SHC received CARES Act provider relief funding of $0 and $202.9 million, respectively, and LPCH received $0 and $2.1 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. CARES Act provider relief funding is subject to future audit adjustments based on compliance audits and potential changes to statutes.

20. Subsequent Events

Stanford has evaluated subsequent events for the period from August 31, 2023 through December 6, 2023, the date the *Consolidated Financial Statements* were issued.

21. Consolidating Entity Statements

The pages which follow present consolidating statements of financial position as of August 31, 2023 and 2022 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, 2023 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
ASSETS					
Cash and cash equivalents	$ 745,015	$ 611,592	$ 390,081	$ (7,744)	$ 1,738,944
Accounts receivable, net	296,435	1,184,307	695,849	—	2,176,591
Related party receivables	263,761	204,041	79,138	(546,940)	—
Prepaid expenses and other assets	104,634	519,684	126,433	(184,593)	566,158
Pledges receivable, net	2,630,956	45,182	173,837	(68,859)	2,781,116
Student loans receivable, net	37,527	—	—	—	37,527
Faculty and staff mortgages and other loans receivable, net	1,084,897	9,453	4,501	—	1,098,851
Assets limited as to use	576,510	—	75,470	—	651,980
Investments at fair value	46,856,086	4,648,525	1,313,919	7,744	52,826,274
Right-of-use assets	656,197	318,150	206,915	(116,838)	1,064,424
Plant facilities, net of accumulated depreciation	8,558,837	3,875,677	1,749,527	—	14,184,041
Works of art and special collections	—	—	—	—	—
TOTAL ASSETS	**$ 61,810,855**	**$ 11,416,611**	**$ 4,815,670**	**$ (917,230)**	**$ 77,125,906**
LIABILITIES AND NET ASSETS					
LIABILITIES:					
Accounts payable and accrued expenses	$ 1,028,884	$ 1,452,881	$ 373,730	$ —	$ 2,855,495
Liabilities associated with investments	878,955	—	—	—	878,955
Lease liabilities	700,373	330,012	220,386	(116,838)	1,133,933
Deferred income and other obligations	1,766,039	196,159	55,813	—	2,018,011
Related party liabilities	267,074	238,778	44,251	(550,103)	—
Accrued pension and postretirement benefit obligations	460,731	91,501	30,251	—	582,483
Notes and bonds payable	5,470,495	2,270,445	810,203	—	8,551,143
TOTAL LIABILITIES	**10,572,551**	**4,579,776**	**1,534,634**	**(666,941)**	**16,020,020**
NET ASSETS:					
Without donor restrictions	27,193,858	6,698,906	2,426,559	(236,176)	36,083,147
With donor restrictions	24,044,446	137,929	854,477	(14,113)	25,022,739
TOTAL NET ASSETS	**51,238,304**	**6,836,835**	**3,281,036**	**(250,289)**	**61,105,886**
TOTAL LIABILITIES AND NET ASSETS	**$ 61,810,855**	**$ 11,416,611**	**$ 4,815,670**	**$ (917,230)**	**$ 77,125,906**

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	$ 401,207	$ (7,425)	$ 2,285,765
Accounts receivable, net	296,138	1,111,913	599,587	—	2,007,638
Related party receivables	255,516	149,627	74,400	(479,543)	—
Prepaid expenses and other assets	94,164	438,304	122,565	(148,172)	506,861
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	8,903	4,567	—	997,576
Assets limited as to use	397,926	—	52,464	—	450,390
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	**$ 60,498,408**	**$ 10,664,178**	**$ 4,751,773**	**$ (830,639)**	**$ 75,083,720**
LIABILITIES AND NET ASSETS					
LIABILITIES:					
Accounts payable and accrued expenses	$ 983,033	$ 1,463,694	$ 359,030	$ —	$ 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
Related party liabilities	224,137	218,641	40,036	(482,814)	—
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	**10,091,571**	**4,546,320**	**1,563,104**	**(612,744)**	**15,588,251**
NET ASSETS:					
Without donor restrictions	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	**$ 60,498,408**	**$ 10,664,178**	**$ 4,751,773**	**$ (830,639)**	**$ 75,083,720**

CONSOLIDATING STATEMENTS OF ACTIVITIES

For the year ended August 31, 2023 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
NET ASSETS WITHOUT DONOR RESTRICTIONS					
OPERATING REVENUES:					
TOTAL STUDENT INCOME, NET	**$ 760,534**	**$ —**	**$ —**	**$ —**	**$ 760,534**
Sponsored support:					
Direct costs - University	1,059,200	32,029	2,835	—	1,094,064
Direct costs - SLAC National Accelerator Laboratory	571,654	—	—	—	571,654
Indirect costs	347,576	—	—	—	347,576
TOTAL SPONSORED SUPPORT	**1,978,430**	**32,029**	**2,835**	**—**	**2,013,294**
Health care services:					
Net patient service revenue	—	7,521,035	2,518,425	(44,013)	9,995,447
Premium revenue	—	65,386	—	—	65,386
Physicians' services and support - SHC and LPCH, net	1,577,976	—	—	(1,577,976)	—
Physicians' services and support - other facilities, net	47,419	—	—	(7,682)	39,737
TOTAL HEALTH CARE SERVICES	**1,625,395**	**7,586,421**	**2,518,425**	**(1,629,671)**	**10,100,570**
TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS	**269,096**	**506**	**6,028**	**—**	**275,630**
Net assets released from restrictions:					
Payments received on pledges	226,255	462	—	—	226,717
Prior year gifts released from donor restrictions	137,256	6,554	4,594	—	148,404
TOTAL NET ASSETS RELEASED FROM RESTRICTIONS	**363,511**	**7,016**	**4,594**	**—**	**375,121**
Investment income distributed for operations:					
Endowment	1,736,346	1,063	12,174	—	1,749,583
Expendable funds pools and other investment income	142,156	2,628	—	—	144,784
TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS	**1,878,502**	**3,691**	**12,174**	**—**	**1,894,367**
TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME	**578,913**	**242,043**	**119,905**	**(17,050)**	**923,811**
TOTAL OPERATING REVENUES	**7,454,381**	**7,871,706**	**2,663,961**	**(1,646,721)**	**16,343,327**
OPERATING EXPENSES:					
Salaries and benefits	4,887,095	3,575,799	1,298,188	—	9,761,082
Depreciation	502,091	262,712	89,018	—	853,821
Other operating expenses	2,270,698	3,618,329	1,196,153	(1,646,721)	5,438,459
TOTAL OPERATING EXPENSES	**7,659,884**	**7,456,840**	**2,583,359**	**(1,646,721)**	**16,053,362**
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ (205,503)**	**$ 414,866**	**$ 80,602**	**$ —**	**$ 289,965**

CONSOLIDATING STATEMENTS OF ACTIVITIES, Continued

For the year ended August 31, 2023 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
NET ASSETS WITHOUT DONOR RESTRICTIONS (continued)					
CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES	**$ (205,503)**	**$ 414,866**	**$ 80,602**	**$ —**	**$ 289,965**
NON-OPERATING ACTIVITIES:					
Increase (decrease) in reinvested gains	(96,173)	326,565	38,424	—	268,816
Donor advised funds, net	(41,846)	—	—	—	(41,846)
Current year gifts not included in operations	822	—	—	—	822
Equity and fund transfers, net	165,453	(87,862)	(105,332)	27,741	—
Capital and other gifts released from restrictions	12,249	20,281	16,269	—	48,799
Pension and other postemployment benefit related changes other than service cost	(7,789)	(1,930)	623	—	(9,096)
Transfer from (to) net assets with donor restrictions, net	(57,781)	—	55,747	(55,747)	(57,781)
Swap interest and change in value of swap agreements	8,454	55,155	—	—	63,609
Other	37,527	(929)	496	(36,529)	565
NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS	**(184,587)**	**726,146**	**86,829**	**(64,535)**	**563,853**
NET ASSETS WITH DONOR RESTRICTIONS					
Gifts and pledges, net	1,521,106	20,884	90,423	4,135	1,636,548
Increase (decrease) in reinvested gains	(252,663)	3,699	19,445	—	(229,519)
Change in value of split-interest agreements, net	29,596	—	1,562	—	31,158
Net assets released to operations	(363,511)	(11,213)	(22,796)	—	(397,520)
Capital and other gifts released to net assets without donor restrictions	(12,249)	(20,281)	(16,269)	—	(48,799)
Gift transfers, net	39,079	(258)	(11,080)	(27,741)	—
Transfer from (to) net assets without donor restrictions, net	57,781	—	(55,747)	55,747	57,781
Other	(3,085)	—	—	—	(3,085)
NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS	**1,016,054**	**(7,169)**	**5,538**	**32,141**	**1,046,564**
NET CHANGE IN TOTAL NET ASSETS	**831,467**	**718,977**	**92,367**	**(32,394)**	**1,610,417**
Total net assets, beginning of year	50,406,837	6,117,858	3,188,669	(217,895)	59,495,469
TOTAL NET ASSETS, END OF YEAR	**$51,238,304**	**$6,836,835**	**$3,281,036**	**$ (250,289)**	**$ 61,105,886**

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:					
Student income:					
Undergraduate programs	$ 445,406	$ —	$ —	$ —	$ 445,406
Graduate programs	404,204	—	—	—	404,204
Room and board	267,386	—	—	—	267,386
Student financial aid	(401,531)	—	—	—	(401,531)
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
Other	21,641	8,031	2,302	(24,686)	7,288
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 CASH FLOWS

For the year ended August 31, 2023 (in thousands of dollars)

	UNIVERSITY	SHC	LPCH	ELIMINATIONS	CONSOLIDATED
CASH FLOW FROM OPERATING ACTIVITIES					
Change in net assets	$ 831,467	$ 718,977	$ 92,367	$ (32,394)	$ 1,610,417
Adjustments to reconcile change in net assets to net cash provided by (used for) operating activities:					
Depreciation	502,091	262,712	89,018	—	853,821
Amortization of bond premiums, discounts and other	25,937	(4,663)	(2,957)	—	18,317
Net gains on investments	(1,133,251)	(267,513)	(19,438)	—	(1,420,202)
Change in fair value of interest rate swaps	(9,117)	(59,644)	—	—	(68,761)
Change in split-interest agreements	17,914	—	(1,915)	—	15,999
Change in deferred tax asset and liability	5,873	—	—	—	5,873
Investment expense for restricted purposes	(15,841)	—	(7,078)	—	(22,919)
Gifts restricted for long-term investments	(980,249)	(11,491)	(15,884)	—	(1,007,624)
Equity and fund transfers, net	(204,532)	88,120	60,665	55,747	—
Gifts of securities and properties	(5,423)	—	—	—	(5,423)
Other	88,402	—	181	—	88,583
Premiums received from bond issuance	58,451	—	—	—	58,451
Changes in operating assets and liabilities:					
Accounts receivable	(4,011)	(72,394)	(96,262)	—	(172,667)
Related party receivable	(43,169)	41,447	1,722	—	—
Pledges receivable, net	(138,463)	(3,305)	25,549	(4,135)	(120,354)
Prepaid expenses and other assets	(10,307)	(62,393)	(3,702)	—	(76,402)
Accounts payable and accrued expenses	16,272	47,707	21,556	—	85,535
Accrued pension and postretirement benefit obligations	17,911	2,802	(726)	—	19,987
Lease liabilities	(23,840)	68,691	1,560	—	46,411
Deferred income and other obligations	69,524	(22,456)	(36,015)	—	11,053
NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES	**(934,361)**	**726,597**	**108,641**	**19,218**	**(79,905)**
CASH FLOW FROM INVESTING ACTIVITIES					
Additions to plant facilities, net	(1,120,237)	(411,295)	(90,151)	—	(1,621,683)
Faculty, student and other loans: new loans made	(157,419)	(46,968)	(11,177)	58,195	(157,369)
Faculty, student and other loans: principal collected	63,333	7,172	3,782	(10,946)	63,341
Purchases of investments	(15,139,671)	(277,162)	(11,099)	36,210	(15,391,722)
Sales and maturities of investments	15,962,058	210,276	14,022	—	16,186,356
Change associated with short term investments	(130,304)	—	—	—	(130,304)
Swap settlement payments, net	—	(5,095)	—	—	(5,095)
NET CASH PROVIDED BY (USED FOR) INVESTING ACTIVITIES	**(522,240)**	**(523,072)**	**(94,623)**	**83,459**	**(1,056,476)**
CASH FLOW FROM FINANCING ACTIVITIES					
Gifts and reinvested income for long-term purposes	482,651	11,440	69,549	—	563,640
Equity and fund transfers from Hospitals	239,456	(123,044)	(60,665)	(55,747)	—
Proceeds from related party housing loans	58,195	—	—	(58,195)	—
Repayments to related party housing loans	(10,946)	—	—	10,946	—
Proceeds from borrowing	768,114	—	—	—	768,114
Repayment of notes and bonds payable	(566,252)	(17,078)	(9,110)	—	(592,440)
Contributions received for split-interest agreements	9,791	—	—	—	9,791
Payments made under split-interest agreements	(56,651)	—	(803)	—	(57,454)
Commercial paper and variable rate debt proceeds (repayments), net	(12,299)	—	—	—	(12,299)
Securities lending collateral sold, net	(2,151)	—	—	—	(2,151)
Other	(13,446)	(54)	—	—	(13,500)
NET CASH PROVIDED BY (USED FOR) FINANCING ACTIVITIES	**896,462**	**(128,736)**	**(1,029)**	**(102,996)**	**663,701**
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	**(560,139)**	**74,789**	**12,989**	**(319)**	**(472,680)**
Cash and cash equivalents, beginning of year	1,628,703	536,803	461,814	(7,425)	2,619,895
CASH AND CASH EQUIVALENTS, END OF YEAR	**$ 1,068,564**	**$ 611,592**	**$474,803**	**$ (7,744)**	**$ 2,147,215**
SUPPLEMENTAL DATA:					
Cash and cash equivalents as shown in the *Statements of Financial Position*	$ 745,015	$ 611,592	$ 390,081	$ (7,744)	$ 1,738,944
Restricted cash included in assets limited as to use	193,732	—	75,470	—	269,202
Restricted cash included in other assets	7,473	—	9,252	—	16,725
Cash and restricted cash included in investments	122,344	—	—	—	122,344
TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE STATEMENTS OF CASH FLOWS	**$ 1,068,564**	**$ 611,592**	**$474,803**	**$ (7,744)**	**$ 2,147,215**
Interest paid, net of capitalized interest	$ 185,001	$ 81,573	$ 33,669	$ —	$ 300,243
Change in payables for plant facilities	$ 36,265	$ 13,343	$ (380)	$ —	$ 49,228
Right-of-use assets obtained in exchange for lease liabilities	$ 1,061	$ 143,898	$ 33,370	$ —	$ 178,329

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)	(87,108)	—	(723,823)
Equity and fund transfers, net	(220,777)	109,233	55,937	55,607	—
Gifts of securities and properties	(22,698)	—	—	—	(22,698)
Other	55,895	—	(35,214)	—	20,681
Changes in operating assets and liabilities:					
Accounts receivable	(56,034)	(222,993)	(21,652)	61,151	(239,528)
Related party receivable	(26,999)	33,435	54,715	(61,151)	—
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	**(670,223)**	**751,519**	**162,130**	**30,921**	**274,347**
CASH FLOW FROM INVESTING ACTIVITIES					
Additions to plant facilities, net	(490,801)	(365,946)	(68,273)	—	(925,020)
Faculty, student and other loans: new loans made	(179,632)	(45,741)	(20,205)	66,076	(179,502)
Faculty, student and other loans: principal collected	77,393	10,285	5,368	(15,733)	77,313
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**	**(515,714)**	**(85,934)**	**74,996**	**(65,425)**
CASH FLOW FROM FINANCING ACTIVITIES					
Gifts and reinvested income for long-term purposes	531,865	10,272	52,970	—	595,107
Equity and fund transfers from Hospitals	212,307	(100,733)	(55,967)	(55,607)	—
Proceeds from related party housing loans	66,076	—	—	(66,076)	—
Repayments to related party housing loans	(15,733)	—	—	15,733	—
Proceeds from borrowing	37,953	—	230,594	—	268,547
Repayment of notes and bonds payable	(7,898)	(15,581)	(239,898)	—	(263,377)
Contributions received for split-interest agreements	17,676	—	2,726	—	20,402
Payments made under split-interest agreements	(57,515)	—	(819)	—	(58,334)
Securities lending collateral sold, net	(7,696)	—	—	—	(7,696)
Other	(7,215)	(4)	(2,182)	—	(9,401)
NET CASH PROVIDED BY (USED FOR) FINANCING ACTIVITIES	**769,820**	**(106,046)**	**(12,576)**	**(105,950)**	**545,248**
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	$ 401,202	$ (7,425)	$ 2,285,760
Restricted cash and cash equivalents included in assets limited as to use	81,946	—	52,464	—	134,410
Restricted cash included in other assets	12,382	—	8,148	—	20,530
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

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, 2023

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					**$954,778,125**
Department of Agriculture					**$1,077,807**
10.001	Investigating Risk Factors of Rift Valley Fever Virus Direct Transmission in Kenya			$15,000	$157,747
10.025	Differential Phase Contrast X-ray Imaging for Automated Detection of Pests in Plants using Artificial Intelligence				$288,479
10.167	A Comparative Analysis of the Performance of Benchmark Price Regulation for Agricultural Commodities				$63,689
10.310	DSFAS: Stakeholder-engaged modeling, data science, and machine learning for more resilient and sustainable animal protein food systems	Colorado State University	G-40584-01		$10,637
10.310	Gut microbiota processing of dietary small molecules and impact on host biology				$348,495
10.310	NRI: FND: COLLAB: Multi-Vehicle Systems for Collecting Shadow-Free Imagery in Precision Agriculture				$126
10.310	Social Dimensions And Institutional Effectiveness Of Collaborative Stewardship With Native Nations Of A Forest Agroecosystem In California				$15,866
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		$37,824
10.310	Tobamovirus Delivered Pooled Perturbation Libraries For Single Cell Functional Genetics				$95,474
10.604	Preserving Sulfuryl Fluoride for Durable Exports to the European Union	California Prune Board	PN 22-08		$59,470
Department of Commerce					**$301,964**
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		$29,560
11.472	Emergent satellite technology-Block NOAA			$2,506	$159,472
11.609	Data Analytics for Additive Manufacturing				$112,932
Department of Defense					**$86,507,508**
12.300	20-000000470 HYPERVIPER: Broadband Hyperspectral Imaging System				$113,699
12.300	A Collaborative System for Source Aggregation, Creation, and Dissemination				$167,117
12.300	A CyberOctopus that Learns, Evolves, and Adapts	University of Illinois at Urbana Champaign	095643-17469		$441,390
12.300	Accessible Machine Learning for Misinformation and Influence Operation Analysis				$233,280
12.300	Achieving Thermal Management in IMPATT and CAVETs for RF Operations				$104,779
12.300	AI Nets: Predicting Actions and Inferring Intentions of Groups of Targets with a Network of Surveillance Robots			$153,507	$319,636
12.300	Analysis and Design of Optical-Acoustic Techniques to Approach Fundamental Limits of Detection across Dynamic Air-Water Interfaces				$360,042
12.300	Application of Macroscopic Forcing Method in quantification of Eddy Diffusivity fields in Subsurface and Near-surface Turbulent Wakes				$127,992
12.300	Beyond Right and Wrong: Validity, Confidence, and Tradeoffs in the Modern Machine Learning Lifecycle				$115,887
12.300	Center for Self-Assembled Organic Electronics	Pennsylvania State University	6118-SU-ONR-2453		$510,882
12.300	Center for Turbulence Research Summer Program				$2,122
12.300	Competing energy cascades associated with seasonally-varying submesocale turbulence in the North Pacific Subtropical Countercurrent				$153,070
12.300	Complex Experiments for a Complex World				$246,239
12.300	Compositional Scene Understanding with Self-Supervised Object-Centric Dorso-Ventral Neural Networks	University of California, Berkeley	00010802 / PO BB01667138		$509,076
12.300	Covid-19: ViroMeter: A portable health assessment device for viral transmission control				$23,037
12.300	Data Geometry, Semantics, and Information				$194,246
12.300	Data-Driven Input-Output Models for Reacting, High-Enthalpy Flows				$109,277
12.300	Deep Signal Processing for Machine Learning Models				$65,682
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				$155,222
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		$196,135
12.300	Development of GaN and AlGaN growth platform for achieving 3.3-20kV power devices				$226,864
12.300	Development of Multi-functional Composite UAV Structures for Urban Operations				$13,211
12.300	Development of Validated Hypersonic Plasma Kinetics Models Including Atomic Excitation	University of Colorado, Boulder	1563127/PO 1001800582		$139,493
12.300	Diffusion and Learning Models				$76,047
12.300	Discovering and Modeling Turbulence and Chemistry Interactions in High Speed Reactive Flows	University of Michigan	SUBK00014012 / PO 3006515445		$202,970
12.300	Dissecting the Neural Circuit Basis for Volition: A New Framework for Brain-Machine Interfaces, Artificial Neural Networks, Robotics, and Shaping of Intentional and Habitual Actions				$104,096
12.300	Dissipative quantum dynamics and error-correction with quantum acoustics				$316,307
12.300	Emergent light-matter interactions through twisted atomic and photonic crystals	Vanderbilt University	OSA00000256/PO P24005110		$17,536
12.300	Engineering and design to enhance heart rate detection in cetacean-borne tags				$35,699
12.300	Enhancing Mechanical and Combustion Properties of Boron/Polymer Composites via Engineered Interfacial Chemistry				$147,105
12.300	Establishing Gordian Knot Center at Stanford University				$1,280,185
12.300	Examining Solar Flux Emergence to Search for Signatures of the Undular Instability and Interactions with Convection				$3,966
12.300	Extraordinary Electronic Switching of Thermal Transport	University of Texas at Austin	UTA21-000335		$259,494
12.300	Facilities and Instrumentation for Study of Turbulence-Chemistry Interactions in High-Speed, Compressible Flows				$10,664
12.300	Fast Re-routing Using Machine Learning				$94,605
12.300	Flexible Vision-Based Robotic Manipulation via Meta Learning and Deep Reinforcement Learning				$188,260
12.300	Flexible Vision-Based Robotic Manipulation via Meta-Learning and Deep Reinforcement Learning				$212,662
12.300	Frugal, Lifelong-Learning Control Systems with Execution Guarantees	University of California, Berkeley	00010920/N00014-22-1-2121		$117,104
12.300	Fundamental Studies and Applications of Spin-Orbit Interactions of Light	Boston University	4500003519		$256,274
12.300	Game-theoretic mechanisms for group decision making				-$2,240
12.300	Hacking for Defense 2.0 for ONR NEPTUNE and NURP Programs				$833,933
12.300	Harnessing Human Intelligence for Adaptive Human-Robot Collaboration			$178,148	$481,089
12.300	High-Assurance Cryptography			-$11,150	-$11,260
12.300	High-fidelity numerical simulation to understand the physics of surface/internal gravity wave interactions				$100,111

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

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	HPROM-Based Integrated Flight and Aeroelastic Control Technology (IFACT) for Carrier Landing				$59,522
12.300	Identity Signals for Enabling Participatory Governance			$13,533	$254,109
12.300	Improving Neural Networks with (and for) Computational Physics				$145,741
12.300	Inertial Sensors Using Optically Levitated Microscopic Objects	Yale University	CON-80004489 (GR120639)		$282,419
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		$127,265
12.300	Intentional multi-modal self-learning to perceive and understand the real world	Massachusetts Institute of Technology	S5847 PO #830483		$402,153
12.300	Interpretable End-to-End Streaming Inference in Multi-Agent Environments				$166,662
12.300	Investigating Magnetic Flux Rope Emergence as the Source of Flaring Activity in Delta-Spot Active Regions				$954
12.300	Investigation of Deep Learning for Solid and Fluid Simulations				$28,410
12.300	JTO MRI: Power Scalable Electrically Driven Monolithic IR Surface Emitting Semiconductor Lasers	University of Texas at Arlington	126060159062		$55,197
12.300	Learning for Dynamics, and Control (L4DC)				-$6,572
12.300	Learning to Prevail: Communication in Contested and Adversarial Environments	Princeton University	PO#SUB0000618		$86,727
12.300	Learning, Leveraging, and Influencing Representations for Interactive Autonomy				$112,033
12.300	Measuring heart rate to assess the stress response in large whales			$51,940	$62,286
12.300	Mechanically robust polymer encapsulation material for polymer electronics				$19,455
12.300	Metal Organic Chemical Vapor Deposition of Group III - Nitrides at High Temperature and High Growth Rate				$443,886
12.300	Millimeter-Wave Cavity-QED for Scalable Quantum Gates with Rydberg Atoms				$304,872
12.300	Multi-channel spectrum analyzer for component characterization with fast and accurate noise figure measurements				-$12,931
12.300	Multiphase Detonation of Liquid Aeropropulsion Fuels			$288,327	$491,894
12.300	Nacre-Like Energetic Polymer Composites with 2D Metallic Nanosheets				$192,238
12.300	Nano Ceramic Additive Manufacturing of IR Sensor Domes				$18,449
12.300	Navigating the Space of Chemical Reactions From First Principles				$191,815
12.300	Next generation near infrared interference coatings with ultra-low stress and losses for deformable mirror applications	Colorado State University	G-01705-01		$95,652
12.300	Next-generation AI Vision SoCs for Spatially Aware Autonomous Naval Systems				$25,481
12.300	Non-reciprocal photonic gauge potential and non-equilibrium thermal metaphotonics for the control of light and heat				$214,842
12.300	N-Polar GaN CAVETs for higher power densities at mm-wave operations				$201,486
12.300	N-Polar Nitride Vertical devices for RF application				-$33,598
12.300	Numerical Simulation of Hypervelocity Impact Induced Phenomena				$47,503
12.300	Photomechanical Material Systems: From Molecules to Devices	University of Massachusetts Amherst	18-010467 D 04		$146,522
12.300	Physically Robust Metasurfaces for High Power Optoelectronics Applications				$198,198
12.300	Qualifying the effect of anthropogenic noise sources on cetacean fine-scale diving biomechanics and its energetic and physiological implications	Kelp Marine Research	22_2735_001/N00014-22-1-2735		$22,203
12.300	Rapid-Tuning Laser Systems for Spectrally-Resolved Diagnostics of High-Enthalpy Flows				-$19,868
12.300	Refraction and Reflection of Nonlinear Internal Waves from Steep Topography				$54,276
12.300	Robot Learning from Internet-Scale Data				$163,783
12.300	ROXSI: ROcky shores eXperiments and SImulations	University of California, San Diego	KR 704624		$47,374
12.300	Scalable generation and control of large quantum states of light and matter in engineered semiconductor materials				$769,847
12.300	Sensing quantum vacuum fluctuations from correlated materials (21-000000580)				$137,016
12.300	Spectrally-Resolved Laser Diagnostics for High-Enthalpy Flow Measurements				$52,920
12.300	Spectrally-Resolved Laser Diagnostics for High-Enthalpy Flow Sensing				$199,748
12.300	Surface breakdown and plasma formation in cross-field high power microwave sources				$213,234
12.300	Synthesis Planning and Reaction Discovery For Photochemistry and Chemistry in Novel Environments			$484,810	$1,481,160
12.300	Synthetic Nucleic Acid Nanoparticles for RNA Structural & Synthetic Biology	Massachusetts Institute of Technology	S4989 PO #429177/N000142012084		$35,816
12.300	The role of mesoscale strain in the near-surface decay and propagation of high-mode near-inertial wave energy				$104,754
12.300	Top-Down And Bottom-Up Brain Mechanisms At Multiple Spatial And Temporal Scales: Experimental Investigation And Computational Modeling			-$73	-$799
12.300	Tracking, Diagnosing and Arresting Dielectric Breakdown Using Multiscale Characterization and Simulations	University of Connecticut	PO# 163166/KFS# 5641050		$194,603
12.300	Trusted Machine Learning: Statistical Tools for Making the Black Box Effective				$264,309
12.300	Uncertainty quantification in high dimension: Sampling and noisy debiasing				$103,364
12.300	Uncertainty-aware Learning with Generative Models				$82,617
12.300	Understanding & Controlling Oxygen Release in Anionic Redox Cathodes				$137,044
12.300	Understanding and Applying Non-Euclidean Geometry in Machine Learning				$103,934
12.300	Visual Reasoning via Spatio-temporal Scene Graphs				-$1,011
12.300	W-Band GaN IMPATT Devices	QuinStar Technology, Inc.	PO 61685		$143,971
12.300	XASEM for Surface Chemical Imaging Approaching Atomic-Scale Precision				$180,687
12.300	YIP-DREAMI: Dimension Reduction for Efficient Automated Machine Intelligenceure				$183,589
12.300	Elements of Causal Learning: Basic Concepts, Theory, Methods, Algorithms and Applications	Temple University	264443-SU P0592977		$63,595
12.330	20-000000630: Enhancing STEM educational experience in marine science and technology with a novel at-sea program			$185,362	$212,334
12.351	A basic research pipeline for discovery and early preclinical development of host-targeted antiviral strategies to combat encephalitic alphaviruses			$119,734	$402,588
12.351	An integrated multi-scale camouflaging platform for cloaking immunogenicity and evading non-specific clearance of therapeutic proteins	Cornell University	90425-22688		$1,980
12.351	Development of biologic countermeasures for saxitoxin (STX) poisoning	University of California, San Francisco	12761sc		$405,154
12.351	High-resolution characterization of saxitoxin (STX) recognition	University of California, San Francisco	11791sc		$297,113
12.40	Reprogramming the tumor microenvironment to enhance anti-tumor immunity and improve hearing in NF2 vestibular schwannoma	Massachusetts General Hospital	236462		$59,286
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		$53

The accompanying notes are an integral part of this schedule of expenditures of federal awards

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

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	A HyTEC Implantable Device That Enables Personalized, Sustained Release of Bioagent for Large Bone Defect Reconstruction and Limb Salvage			$52,789	$477,564
12.420	A Modeling-Based Personalized Screening Strategy Combining Circulating Biomarker and Imaging Data for Breast Cancer Early Detection				$228,127
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 (DCM II Trial)	University of Miami	OS00000030 // PO SPC-002510		$100,405
12.420	Abnormal Dynamic Visual Function and Associated Symptomatology in Mild Traumatic Brain Injury				$500,086
12.420	Aerosol Delivery of CPZEN-45 for Treatment of Nontuberculous Mycobacterial (NTMs) Infections	PAI Life Sciences Inc.	CPZEN-D-1_Stanford		$10,291
12.420	An Integrative Radiogenomic Framework for Predicting Treatment Failure in Children, Adolescents, and Young Adults with Hodgkin Lymphoma				$484,919
12.420	Analyzing EBV Genomes and Epigenomes and EBVDependent B Cell Proteomes to Identify Fundamental Viral Triggers of MS				$22,330
12.420	Androgen Deprivation Therapy-Mediated Cardiovascular Disease and Vascular Aging in Men with Prostate Cancer: Racial Difference and Role of NAD	Augusta University	38656-2		$635
12.420	Basis for Visual Impairment in Multiple Sclerosis: Beyond Retinal Ganglion Cells.				$46,050
12.420	Biomarker driven targeted therapy for late-recurring ER-positive breast cancer			$191,733	$311,386
12.420	Biomarker driven targeted therapy for late-recurring ER-positive breast cancer.				$340,663
12.420	Brain neuropeptide signaling and autism spectrum disorder				$370,051
12.420	Central lateral thalamic circuitry abnormalities in traumatic brain injury and Alzheimer's disease				$129,901
12.420	Coaxing Senescence in Retroperitoneal Liposarcomas				$93,843
12.420	Combination nitazoxanide and auranofin treatment for anaplastic thyroid cancer				$15,932
12.420	Combining Radiotherapy and CD47 Blockade to Induce Macrophage-Mediated Abscopal Effects Against Lung Cancer				$273,749
12.420	Defining the regulation of GD2 expression to enhance immunotherapy for neuroblastoma			$70,542	$126,685
12.420	Detecting Cartilage Surface Degeneration using Photon Counting CT and Solute Transport Modeling				$88,771
12.420	Detecting Relapse Causing Populations at the time of Diagnosis in B-cell Progenitor Acute Lymphoblastic Leukemia				$120,232
12.420	Determining the Predictive Value, Functional Role, and Mechanisms of Action of NUSAP1 in Clear Cell Renal Cell Carcinoma				$99,141
12.420	Development of Non-Genotoxic Hematopoietic Stem Cell Transplantation Regimens for Fanconi Anemia				$246,733
12.420	Development of novel cardiac myocyte-specific AAV capsids				$91,210
12.420	Development of PROTAC Degraders for VHL Synthetic Lethal Partner FTO in Clear Cell Renal Cell Carcinoma				$70,351
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				$156,891
12.420	Exosomes as a Reliable Noninvasive Method for Monitoring VCA Graft Rejection				$190,292
12.420	Exploring the role of Manganese and Mn-dependent Metabolic Pathways in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome.				$581,939
12.420	Hybrid bone-tendon grafts for enhanced tendon healing			$113,413	$336,796
12.420	Identification and Therapeutic Targeting of a Novel Cell Population in Rejection of Vascularized Composite Allotransplantation				$339,001
12.420	Identification of Siglec-9 ligand for T cell immunoevasion in advanced prostate cancer				$168,990
12.420	Identification, Characterization, and Correction of a Defect in Treg Function in SLE				$313,687
12.420	Imaging and Exosomal Genomics as an Early Identifier of Lung Cancer			$96,072	$521,237
12.420	Improving Voluntary Engagement for PTSD Treatment Among Soldiers	University Of Washington	UWSC11285; BPO 41961		$1,782
12.420	Integrated Immunophenotypic, Transcriptomic, and Epigenomic Characterization of Uterine Mesenchymal Neoplasms with Expert Pathologist Panel Review				$13,459
12.420	Intraocular Microdisplay Projection for Vision Restoration After Corneal Blindness				$109,090
12.420	Intraoperative Imaging of Cavernous Nerves in Radical Prostatectomy for Prostate Cancer	Emory University	A755639		$115,808
12.420	Isolation and Engineering of Potent Anti-EBV Neutralizing Antibodies for the Treatment of MS				$15,168
12.420	Just-in-Time, Single-Dose, Universal Anti-Influenza A Virus Therapeutic				$960,482
12.420	Local and Systemic Analysis of Immune Responses in Pancreatitis Patients			$25,036	$142,465
12.420	Mechanisms and Treatment Development for Pancreatitis Resulting from Alcohol Abuse and Smoking	Cedars-Sinai Medical Center	0001621388		$279,252
12.420	Miniature Intracochlear Imaging Probe Based on Micro Optical Coherence Tomography for Cellular-Level Diagnosis and Therapy of Hearing Loss			$251,047	$419,762
12.420	Multicenter Randomized Trial of Everolimus in Pediatric Heart Transplantation - CCC	Boston Children's Hospital	GENFD0001901925		$201,396
12.420	Multiplexed Imaging to Improve and Define Diagnosis and Subsequent Treatment for Patient Suffering from Gulf War Illness Using CyTOF and Codex				$30,312
12.420	NAK Inhibitors for Combating Dengue, Ebola, COVID-19, and Other Emerging Viral Infections			$103,412	$386,901
12.420	Nasal Oxytocin for the Treatment of Post-TBI Chronic Headache: Influence of Estrogen				$128,446
12.420	Novel Biomarkers to Direct Stereotactic Ablative Radiotherapy in Castration-Sensitive Oligometastatic Prostate Cancer	University of Maryland, Baltimore	20937 PO #10000014916		$4,008
12.420	Novel Strategies to Combat Post-Traumatic Osteoarthritis (PTOA)			$1,531,387	$2,803,775
12.420	Optimizing a Novel Intraductal Delivery of Calcineurin Inhibitors as a Radiocontrast Infusion Formulation to Prevent Post-ERCP Pancreatitis			$8,455	$553,884
12.420	Photovoltaic Substitute for the Lost Photoreceptors in Retinal Injury or Degeneration				$544,135
12.420	PROSPECTIVE, RANDOMIZED, PLACEBO-CONTROLLED PHASE II TRIAL OF ASPIRIN FOR VESTIBULAR SCHWANNOMAS	Massachusetts Eye and Ear Infirmary	16-0231 / 2300179		$3,226
12.420	Randomized Controlled Trial of Telehealth-Enabled Versus In-Person Parent-Mediated Behavioral Treatment for Challenging Behaviors in Autism Spectrum Disorder			$128,869	$459,827
12.420	Relating the interplay of tumor function and host response to clinical outcome in triple negative breast cancer				$1,200,135
12.420	Covid-19: Repurposing of Pan-ErbB Inhibitors to Protect from Coronaviral Infection, Inflammation and Lung Injury			$19,789	$222,653
12.420	Revealing and targeting lipidomic vulnerabilities to treat early-stage melanoma				$13
12.420	Revealing the potential for mSWI/SNF as biomarkers in breast cancers				$139,971

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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	RSK3-mAKAP Targeting as a New Therapeutic Strategy for Heart Failure with Preserved Ejection Fraction in Women				$1,319
12.420	Selective inhibition of pathological mitochondrial fission to improve mitochondrial functionand inhibit neurodegeneration and neuroinflammation in ALS				$560,551
12.420	Targeting Circadian Control of Oligodendrocyte Lineage Cell Dynamics for Remyelination				$352,184
12.420	Targeting Metastatic Breast Cancer with Copper Trap Assembled in Situ				$5,497
12.420	Targeting the Plasmodium Proteasome for Prophylaxis and Treatment of Drug-Resistant Malaria in U.S. Military Personnel			$147,702	$287,747
12.420	Targeting Unusual Nutrient Acquisition Routes of Nutrient-Deprived Cancers				$3,032
12.420	The Regenerative Medicine for EB and related Diseases at Stanford (REMEDIS) Center				$2,166,510
12.420	Towards better understanding and predicting severe dengue.				$104,781
12.420	Tracking sarcoma response and resistance to radiation therapy				$191,679
12.420	Treatment Options for Metastatic Osteosarcoma	Dana-Farber Cancer Institute	3092501		$154,483
12.420	Understanding and targeting pulmonary arteriovenous malformations using repurposed drugs				-$3,371
12.420	Understanding the Prognostic Impact of NK Cell Heterogeneity in Melanoma				$226,605
12.431	3D Object and Scene Variation Synthesis for Learning Algorithms (Topic:k.Artificial Intelligence and Machine Learning)				$350,389
12.431	A Multimodal Approach to Network Information Dynamics	University of Illinois at Urbana Champaign	100440-17936		$480,917
12.431	Associative memory using glassy confocal cavity QED				$294,054
12.431	Cavity Tweezer Arrays for Quantum Networking				$118,298
12.431	Characterizing and Mitigating Phononic and Photonic Poisoning in Solid-State Qubits	Syracuse University	33116-06386-S02		$60,966
12.431	CHARMME: Center for Harnessing Microbiota from Military Environments	Massachusetts Institute of Technology	s6005, PO #932546		$20,661
12.431	Collaborative Agreement: Collaborative for Hierarchical and Agile Resonant Materials (CHARM)	University of California, Berkeley	00011223 // PO BB01662340		$150,021
12.431	Critical Infrastructure Resilience: Define, Match, Measure, and Enforce				$21,784
12.431	Efficient, Robust and Reliable Neural Networks for Multimodal and Synthetic Data: A Sparse Representation Perspective				$46,195
12.431	Hardware-Efficient Computing with Quantum Acoustics	California Institute of Technology	S387326		$60,067
12.431	High Pressure Deformation Mechanisms in Lightweight Alloys				$126,857
12.431	Impacts of Stress History on the Mechanical Properties of Sediment Beds	Yale University	CON-80004284(GR119104)		$22,579
12.431	Integrated Quantum Optomechanical Transducers for Networking Microwave Quantum Machines				$32,416
12.431	Interactive Human-AI Teaming for AI Model Development, Debugging and Repair				$675,835
12.431	Ladderene-Based Polymechanophores: From Understanding Mechanotransduction to Developing Materials with Amplified Force-Response				$128,121
12.431	Laser and Imaging Systems for the Study of High-Temperature Laminar Flames in Shock Tubes				$5,604
12.431	Learning and Influencing Conventions in Human-Machine Collaboration				$75,950
12.431	Learning Robust Classifiers from Small Data using Generative Models				$90,748
12.431	MURI: Robust entanglement distribution in quantum networks - network science and architectures for novel quantum information processing	University of California, Los Angeles	0160 G ZB340		$49,038
12.431	Near-Field Radiative Heat Transfer and Energy Conversion in Nanogaps of Nano- and Meta-Structured Materials	University of Michigan	SUBK00010159 / PO 3005531165		$103,972
12.431	Optimizing Range and Velocity Sensing with Computational Single-photon Imaging				$185,601
12.431	PECASE W911NF-12-R-0012-04: Answering High-Level Questions on Low-Level Data				$206,992
12.431	Quantum Simulation of Frustrated Magnets by Rydberg Dressing				-$3,531
12.431	Quantum State Control of Molecular Collision Dynamics	University of Missouri	C00064278-5		$99,865
12.431	Reconfigurable functional materials				$168,005
12.431	Regaining Control in Reinforcement Learning			$47,470	$134,136
12.431	Resource Allocation in Slow Growing Methanogenic Archaea				$119,395
12.431	Robust Entanglement-Enhanced Metrology with Atoms and Solid-State Spins			$964,920	$1,345,776
12.431	SCAN: Socio-Cultural Attitudinal Networks	University of Maryland at College Park	38796-Z8424103		$50,507
12.431	Semantic Information Pursuit for Multimodal Data Analysis	Johns Hopkins University	2003514594		$206,975
12.431	Simultaneous Surface Color and Texture Changes Enabled by Liquid Crystal Elastomers				$33,342
12.431	Synthesis of Novel Energetic Graphene-Stabilized-Metal Fluoropolymer Composites and Study of their Interfaces and Reactions	Rutgers, The State University of New Jersey	PO 25316867 / SUB00002601		$29,810
12.431	The Army Synthetic Biology Center for Predictive Materials Design (PreMaDe)	Northwestern University	60063525		$37,814
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				$181,211
12.630	Building a self-sustaining microgrid for remote communities and military bases			$1,095,000	$1,406,468
12.630	Internet of Battlefield Things (IoBT)	University of Illinois	088831-18416		-$32,241
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		-$128
12.750	Proj 6-Preclinical Validation of Photobiomodulation Therapy for Sensorineural Hearing Loss	Massachusetts General Hospital	235508		$439,994
12.800	(DURIP) High Framing Rate Camera and Superconducting Magnet for the Study of Magnetized Plasmas				$172,510
12.800	(YIP) Engineering Biomolecular Actuators from Ion-Responsive Repeat Proteins				$145,212
12.800	265604_AFOSR_R.Zhao - Pixelized Composites with Programable Stiffness Distribution for Acoustic Wave Manipulation				$38,846
12.800	A Robust Multi-Physics Design Analysis and Optimization Framework for Hypersonic Systems Grounded in Rigorous Model Reduction			$863,797	$1,694,586
12.800	A Theory-Based Concept Learning Framework for Perception, Reasoning, and Planning				$10,692
12.800	Adaptive Conventions for Trustworthy Human-Robot Interaction				$141,189
12.800	An Architecture for Normative, Explainable, and Justified Agency				$146,539
12.800	ANSRE: ANalysis and Synthesis of Rare Events			$962,339	$1,805,445

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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12.800	Autonomous Distributed Angles-Only Orbit Determination using Multiple Observers				$95,682
12.800	Brain-Inspired Networks for Multi-functional Intelligent Systems in Aerial Vehicles	University of California, Los Angeles	0205 G XA211		$126,947
12.800	Cavity Tweezers for Quantum Information Science and Simulation				$409,092
12.800	Complexity-theoretic foundations of quantum advantage experiments				$158,653
12.800	Dilution Cryostat for quantum addressable memory	University of Chicago	AWD103310		$472,120
12.800	Dynamical optical lattices of dysprosium				$61,360
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				$288,129
12.800	Embedded Boundary Methods with Stability, Accuracy, and Smoothness Guarantees for Multidisciplinary Design, Analysis and Optimization				$190,964
12.800	Emergent Phenomena via Magnetism and Topology				$29,655
12.800	Evaluation of Aerothermochemistry Models Through Sensitivity Analysis and LowUncertainty Experiments	University of Colorado, Boulder	1560116 // PO 1001441567		$83,233
12.800	Exploiting Extreme Molecular-Confinement in Hybrids for Enhanced Mechanical and Thermal Behavior				$300,622
12.800	ExPlor -Center of Excellence on Brain-Derived Neuromorphic Computing with Intelligent Photonic and Electronic Materials	University of California, Davis	A22-2094-S002		$38,036
12.800	Exploring Ultra-Narrow Photon Emission in the keV regime				$299,853
12.800	Extrapolating ground test data of Hall effect thrusters to in-space operation				$161,142
12.800	Field-Deployable Mid-Infrared TDLAS Sensor for NASA EAST				$93,126
12.800	Foundations of Geometric Deep Learning				$60,296
12.800	Fundamental Spectroscopy of Oxygen at High Temperatures and Pressures in Support of Quantitative Sensing for Hypersonic Air Flows				$233,816
12.800	Hierarchical Strategy for Supporting Validation of Combustion Simulations				$112,765
12.800	High Coherence Quantum Phononic Circuits	Yale University	CON-80004391(GR120271)		$2,238
12.800	High-resolution 3-Dimensional Optoelectronic Neural Interface for Restoration of Sight				$110,679
12.800	Hot Magnetized Plasma Acceleration Devices and Modes for Agile Plasma Thrusters				$229,324
12.800	Hybrid-Materials Valley Optoelectronics for Photon Spin Communication	Cornell University	FA9550-18-1-0480		$128,788
12.800	Implementation of data assimilation strategies in modeling acoustically excited flames	Jacobs Technology Inc.	RAPT1-0000001326		$7,875
12.800	Information-Geometry of statistical manifolds and Data Assimilation				$257,574
12.800	Internal Cooling of Fiber and Disc Lasers by Radiation Balancing and Other Optical or Phonon Processes	University of Illinois at Urbana Champaign	084272-16070		$7,557
12.800	In-Vivo Validation of Analyte Partitioning Mechanisms for Peripheral Biochemical Monitoring	University of Cincinnati	013176-00007		$93,317
12.800	Laser Systems for Fundamental Spectroscopy of Oxygen (O2) in Hypersonic Air Flows				$72,624
12.800	Learning and Meta-Learning of Partial Differential Equations via Physics-Informed Neural Networks: Theory, Algorithms, and Applications	Brown University	00001656		$59,349
12.800	Learning for Dynamics, and Control (L4DC)				-$1,864
12.800	Low-Temperature Recondensing Magnet System with Dilution Refrigerator Insert for Research in Electronic Properties Near Quantum Phase Transitions and in Topological Materials.				$197,920
12.800	Machine learning methods for imaging with applications to space surveillance				$53,590
12.800	Magnet-Free Non-Reciprocal Metamaterials Based on Spatio-Temporal Modulation	Research Foundation, The City University of New York	CM00001531-00		$603,181
12.800	Mechanistic Studies of Microdroplet Chemistry			$1,038,600	$2,042,022
12.800	Mesoscopically Structured Ionic Materials: RTIL Thin Films and Perovskite White Light Emitters				$266,254
12.800	Meta-imaging: Sensing, Processing and Computing with Dynamic Metasurfaces	Duke University	313-1121		$497,265
12.800	Multiscale Stochastic Modeling, Conditioning, and Simulation of Rare Events	University of Southern California	138557016 / PO-10936691		$119,651
12.800	MURI: Reimagining Atoms and Photons in SYnthetic, DYnamical, and INteracting Quantum matter (RAPSYDY IN Q)	Pennsylvania State University	S003166-AFOSR		$257,285
12.800	Nanophotonic neural networks with nonlinear, reconfigurable metasurfaces				-$17,761
12.800	Optical Analog Computing and Communications with Configurable Nonlocal Photonics				$20,430
12.800	Optophysiology: interferometric imaging of the intrinsic neural signaling				$241,012
12.800	PECASE: New material and design approaches for integrated nano-optical systems				$374,984
12.800	Quantum Codes, Tensor Networks, and Quantum Spacetime	University of California, Santa Barbara	KK2015		$246,560
12.800	Quantum Optimization with Rydberg Atoms				$365,142
12.800	R&D to Improve the Integrity and Safety of the PNT Solution Using Current and Future SatNav signals				$369,603
12.800	Real-Time Battery Health Monitoring with Built-in Ultrasonic Techniques for Electric Aerial Vehicles				$97,820
12.800	Real-Time Coherent X-ray Imaging of Radiation-Sensitive Materials at Sub-10 nm Resolution	University of California, Los Angeles	1000 G LF361		$123,171
12.800	Robustness, simulation and error correction for quantum dynamics				$22,676
12.800	Sensitizing Reaction Chemistry in Detonation - Chemical Kinetics				$208,712
12.800	Silicon carbide as a monolithic platform for integrated optoelectronics				$109,091
12.800	Spectroscopic Measurements and Nonequilibrium Modeling for High-Enthalpy Air	California Institute of Technology	S437969		$187,238
12.800	Stretchable Polymer Semiconductors				$261,578
12.800	Support for the American Conference on Theoretical Chemistry 2022				$9,920
12.800	TIMELIGHT: Explainability in Time Series				$131,313
12.800	Topological Phenomena in Magnetized Plasma Structures and their Applications for Extreme Control of Electromagnetic Waves			$486,079	$1,003,340
12.800	Towards Dissipation-less Conduction in Oxide Topological Insulators				$100,743
12.800	Towards Enhanced Seismic Monitoring with Distributed Acoustic Sensing (DAS)			$131,425	$270,422
12.800	Towards Robust Scalable Quantum Random Access Memories	University of Chicago	AWD102104 (SUB00000855)		$182,263
12.800	Tunneling Phenomena in Interface Superconductors	Harvard University	134400-5122157		$294,188
12.800	Ultralow power, Ultrafast, Integrated Nano-Optoelectronics	University of Texas at Austin	UTA16-001253		$51,714
12.800	UV AND IR LASER SYSTEMS FOR SPECTRALLY-RESOLVED REACTING FLOW DIAGNOSTICS				$7,364
12.800	Variational Methods for Information Processing and Learning				$8,946
12.800	Visualizing Ultrafast Plasticity with X-ray Diffraction Microscopes				$79,100
12.900	STARTALK Integrative Leadership Development				$770

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12.901	Extracting Information from Rich Video Streams: An Agile Software/Hardware Approach				$49,571
12.901	Upscale: Scaling up formal tools for POSH Open Source Hardware			$173,253	$170,264
12.910	Biased agonists as rapidly acting neuropsychiatric drugs	University of North Carolina at Chapel Hill	5124424 / HR00112020029 PHASE2		$1,100,625
12.910	Distributed cell-free manufacturing of biologics-based medical countermeasures	Northwestern University	60064652 SU		$25,927
12.910	Electrogenic Regulation of Sleep Biomolecules for Circadian Cycle Adjustment			$708,938	$1,406,673
12.910	Engineering native human skin commensals to eliminate attractants and introduce repellents and mosquito tracking using millisecond device apparati			$987,892	$2,077,444
12.910	Excitonic circuitry enables nightglow upconversion			$183,138	$728,032
12.910	Floquet Phases - A New Resource for Quantum Devices	Princeton University	SUB0000345		$1,581
12.910	Multi-modal Open World Grounded Learning and Inference (MOWGLI)	University of Southern California	125037483		$438,731
12.910	Nonlinear Nanophotonics for Visible-Emission Lasers (NOVEL)	University of Colorado, Boulder	1559924 / PO # 1001522176		$578,440
12.910	OUTATIME: Ovenized Ultra-stable Tactical Timing with Mechanics	University of Illinois at Urbana Champaign	112646-19456		$191,690
12.910	PIPES	University of Pennsylvania	Sub 577443/PO 4724447/583232		$24,326
12.910	Revolutionizing Computing Systems through Dense and Fine-grained Monolithic 3D Integration	Massachusetts Institute of Technology	S4632-007/PO216909		-$10,436
12.910	Rewriting the Rules of Thermal Emission via Parametric Microphotonic Design	University of Southern California	108725131/PO10724755		$31,492
12.910	Structure-guided drug discovery of allosteric modulators for cannabinoid receptors with therapeutic efficacy for PTSD and traumatic neuronal injury			$826,688	$2,093,659
12.910	Systems Biological Assessment of the Durability of Vaccine Responses				$394,591
12.RD	Active Source Seeking in Multi-Robot Exploration Missions	Jet Propulsion Laboratory	1677375		$245,417
12.RD	Architecture and Analysis for High-Assurance Autonomy	Rockwell Collins	PO-4506642848		$6,015
12.RD	ASCENT: Applications and Systems driven Center for Energy-Efficient Integrated NanoTechnologies	University of Notre Dame	203278SU-POP		$34,076
12.RD	Building machine common sense the human way	International Business Machines Corporation	CW3013548 / PO #4700221071		$87,815
12.RD	ComSenTer: A Center for Converged TeraHertz Communications and Sensing	University of California, Santa Barbara	KK1842		$162,786
12.RD	Controlling Chemistry via Spin Injection Heterostructures				$71,637
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		$95,665
12.RD	Earthquake Signal Characterization Using Deep-Residual Convolutional-Recurrent Networks				$209,401
12.RD	End-to-end Machinery for Proving Highly Sensitive Application-oriented Statements In ZEro-knowledge (EMPHASIZE)	SRI International	47137		$192,967
12.RD	Entangled short wave infrared (En-SWIR) photon source	Sivananthan Laboratories	0961-21-SSU-0001		$51,839
12.RD	Exergy management strategies for ground vehicles efficiency maximization	National Center for Manufacturing Sciences	2021108-142132		$172,291
12.RD	Exploring new topological materials and interfaces for advanced SOT-MRAM	University of Notre Dame	203278SU-Wang		$11,154
12.RD	High Performance Electronics for Quantum Systems: Analysis and Design (Sequential Phase II STTR)	Vector Atomic	SPO 174038		$85,233
12.RD	High-Speed Aero-Propulsion Integration Technology Development	ARCTOS Technology Solutions, LLC	212014.03.00.2019.00.05-C1		-$19,090
12.RD	Human Intent Aware Decision- Making Planning	MIT Lincoln Laboratory	7100441073/7000441073		$32,212
12.RD	Humanitarian Notification Systems for Deconfliction: Stanford subaward (Phase 2, Part 2)	MIT Lincoln Laboratory	PO 7000557832		$115,954
12.RD	Integrated and Rapid Bacterial Identification and Antimicrobial Susceptibility Testing using Digital High-Resolution Melt Analysis at the Point-of-Need	Johns Hopkins University	12503 (PO: 2004336856)		$6,278
12.RD	Integrated quantum inspired photonic solver (i-QIPS)	University of Pennsylvania	586124/PO 5062440		$68,150
12.RD	Materials and Devices for achieving analog updates for online training and inferencing	University of Notre Dame	203278SU-Wong		$55,464
12.RD	MIDDAG: Modeling Influence Pathways with Multi-Dimensional DynAmic Graphs	University of California, Los Angeles	0145 G LA220		$101,436
12.RD	Multi-Component, Co-Deposition of Patterned Films and Nanoparticles	Surfx Technologies LLC	SFX-01-2021		$17,080
12.RD	Network on Chip (NoC) Design For: DARPA's Fast Event-Based Neuromorphic Camera and Electronics (FENCE) Program	Northrop Grumman Systems Corporation	5300027712		$400,838
12.RD	Permanent Attachment of Supplementary Module to RSO Analysis (Phase I)	Kall Morris, Inc.	255638		$75,000
12.RD	Photon Counting in the Near-Infrared Band	Sivananthan Laboratories	0014-22-SSU-0001		$34,948
12.RD	Prevention of Sediment Recontamination by Improved BMPs to Remove Organic and Metal Contaminants from Stormwater Runoff			$31,071	$37,931
12.RD	Reinforcement Learning for Temporal Graphs: Solving Combinatorial Optimization with Homomorphic MDP Networks	MIT Lincoln Laboratory	7100538803		$27,520
12.RD	Research Project in Applied Statistics				$81,633
12.RD	Scalable production of sequence-defined biopolymers containing multiple distinct non-canonical amino acids in recoded cell and cell-free systems	Pearl Bio, Inc.	289338		$3,533
12.RD	Securing our National Internet Infrastructure: Using measurement, control, and verification for closed-loop control networks			$8,603,563	$9,783,882
12.RD	SMART	Systems & Technology Research, LLC	2020-0072 / 2021-2011000004		$254,200
12.RD	Stabilized Lasers for the Cesium Two-Photon Optical Clock (CTOC)	Northrop Grumman Systems Corporation	CTM-P-ST-004 / PO 5300053908		$141,525
12.RD	Test & Evaluation of AI, Autonomy and Manned-Unmanned Teaming	GE Global Research	401175445		$126,462
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	$165,819	$322,800
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		$143,721
Department of Education					**$2,983,914**
84.022	Coaching Aspiration - Educational Entrepreneurship and Social Mobility in India				$16,726

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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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
84.022	Fulbright-Hays Doctoral Dissertation Research Grant Abroad Fellowship | Title 'Black Youth Activism and Violence in Colombia's Paradise', Student Jameelah Morris				$100
84.022	Fullbright-Hays | Doctoral Dissertation Research Abroad Fellowship Student: Angela Leocata - 'Navigating Aspirational Trajectories - Underemployment in Minas Gerais'				$7,278
84.022A	Fictions of the Epistle--Letters Gender and Nation in Modern Japanese Literature				$27,468
84.022A	Fullbright-Hays Doctoral Dissertation Research Abroad Fellowship				$54,516
84.022A	W. Teska's Fulbright-Hays Doctoral Dissertation				$43,221
84.022A	When entrepreneurship becomes a national enterprise: the case of the Arab Gulf				$100
84.305	Nudges to the Finish Line: Experimental Interventions to Prevent College Late Departure	University of Virginia	GM10155 PO #2108287		$2,212
84.305A	Evaluating the Efficacy of the CLAVES Intervention: An Intervention Focused on Comprehension, Academic Language, and Vocabulary for English Learner Students			$138,992	$834,320
84.305A	Linking Inequities in Educational Opportunities to Inequality in Educational Outcomes: An Exploratory Analysis in New York State				$187,210
84.305A	Peer-assisted writing strategies: Efficacy (PAWS: Efficacy).	Georgia State University	SP00013807-01		$275,680
84.305B	Supporting Equity-Focused, Interdisciplinary, and Responsive Research in Early Childhood Care and Education: The Equity in Early Education (E3) Postdoctoral Fellowship Program				$5,891
84.305R	Using Text Messaging To Improve Kindergarten Readiness of Children in Rural New Mexico	University of New Mexico	3RNF1		$166,416
84.324A	An Efficacy Trial to Evaluate Supporting Paraprofessionals by Advancing Reading Intervention Knowledge and Skill (SPARK)			$278,633	$365,461
84.325D	Leadership in Research and Teacher Preparation for System-wide Inclusive Education			$264,134	$483,861
84.326M	A Design Thinking Approach to Enhance Educators Use of Data-Based Individualization (DBI) to Improve Literacy Skills of Student with Intellectual Disability			$260,696	$418,463
84.367A	Stanford World Language Project ESSA 2021-22	University of California Office of the President	ESSA22-CWLP-STANFORD		$94,991
Department of Energy					**$31,383,099**
81.000	Automated Scenario Assessment of Groundwater Table & Salinity Response to Sea-Level Rise	Lawrence Berkeley National Laboratory	7652262		$102,303
81.000	Center for Computational Study of Excited-State Phenomena in Energy Materials (C2SEPEM)	Lawrence Berkeley National Laboratory	7581670		$149,481
81.000	Developing Structure-Property Relationships in Sterically Controlled Polypyrroles for Tunable and Colorless Electrochromic Devices				$27,537
81.000	Multi-sensor Fusion for Nuclear Material Container Counting and Assay	Lawrence Berkeley National Laboratory	7588724		$348,176
81.000	National Alliance for Water Innovation (NAWI) Lead Cartographer/National Alliance for Water Innovation (NAWI).	Lawrence Berkeley National Laboratory	7539834		$258,911
81.000	Support Analyzing the Coal to Clean Swap for the Top 50 Coal Plants in India	Lawrence Berkeley National Laboratory	7669586		$42,099
81.049	Superconducting Quantum Materials and Systems	Fermi National Accelerator Laboratory	679371		$342,808
81.049	A Complete Machine-Learning-Based Workflow to Illuminate Earthquake Processes				$127,232
81.049	A Multi-Model, Multi-Scale Research Program in Stressors, Responses, and Coupled Systems Dynamics at the Energy-Water-Land Nexus			$1,666,789	$2,283,928
81.049	Addressing Experimental Challenges in Probing Dark Energy with Accuracy and Precision with the Rubin Observatory Legacy Survey of Space & Time (LSST)				$231,628
81.049	Anomalous Retrograde Drifts in Obstructed Magnetron Microdischarges: a Consequence of a Field Reversal in the Anode Sheath?				$66,836
81.049	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		$5,180
81.049	Atom-defect Hybrid Quantum Systems	University of California, Santa Barbara	KK2229		$216,384
81.049	Carbonate Management to Enable Energy- and Carbon-Efficient CO2 Electrolysis				$344,188
81.049	Center for Mechanistic Control of Water-Hydrocarbon-Rock Interactions in Unconventional and Tight Oil Formations			$299,537	$540,191
81.049	Center for Soft PhotoElectroChemical Systems (SPECS)	University of Arizona	3048840		$49,704
81.049	Characterizing the limits of nonequilibrium control for dissipative self-assembly				$213,256
81.049	Collaborative Research: Unraveling the Physics Associated with the Production of Extremely Dense Plasma States of Microscale Nanosecond-pulsed Discharges				$72,509
81.049	Complex quantum systems and the quantum universe	University of Pennsylvania	578218 / PO 4746738		$164,967
81.049	Conformational and Chemical Dynamics of Single Proteins in Solution by Suppression of Brownian Motion				$215,642
81.049	Deciphering controls on metal migration within floodplains: The critical role of redox environments on metal-organic complexes			$51,717	$67,372
81.049	Deformation of Nano-Metallic Glasses Made using Colloidal Synthesis				$136,196
81.049	Design of Multifunctional Composites for Electrical Automobile Applications	Acellent Technologies Inc.	DE-SC0020714, 2021		$137,860
81.049	Development of a quantumoptimal bioimaging system for plantmicrobiome interactions				$381,196
81.049	Development of high-throughput light-sheet fluorescence lifetime microscopy for 3D functional imaging of metabolic pathways in plants and microorganisms				$220,633
81.049	Discovering innovations in stress tolerance through comparative gene regulatory network analysis and cell-type specific expression maps			$291,056	$350,198
81.049	DOE Phase II SBIR Topic 22(d) - Numerical Model Development for Supercritical CO2 Oxy- Combustion	Combustion Science & Engineering Inc	173197		$69,815
81.049	Dynamics of electrified liquid surface during plasma-liquid interaction				$614
81.049	EFRC for Regenerative Energy-Efficient Manufacturing of Thermoset Polymeric Materials (RE-MAT)	University of Illinois at Urbana Champaign	110904-19217		$118,423
81.049	Experiment Study of Neutrino Properties				$560,708
81.049	Frontiers in Quantum Metrology and Transduction				$14,482
81.049	Fundamental aspects of Spacetime and Quantum Fields				$18,902
81.049	Fundamental Mechanisms of Dislocation Dynamics and Metal Deformation at Elevated Temperatures				$109,941
81.049	HEP Consortium for Advanced Training	University of California, Davis	A22-1532-S002		$109,207
81.049	HEP IC Design Apprenticeship Program			$155,423	$314,551
81.049	High-Power Photonics Using Adaptively Controlled Plasmas as Diffractive Optical Elements				$125,881

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81.049	Integrated Data-driven Methods for Scientific Discovery of Non-equilibrium Thermochemical Processes in Complex Environments from Ultrafast X-ray Measurements at LCLS			$143,555	$913,193
81.049	Integrated engineering of whole plant water use efficiency in Sorghum and Setaria	Donald Danforth Plant Science Center	23217-S		$690,085
81.049	Kinetic effects on self-organization in low-temperature magnetized plasmas				$211,524
81.049	Light-matter interaction in nanoscale systems for energy applications				$296,191
81.049	Linking drought response by ectomycorrhizal fungi to carbon cycling and forest productivity				$29,583
81.049	Manipulation of Atomic Ordering for Manufacturing Semiconductors (mu-ATOMS)	University of Arkansas	UA2023-351/SPC-006513		$71,610
81.049	Mesoporous Materials: Dynamics, Structure, Interactions, and Processes				$92,620
81.049	Metal Encapsulation Strategies to Optimize and Minimize PGE Use in Heterogeneous Catalysts				$356,472
81.049	Moire excitons for quantum information science			$95,116	$545,531
81.049	Multiscale dynamics of reactive fronts in the subsurface				$78,327
81.049	Non-destructive, three-dimensional imaging of processes in the rhizosphere utilizing high energy photons	University of California, Santa Cruz	A22-0274-S001		$265,199
81.049	Nonlinear X-ray Optics for Transition Metal Chemistry and Coherent X-ray Spectroscopy	University of Wisconsin	0000002951		$19,426
81.049	PhILMs: Collaboratory on Mathematics and Physics-Informed Learning Machines for Multiscale and Multiphysics Problems				$139,031
81.049	Photonics at Thermodynamic Limits			$277,774	$967,315
81.049	Probing Strong-field Effects in QED on FACET-II				$102,910
81.049	Probing Supercritical Phase Transition using Ultrafast X-ray Diagnostics				$144,591
81.049	Programmable quantum emitter arrays			$123,401	$700,049
81.049	Quantum Black Holes and Wormholes				$142,175
81.049	RESPONSE OF SUBSURFACE NITROGEN-CYCLING MICROBIAL COMMUNITIES TO ENVIRONMENTAL FLUCTUATIONS				$115,570
81.049	SEA-CROGS: Scalable, Efficient and Accelerated Causal Reasoning Operators, Graphs and Spikes for Earth and Embedded Systems			$17,266	$71,891
81.049	Searching for Strongly Interacting Dark Sectors with Electron Beams				$136,883
81.049	Simulations of Hypervelocity Impact Plasmas				$27,024
81.049	Single-electron transistor microscopy of synthetic correlated quantum materials				$181,612
81.049	Spin Functionality through Complex Oxide Heteroepitaxy				$260,561
81.049	Studies of High Energy Density Discharge and Laser-Driven Deflagrating Plasma Stagnations				$265,791
81.049	Sustainable Ironmaking: Using Photons to Understand & Drive the Mechanism of H2-Based Direct Iron Reduction				$55,253
81.049	The Center for Enhanced Nanofluidic Transport - Phase 2 (CENT2)	Massachusetts Institute of Technology	S5866 PO# 832586		$309,410
81.049	The Geometry and Flow of Quantum Information: From Quantum Gravity to Quantum Technology	University of California, Berkeley	00010057; DE-SC0019380		$169,703
81.049	The Non-Equilibrium Quantum Frontier.				$165,839
81.049	Tough Errors Are no Match (TEAM): Optimizing the quantum compiler for noise resilience				$211,953
81.049	Ultra Materials for a Resilient, Smart Electricity Grid	Arizona State University	ASUB00000682		$17,074
81.049	Understanding and Controlling Nucleation in Atomic Layer Deposition for Materials Synthesis				$352,785
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		$213,969
81.049	Understanding the Structure-Property Relationships and Unusual Aging Behavior of Microporous CANAL Polymer Membranes for Gas Separation			$14,442	$201,819
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		$64,447
81.049	Using an evolutionary perspective to discover and predict stress-associated gene functions			$200,050	$764,949
81.049	Using Systems Approaches to Improve Photosynthesis and Water Use Efficiency in Sorghum	Donald Danforth Plant Science Center	23207-S		$122,572
81.057	TRACE ELEMENT SAMPLING AND PARTITIONING MODELING TO ESTIMATE WASTEWATER COMPOSITION AND TREATMENT EFFICACY AT COAL GENERATORS				$164,940
81.086	Development of High-Fidelity and Efficient Modeling Capabilities for Enabling Co-Optimization of Fuels and Multi-Mode Engines			$75,290	$258,070
81.086	DOE "Next Generation Power Electronics Manufacturing Innovation Institute" (NGPEMII) - "PowerAmerica" Automated Tool to measure soft switching Cross Losses in Wide Band Gap Power Devices	North Carolina State University	2014-0654-97		$73,490
81.086	ENERGY Services for INtegrated FLexible Operation of Wastewater Systems				$250,433
81.086	Scalable High-Throughput Open-Air Spray-Plasma Manufacturing of Solid-State Lithium Batteries				$454,078
81.086	Toward Drilling a Perfect Geothermal Well	Oregon State University	G0182A-D		-$3,531
81.087	Accelerated Scaling to Rapid Open-Air Fabrication of Durable Perovskite Solar Modules				-$113
81.087	Low Cost Desalination Using Nanophotonics Enhanced Direct Solar Membrane Distillation	Rice University	R1A124		$48,470
81.087	Machine Learning Accelerates Innovation in Perovskite Manufacturing Scale-up	Massachusetts Institute of Technology	s5419, PO #631651		$8,368
81.087	Machine-Learning-Based Mapping and Modeling of Solar Energy with Ultra-High Spatiotemporal Granularity				$350,215
81.087	Open-Air Manufacturing of Efficient Large-Area Perovskite Solar Cells to Meet Stability and Cost Targets				$531,637
81.087	Wellbore Fracture Imaging Using Inflow Detection Measurements	University of Utah	10039612-Stanford-3-2418-AF1	$253,000	$594,830
81.089	AOI-2a: A Modular System for Direct Conversion of Methane into Methanol via Photocatalysis			$202,629	$365,285
81.089	Carbon Utilization and Storage Partnership of the Western United States	New Mexico Institute of Mining and Technology	P0019857- 01		$186,949
81.089	CarbonSAFE Illinois Corridor Phase III	University of Illinois at Urbana Champaign	101914-18189		$111,449
81.112	New Operando X-ray Microscope for Movies Resolving the Nanoscale Origins of Defects in Metal Additive Manufacturing				$247,846
81.122	TrustDER: Trusted, Private and Scalable Coordination of Distributed Energy Resources				$624,585
81.124	CENTER FOR MICROMORPHIC MULTIPHYSICS PORUS AND PARTICULATE MATERIALS SIMULATIONS WITH EXASCALE COMPUTING WORKFLOWS	University of Colorado, Boulder	1559907/PO1001466527		$176,417

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81.124	INSIEME: INtegrated Simulations using Exascale Multiphysics Ensembles			$409,914	$2,857,197
81.135	20 KV Gallium Nitride PN Diode Electro-Magnetic Pulse Arrestor for Grid Reliability				$92,490
81.135	Additive Manufacturing of Amorphous Metal Soft Magnetic Composites			$113,690	$514,182
81.135	CARBONHOUSE: A SCALABLE ALL-CARBON BUILDING LOGIC DERIVED FROM HYDROCARBON RESOURCES	Massachusetts Institute of Technology	S5082 - PO486618		$46,256
81.135	Co-synthesis of Hydrogen and High-value Carbon Products from Methane Pyrolysis			$37,118	$208,242
81.135	Disruptive Technology for Carbon Negative Commodity Biochemicals			$466,306	$1,353,890
81.135	Energy efficient integrated photonic systems based on inverse design			$70,000	$167,472
81.135	Exploring the Limits of Cooling for Extreme Heat Flux Applications:Data Centers and Power Electronics			$53,141	$89,820
81.135	Open and Scalable Distributed Energy Resource Networks				$66,882
81.135	PERFORMANCE ENHANCEMENT OF HYDROKINETIC ARRAYS USING RELIABLE, LOW-COST DYNAMIC COMPONENTS	Emrgy Inc.	SPO 201927		$111,843
81.135	Robust Multifunctional Battery Chassis System				$431,544
81.250	An Unsolicited Request by the Energy Modeling Forum for Funding to the Department of Energy Energy Information Administration				$40,371
81.RD	A diamond nanolaser quantum sensor with near-unity contrast and collection efficiency				$2,520
81.RD	All services to conduct experimental measurements of Kelvin-Helmholtz instabilities with high viscosity ratios	Triad National Security, LLC	536415 / PO EP67976		$24,292
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		$116,935
81.RD	Causal machine learning for drug repurposing to impact ALS treatment	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B647765		$10,398
81.RD	Center for High Precision Patterning Science (CHiPPS)	Lawrence Berkeley National Laboratory	7668571		$71,212
81.RD	Characterization of turbulence in the ocean atmospheric boundary layer for offshore wind energy production	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B643364		$71,287
81.RD	Continuation of nEXO R&D by the Stanford Physics Dept. Group	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B654218		$49,560
81.RD	Continuous Calculation of Wind Plant Performance for Design and Control	National Renewable Energy Laboratory	SUB-2023-10101		$77,260
81.RD	Determining Exact RANS Operators with the Macroscopic Forcing Method	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B645258		$185,995
81.RD	Development and Implementation of Eulerian Strength Model for Multi-Material Elastic-Plastic Flow	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B625957		$67,190
81.RD	Discovering metastable infinite-layered nickelate phases through electrochemical ion-insertion (Plus-up to Project No. 21-222297)	Sandia National Laboratories	PO# 2434727 // Master 1918121		$45,757
81.RD	DOE's Exascale Computing Project (ECP)	Triad National Security, LLC	626908		$448,310
81.RD	Efficient sequential data assimilation and parameter estimation for complex nonlinear systems	Pacific Northwest National Laboratory	621012		$63,498
81.RD	Exascale Computing Project (ECP) ExaSGD: Optimizing Stochastic Grid Dynamics at Exascale.	Pacific Northwest National Laboratory	500958		$41,971
81.RD	Fundamental physics of hypersonic laminar-turbulent transition	Sandia National Laboratories	PO 1987733 // Master 1918121		-$3,678
81.RD	High-fluence and radiation-resistant gaseous optics for high-power lasers and IFE applications	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B655873		$59,999
81.RD	Large Scale Two-Photon 3D Printing Enabled by Metaoptics	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B649819		$222,615
81.RD	Laser exfoliation scale-up	National Renewable Energy Laboratory	UGA-0-41028-11		$89,590
81.RD	Legion Applications	Triad National Security, LLC	502266		$156,783
81.RD	Low-Cost High-Reliability Thermoelectrics for Waste Heat Conversion	Lawrence Berkeley National Laboratory	7466483		$37,294
81.RD	Measuring Toxin Activity and Pathogens in Unknown Samples	Pacific Northwest National Laboratory	543042		$176,451
81.RD	Microstructurally-Inspired Strategies to Print Tantalum and Tantalum-Tungsten Alloys	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B654014		$220,781
81.RD	Mission Execution and Strategic Analysis Support	KeyLogic Systems, Inc.	5000-410-001		$1,285
81.RD	NAWI Task 6.8 techno-economic modeling of electrochemical oxyanion treatment	Lawrence Berkeley National Laboratory	7631032		$18,140
81.RD	Near Field Photonic Crystal Optical Readout of MEMS gyroscopes: Experiments and Modeling	Sandia National Laboratories	2446342		$55,011
81.RD	Plasma Diagnostics for Dense Plasmas: Optical Spectroscopy and X-ray Imaging	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B653347		$52,303
81.RD	Radiation defect engineering in two-dimensional nanomembranes	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B658335		$22,342
81.RD	Super Emitters of Methane detection using Aircraft, Towers, and In situ Observational Network (SUMMATION)	Lawrence Berkeley National Laboratory	7532774		$153,523
81.RD	Ultra-efficient desalination with flow electrode capacitive deionization, LDRD DR 22-DR-011				$124,137

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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81.RD	Uncommon Dialogue Phase II-US Hydropower: Climate Solution and Conservation Challenge	Battelle Memorial Institute	574972		$117,298
81.RD	Understanding and Controlling Microstructure in Additively Manufactured Refractory Alloys for Geometry and Property Control	Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC	B654297		$84,223
81.RD	Variable Property Rayleigh-Taylor Instability	Los Alamos National Laboratories, University of California	CW26045 / 451912 // PO EP88398		$81,334
Department of Health and Human Services					**$724,158,837**
93.853	MRI-Derived Neuromuscular Signatures to Predict Surgical Response in Degenerative Cervical Myelopathy				$57,080
93.865	Donor-Derived Cell-Free DNA in Allorecognition and Heart Transplant Rejection				$119,663
93.958	California Early Psychosis Training and Technical Assistance Project	University of California, Davis	A22-3745-S001		$87,135
93.073	CALIFORNIA CENTER OF BD-STEPS II - FINDING CAUSES AND PREVENTIVES OF BIRTH DEFECTS				$790,019
93.077	American Heart Association Tobacco Regulatory Science Center (A-TRAC 2.0) // Toxicoepigenetic Effects of E-cigarette Exposure Using human iPSC-derived Organoids	Boston University	4500004655		$44,153
93.077	Countering E-cigarette Marketing in the Retail Environment among Adolescents and Young Adults				$176,532
93.077	Integrated Health, Behavioral and Economic Research on Current and Emerging Tobacco Products	University of California, San Francisco	10984sc / U54 HL147127		$461
93.080	Public Health Surveillance for the Prevention of Complications of Bleeding Disorders	Center for Inherited Blood Disorders (CIBD)	CIBDIX2020CDC-STAN-02		$25,635
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		$10,435
93.103	Ethnically Diverse iPSC Kit for Accurate Assessment of Drug-induced Vascular Toxicity	Health and Environmental Sciences Institute	3U01FD006676-03S1		$315,713
93.103	Phase 1 Study of Autologous CD4LVFOXP3 in Participants with IPEX Syndrome [revised IND and clinical protocol to be submitted to FDA by 10/11/2021]				$653,373
93.103	Phase 3 Trial of DCA in PDC Deficiency IND 028,625 (02/04/2015)	University of Florida	SUB00003307		$26,667
93.103	Phase II Study of Ad/PNP(IND14271,1/19/10)for HNSCC(OrphanDrugDes,14-4438,6/8/15)	Emory University	A707495		$30,922
93.103	UCSF-Stanford Center of Excellence in Regulatory Science and Innovation	University of California, San Francisco	13068sc		$3,338,159
93.103	UCSF-Stanford Pediatric Device Consortium	University of California, San Francisco	11168sc / P50 FD006424		$259,217
93.103	Utilizing a Lupus Clinical Trials Network to Advance Diversity and Representation in Clinical Trials: Perspectives, Preferences, and Unmet Needs of Patients, Providers, and Stakeholder Agencies	University of North Carolina at Chapel Hill	5126260		$18,388
93.107	California Area Health Education Center (Federal AHEC)	University of California, San Francisco	13960sc		$37,788
93.110	Alliance for Innovation ion Maternal Health (AIM) ACOG	American College of Obstetricians and Gynecologists	140935/UC4MC28042		$8,772
93.110	California Severe Combined Immunodeficiency Disease Consortium Long-term Follow-up Program (CalSCID)	University of California, San Francisco	13131sc		$35,341
93.110	DevelopmentalBehavioral Pediatrics Training Program				$111,303
93.110	Hemophilia Treatment Centers (SPRANS)	Center for Inherited Blood Disorders (CIBD)	CIBDIX2012HRSA - STAN - 11		$28,336
93.110	Regional Pediatric Pandemic Network	University of California, San Francisco	13309sc		$51,621
93.113	Data science tools to identify robust environmental exposure-phenotype associations for precision medicine	Harvard University	150620.5116041.0003		$127,871
93.113	Early life exposure to agricultural pesticides and functional brain imaging in young adults	University of California, Berkeley	00010760/R21ES032592		$91,753
93.113	Immune Tolerance Dysfunction in Pregnancy due to Ambient Air Pollution Exposure			$54,406	$22,182
93.113	Integrating the Exposome into Longitudinal Multiomics Profiling				$126,115
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-19 infection			$22,543	$109,486
93.113	Interdisciplinary approaches for understanding how arsenic and micronutrients affect the epigenome to influence spina bifida risk	Boston Children's Hospital	GENFD0002359398		$40,755
93.113	Prenatal and lifetime exposure to pesticides and particulate matter and respiratory health in young adults from the CHAMACOS birth	University of California, Berkeley	00011261/R01ES032871BB0 1704430		$7,202
93.113	Prenatal and Postnatal Exposure to Environmental Mixtures: Neurodevelopment andDNA Methylation Biomarkers			$24,383	$283,689
93.113	Regulation of the DNA damage Response				$339,616
93.113	The Impact of Drought on Arsenic Exposure and Cardiometabolic Outcomes in a Rural Aging Population	University of Colorado Denver	FY22.659.005/FY23.659.004_AMD1		$207,828
93.113	Wildfires and intentional biomass burning in California and Preterm Birth	University of California, San Francisco	13010sc		$32,867
93.121	Candida Genome Database				$646,198
93.121	Center for Dental, Oral, and Craniofacial Tissue and Organ Regeneration (C-DOCTOR)	University of Southern California	132136667 / SCON-00003590		$515,428
93.121	Characterizing head and neck tumor neoantigensand T cells: looking beyond the usual suspects			$208,742	$491,639
93.121	Dissecting motor cortex circuits underlying chronic pain relief				$2,334
93.121	Dissecting motor cortex modulation of nociception during chronic pain				$134,051
93.121	Drug loaded, bioprinted fibrin scaffolds for use during cranial nerve repair surgery	University of Southern California	SCON-00004637		$90,911
93.121	Emotion Dysregulation and Sleep-Time Masticatory Muscle Activity in Sleep Bruxism R01DE026771				$307,335
93.121	Genetic Predictors of Ameloblastoma Behavior			$2,703	$157,932
93.121	Identifying the human skeletal stem cell				$370,594
93.121	Irradiated head and neck cancer soft tissue reconstruction by fat transfer.				$259,937
93.121	Local and Systemic Multi-omics of TMJ disorders	University of California, Los Angeles	1350 G LB391		$73,662
93.121	Mapping and prediction of quantitative transcription factor dosage effects to understand variation in craniofacial morphology and disease				$23,697

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93.121	Mechanisms of Regeneration: Facial Nerve Injury and Repair				$153,660
93.121	Microribbon scaffold-mediated Immunomodulation for Cranial Bone Repair				$418,997
93.121	Molecular mechanisms mediating the soft tissue attachment to teeth				$342,104
93.121	Novel OrganoPET Assay for Precision Therapy of Head and Neck Cancer				$9,756
93.121	Precision imaging for risk stratification and personalized therapy of oropharyngeal cancer				$417,929
93.121	Reprogramming fibroblasts embryonic origins to overcome skin fibrosis and scarring.				$87,299
93.121	Reprogramming the Tumor-Immune Interface in Oral Cancer				$1,149,714
93.121	Salivary gland response to Desert hedgehog signaling as an antidote to damage from therapeutic radiation				$619,403
93.121	The Genetic Architecture of Human Facial Morphology	University of Pittsburgh	CNVA00055576 (134310-4)		$213,448
93.121	The role of Galectin-1 in shaping the immune suppressive landscape in head and neck cancer				$469,035
93.143	Toxic substances in the environment	University of California, Berkeley	P42ES004705/00011247BB 01676353/1673009		$88,372
93.143	UNM Metal Exposure Toxicity Assessment on Tribal Lands in the Southwest (METALS) Superfund Research Program	University of New Mexico	3RNC1		$37,340
93.157	Centers of Excellence				$53,424
93.172	A Comprehensive Genomic Community Resource of Transcriptional Regulation	University of Massachusetts Worcester	PO #WA01279714,SUB0000015 5		$365,321
93.172	A Data and Administrative Coordinating Center for the Impact of Genomic Variation on Function Consortium			$357,440	$5,011,445
93.172	A Data Coordinating Center for ENCODE				$359,379
93.172	A Pharmacogenomics Annotation Toolkit: PharmCAT	University of Pennsylvania	4957378 / U24 HG010862		$254,656
93.172	Alliance Central: A Platform for Sustainable development of next generation genome knowledgebases	California Institute of Technology	S454390		$745,999
93.172	Atlas of Regulatory Variants in Diseases (ARVID)				$694,449
93.172	Center for Multi and Trans-ethic Mapping of Mendelian and Complex Disease	Icahn School of Medicine at Mount Sinai	0255-C681-4609 / U01 HG009080		-$9,210
93.172	Center for Personal Dynamic Regulomes				$2,722,323
93.172	Center for Sub-Cellular Genomics	University of Pennsylvania	577453 / Prime #RM1 HG010023		$158,772
93.172	Clinical Genome Resource (CLINGEN)	Baylor College of Medicine	PO7000001534 / U24 HG009649-06		$2,472,684
93.172	Clinical Implementation Resources for Pharmacogenomics (CIRP)				$121,437
93.172	Clinical Pharmacogenetics Implementation Consortium (CPIC)	St. Jude Children's Research Hospital	11235005A-8106941		$396,435
93.172	Comparative Functional Genomics of Yeast			$165,505	$480,452
93.172	Decoding the regulatory architecture of the human genome across cell types, individuals and disease				-$1,836
93.172	Deep tensor genomic imputation	University Of Washington	UWSC12630 BPO55233		$139,608
93.172	Development and application of new tools to identify repeat expansions in human diseases				$175,258
93.172	Development of multi-color 3D super-localization LiveFISH and LiveFISH PAINT to investigate the chromatin dynamics at any genomic scale				$1,296
93.172	Developmental GTEx Laboratory, Data Analysis and Coordination Center	Broad Institute, Inc.	5001259-5500001635		$117,949
93.172	EDGE CMT: Dissecting complex traits in wild isolates of yeast by high-throughput genome editing				$502,485
93.172	ELSIhub/ Center for ELSI Resources and Analysis (CERA) Accessibility Upgrades			$934,586	$1,538,612
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)		$93,945
93.172	Function-based exploration of genetic variation at genome-scale				$782,912
93.172	GENCODE: comprehensive reference genome annotation for human and mouse	European Molecular Biology Laboratory - European Bioinformatics Institute	Stanford-4559-06		$183,657
93.172	Gene Ontology Consortium and Knowledgebase	University of Southern California	SCON-00003901		$324,946
93.172	Genome wide identification and functional analysis of chromatin regulatory RNAs				$352
93.172	Genomic Resource for the Yeast Saccharomyces				$1,487,600
93.172	Genomics Diversity Summer Program (GDSP) at Stanford				$181,148
93.172	High-throughput development and characterization of compact tools for transcriptional and chromatin perturbations				$1,072,912
93.172	High-throughput engineering of combinatorial chromatin signals and epigenetic cellular memory				$10,671
93.172	Institutional Training Grant in Genome Science				$1,036,248
93.172	Integrated Clinical and Transcriptomic Profiling to Characterize Disease Phenotype				$131,473
93.172	Integrating Ethics into Machine Learning for Precision Medicine			$44,772	$362,899
93.172	Integration of functional data and GWAS to elucidate genetic basis of diseases			$74,354	$605,153
93.172	Investigating human cis-regulatory evolution with hybrid iPS cells				$752,357
93.172	K-mer indexing for pan-genome reference annotation				$347,166
93.172	Mapping enhancer-gene regulation in single cells to connect genetic variants to target genes and cell types				$820,641
93.172	Mechanisms of Action of Natural Genetic Variation				$45,245
93.172	Methods for charting somatic evolution via multimodal single-cell genomics				$122,450
93.172	Multiplexed In Vivo DNA Assembly				$1,169,510
93.172	New methods for constructing and evaluating polygenic scores			$419,574	$1,108,990
93.172	Omics information maximization in single-cell sequencing with hybrid molecular and computational approaches				$503,796
93.172	PharmGKB: A Critical Knowledgebase for Personalized Medicine				$1,190,448
93.172	Piloting a standardized psychosocial assessment tool (BATHE) in genetic counseling				$149,535
93.172	Population genetics for large-scale sequencing studies of diverse populations			$201,863	$390,564
93.172	Predicting context-specific molecular and phenotypic effects of genetic variation through the lens of the cis-regulatory code			$98,250	$607,720
93.172	Quantitative and functional analysis platform for repetitive genes and gene isoforms in pluripotency regulation and differentiations	Ohio State University	SPC # 1000006103 / GR #124697		$21,727
93.172	RegulomeDB: A Resource for the Human Regulome			$335,341	$656,380
93.172	Single Cell Transcriptomic and Genetic Diversity by Single Molecule Long Read Sequencing	University of Pennsylvania	580616		$135,762
93.172	Single-cell Mapping Center for Human Regulatory Elements and Gene Activity			$627,367	$2,303,030

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93.172	SOFTWARE FOR LARGE-SCALE INFERENCE OF THE GENETICS OF LIFESTYLE MEASURES, BIOMARKERS, AND COMMON AND RARE DISEASES				$336,645
93.172	Spatial multiomic mapping of gene function and genetic interactions with CRISPRoff	University of California, San Francisco	13881sc		$489,232
93.172	Stanford Center for Connecting DNA Variants to Function and Phenotype				$2,104,077
93.172	Stanford Mendelian Genomics Research Center			$15,544	$2,558,255
93.172	Statistical methods for gene regulatory analysis and single cell genomics				$193,603
93.172	Surfacing values in the economic evaluation of genomic sequencing for diagnosis of children with rare diseases				$202,743
93.172	Systematic identification of RNA sequences and protein components regulating circular RNA translation				$88,487
93.172	Systematic mapping and prediction of gene-enhancer connections				$105,171
93.172	The Ethics of Inclusion: Diversity in Precision Medicine Research	Columbia University	3(GG014890-01) / SAPO# G16722		$18,695
93.172	The pursuit of genetic causal mechanisms			$38,735	$325,769
93.172	The Stanford Training Program in ELSI Research				$210,801
93.172	Towards Robust Multiplex Genome Engineering Beyond CRISPR-Cas9				$190,146
93.172	Understanding the "flattening" of gene contributions to human complex traithabitability				$40,981
93.173	AI-based genetic discovery for hearing loss				$101,455
93.173	Assembly of the Central Olfactory Networks in Drosophila				$267,077
93.173	CRCNS: US-Israeli Research Proposal: Deciphering reorganization of multi-regional activity following category learning				$247,583
93.173	Diversification of the mechanotransduction complex in vestibular hair cells				$13,128
93.173	Engaging new cognitive and motor signals to improve communication prostheses			$227,286	$783,848
93.173	Evaluating the role of epithelial basal cells in laryngeal homeostasis and disease				$385,700
93.173	Function of LOXHD1 in mechanosensory hair cells				$316,603
93.173	Genetic Regulation of Cochlear Development	Baylor College of Medicine	7000000816		$62,177
93.173	Hedgehog signaling in taste cell maintenance and regeneration				$124,979
93.173	High efficient AAV-transducible transgenic quails				$129,573
93.173	High-resolution localization of the hair cell mechanotransduction channel components by immunogold-scanning electronic microscopy				$107,686
93.173	Human Ear Cellular Atlas				$662,302
93.173	Identifying new sensors for in vivo cochlear imaging				$346,727
93.173	Intuitive, complete neural control of tablet computers for communication	Brown University	00001517		$15,568
93.173	Investigating the role of lipid membrane in the cochlear hair cell mechanotransduction				$69,407
93.173	Investigating the role of mechanotransduction machinery and the rootlet in modulating stereocilia motion				$14,544
93.173	Mechanisms of Mammalian genetic hearing loss	Indiana University	9676-SJU / PO# (PO0655981)		$25,108
93.173	Mentoring Patient Oriented Research in sensory disorders				$49,948
93.173	Molecular Analysis of Tmie in sensory hair cells				$351,558
93.173	Molecular basis of mammalian cochlear regeneration				$105,759
93.173	Molecular etiology of virus-induced sensorineural hearing loss				$146,952
93.173	Molecules and Mechanisms of Mammalian Hair Cell Mechanotransduction				$180,706
93.173	Mouse vestibular regeneration and function				$548,910
93.173	Neural defects in zebrafish auditory/vestibular mutants				$2,683
93.173	Neuroimaging Predictors of Pivotal Response Treatment in Young Children with Autism				-$5,040
93.173	Otic Guidance				$99,417
93.173	Regenerative pathways in the avian cochlea				$669,168
93.173	Signal transformations in the vestibulo-ocular circuit				$15,577
93.173	Single-neuron population dynamics in human speech motor cortex for a speech prosthesis			$244,305	$830,791
93.173	Speaker-Listener Coupling and Brain Dynamics During Naturalistic Verbal Communication in Alzheimer's Disease				$158,294
93.173	Stanford Clinician Scientist Training Program				$346,482
93.173	Synthetic Antimicrobial Peptoids for Treatment of Chronic Suppurative Otitis Media	Maxwell Biosciences, Inc.	223697		$132,842
93.173	The role of macrophages in chronic suppurative otitis media associated sensory hearing loss				$903,957
93.173	Vestibular and Visual Control of Eye Movement			$200,891	$646,185
93.213	A Clinical Study of Latiglutenase as a Treatment for Symptom Reduction for Celiac Disease	ImmunogenX	SPO 242695		$67,292
93.213	A Feasibility Trial of a Group-Based Yoga Intervention for Chronic Pelvic Pain in Women	University of California, San Francisco	12407sc		-$4,791
93.213	Defining and Reconstructing the Human Ancestral Microbiome				$665,218
93.213	Engineering Yeast for High Titer Production of Monoterpene Indole Alkaloid Natural Products	University of California, Los Angeles	0130 G WA210		$154,833
93.213	HEAL Collaboratory Resource Coordinating Center: PRISM (U24)	Duke University	A03-2243		$10,287
93.213	Innate Immune Mechanisms Contributing to Cancer Growth in Obesity				$481,206
93.213	Microbiota-based probiotics to treat inborn errors in metabolism				$831,420
93.213	Multiomic Signatures of Microbial Metabolites Following Prebiotic Fiber Supplementation				$16,623
93.213	NIH Health Care Systems Research Collaboratory - Coordinating Center (U24)	Duke University	303000825		$7,997
93.213	Ovarian Cancer Survival in African-American Women	Emory University	A359283 / R01 CA237318		$47,095
93.213	Single Session Pain Catastrophizing Treatment: Comparative Efficacy & Mechanisms				$120,722
93.213	Synthetic biology tools for scalable production of medicinal plant terpenes			$974,289	$1,106,855
93.213	Trial to Assess Chelation Therapy 2	Duke Clinical Research Institute	303000307		$33,984
93.225	Reducing Racial Disparities in Advance Care Planning within Neuro-Oncology				$77,974
93.225	Stanford Health Services Research Training Program				$514,549
93.226	Covid-19: A Multi-Site Evaluation of Primary Care Accessibility and Utilization during COVID-19	MedStar Health Research Institute, Inc.	5002254336		$50,867
93.226	Adaptation and pilot implementation of a validated, electronic real time clinical decision support tool for care of Pneumonia patients in 12 Utah Urgent Care Centers	Intermountain Healthcare	2020361 / R18 HS026886		$104,409
93.226	Applying Human Factors Science, Design Thinking and Systems Engineering to Mitigate Threats to Neonates Undergoing Resuscitation and Stabilization			$22,518	$225,631
93.226	Deriving an Evidence Base for Emergency Management in U.S. Hospitals	Harvard School of Public Health	115424-5119153		$26,875
93.226	Development and Validation of a Prediction Model to Address Physician Burnout				$169,431
93.226	Diagnosis and management of pediatric tracheostomy-associated infections				$12,991

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93.226	Drug interactions and opioid-related emergency room visits and hospitalizations among older adults	Brigham and Women's Hospital	124148		$8,072
93.226	Effect of Bypass Policies on Stroke Treatment in a National Sample of Medicare Beneficiaries				$328,582
93.226	Identifying Optimal Pain Management for Elders				$463,731
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		$5,045
93.226	Integrating real-time clinical activity and behavioral responses for characterizing cognitive load and errors (IGNITE)	Washington University in St. Louis	WU-23-0300 // PO ST00015875		$13,865
93.226	Measuring and Understanding Diagnostic Quality from Large-Scale Data			$11,847	$324,571
93.226	Physician Organization and the Use, Cost and Outcomes of Care				-$19
93.226	Precision Emergency Medicine: Setting a Research Agenda				$7,199
93.226	Prescribing of opioids at hospital discharge and associated adverse patient outcomes	Harvard University	153487.5122957.0006		$33,716
93.226	Quantification of neonatal transport networks through network analysis: a new approach to studying neonatal regionalization	Beth Israel Deaconess Medical Center	01060852		$9,118
93.226	Safe and Equitable Telehealth for Chronic Conditions (SafE-T C2) Learning Lab	MedStar Health Research Institute, Inc.	5003108268		$20,610
93.226	The Causes and Consequences of the Diffusion of Precision Medicine Evidence from Innovations in Breast Cancer Medicine				$30,423
93.226	Transfusion Recommendations Implemented in the PICU (TRIP)				$44,177
93.233	Arousal circuitry and opiate-associated memories				-$20,932
93.233	Fluorescent polysomnography and MCH neurogenetics				$508,474
93.233	Multi-Institutional Training in Genetic/Genomic Approaches to Sleep Disorders	University of Pennsylvania	585077		$140,970
93.279	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		$5,494
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		$11,530
93.242	2/2-Mechanism of Antidepressant-Related Dysfunctional Arousal in High-Risk Youth				-$1,154
93.242	A Big Data Approach Toward the Development of a New Quantitative Measure of Restricted and Repetitive Behaviors				$33,882
93.242	A Big Data Approach Toward the Development of New Quantitative Autism Severity Scores from Existing Instruments	John Carroll University	R15-001		$29,232
93.242	A Biobehavioral research Training Program				$376,540
93.242	A community-driven development of the brain imaging data standard (BIDS) to describe macroscopic brain connections	University of Texas at Austin	UTAUS-SUB00000386AM2		$82,157
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		$174,760
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		$16,170
93.242	A novel method to resolve the complex genome rearrangements of the large copy number variants (CNVs) associated with psychiatric disorders				$147,849
93.242	A Novel Neuromonitoring Guided Cognitive Intervention for Targeted Enhancement of Working Memory				-$639
93.242	A Novel Role of Fragile-X Mental Retardation Protein in Mitochondrial Calcium Homeostasis				$253,455
93.242	A Novel Use of a Sleep Intervention to Target the Emotion Regulation Brain Network and Treat Depression and Anxiety			$5,322	$575,518
93.242	A Pilot Effectiveness Trial of Cognitive Processing Therapy Augmented with Suicide Risk Management for Individuals with Comorbid PTSD and Borderline Personality Disorder	Palo Alto University	JK-NIMH-SC-Stanford		$46,332
93.242	A Portable PET Insert System for Simultaneous TOF-PET and MR Brain Imaging	PETcoil, Inc.	002		$114,927
93.242	A Pragmatic Latent Variable Learning Approach Aligned with Clinical Practice			$25,839	$435,044
93.242	A ribosome interactome that regulates local translation and neural function				$338,439
93.242	A translational approach for novel mechanisms of epigenetic regulation in treatment responses: toward a precision medicine model	New York University	22-A0-00-1008079		$244,258
93.242	A Wearable Optical Imaging System for Daily Monitoring of Prefrontal Activity in ADHD			$5,139	$27,293
93.242	Advanced Assessment of Auditory-Vocal Affect in Autism with Speech and Music				$126,557
93.242	An integrative framework of cognitive control and reward modulation in children with ADHD: from brain dynamics to clinical symptoms			$23,438	$719,107
93.242	Anti-interneuron antibodies in rapid-onset pediatric OCD: clinical generalization and target identification	Yale University	CON-80004001 (GR117735)		$28,783
93.242	BCI-DEF: Brain Computer Interfaces and Disability: Developing an Inclusive Ethical Framework				$297,605
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		$153,182
93.242	Brain-spanning and scale-crossing circuitry mediating drive function and dysfunction				$308,982
93.242	Channel structure-based tools for precise interrogation of circuitry and behavior				$604,518
93.242	Characterizing cognitive control networks using a precision neuroscience approach				$456,860
93.242	Characterizing Cognitive Decline in Late Life Depression: The ADNI-D Project	University of California, San Francisco	14309sc		$3,979
93.242	Chronic Axon Hypofunction in Maternal Immune Activation Models ofNeurodevelopmental Disorders				$547,047
93.242	Circuit Mechanisms Governing the Default Mode Network	University of North Carolina at Chapel Hill	5120592		$273,232
93.242	Cognitive Restoration: Neuroethics and Disability Rights	Weill Medical College of Cornell University - New York	226874		$32,225
93.242	Combined Dialectical Behavior Therapy and Digital Cognitive Behavioral Therapy for Insomnia for Adolescents at High Risk for Suicide: A Pilot RCT				$6,165
93.242	Computational and brain predictors of emotion cue integration			$30,561	$155,942
93.242	Confirming the effectiveness and efficacy of Guided Self-Help Family-based Treatment for adolescent Anorexia Nervosa				$359,817
93.242	Confirming the Efficacy/Mechanism of an Adaptive Treatment for Adolescent Anorexia Nervosa			$95,435	$396,316
93.242	Confirming the Efficacy/Mechanism of Family Therapy for Children with Low Weight Avoidant/Restrictive Food Intake Disorder (ARFID)				$593,986
93.242	CRCNS US-France Research Proposal: Probing the Dorsolateral Prefrontal Cortex andCentral Executive Network for Improving Neuromodulation in Depression				$247,497
93.242	Cross modal integration of molecular and physiological networks in ASD (2/2)				$131,581

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93.242	Data-driven validation of cognitive RDoC dimensions using deep phenotyping				$381,319
93.242	Determining structure and organization of neurofilaments in situ using cryo- electron tomography				$250,256
93.242	Developing a Quantitative Assessment Tool for Characterizing Social Domains				$471,141
93.242	Developmental trajectory of anxiety, avoidance, and arousal in girls with the FMR1 full mutation				$314,963
93.242	Efficacy of biomarker-guided rTMS for treatment-resistant depression	Weill Cornell Medical College	225169 / 227203		$851,295
93.242	Efficacy of digital cognitive behavior therapy for insomnia for the prevention of perinatal depression	University of California, San Francisco	13691sc		$74,460
93.242	Engineered AAV identification, validation, and dissemination pipeline for brain cell type-specific manipulation across species	California Institute of Technology	S539154		$15,931
93.242	Ethical, Legal and Social Implications in the Use of Digital Technology for Mental Health Applications				$137,473
93.242	Examining the hierarchical structure of the RDoC framework using large-scale data-driven computational approaches				$747,455
93.242	Function of Neurexins				$774,190
93.242	Functional Heterogeneity of Hypocretin Neurons			$130,120	$538,025
93.242	Gaining insight into psychiatric disease by engineering piece by piece the human brain in vitro				$393,280
93.242	Gene expression profiling of IPSC derived neurons in Autism Spectrum Disorder			$255,221	$353,720
93.242	Genetics of Severe Mental Illness	University of California, Los Angeles	2000 G VF036 / R01 MH113078		$76,918
93.242	How is anxiety-related information relayed across hippocampal-prefrontal circuits	University of California, San Francisco	11465sc		$105,517
93.242	Identification of Epigenetics Correlates between Brain and Peripheral Tissues			$57,951	$468,947
93.242	Identification of metabolic alterations during cortical development in a human cellular model for 22q11.2 deletion syndrome				$1,038,537
93.242	Identifying causal genetic variants and molecular mechanisms impacting mental health				$466,327
93.242	Identifying mediators of sex hormone uptake and signaling				$6,351
93.242	Identifying prefrontal signatures of successful and dysfunctional attention				$46,460
93.242	Implementation Support for Prevention Program Delivery by College PeerEducators			$288,241	$447,009
93.242	Implementing Family-Based Treatment for Adolescent Anorexia Nervosa for Providers in Private Practice: A Feasibility Study			$97,421	$243,765
93.242	Improving Access and Treatment for Co-occurring Opioid Use Disorders and Mental Illness (3UF1MH121954-01S1)	Rand Corporation	SCON-00000415		$47,878
93.242	Improving Cognition via Exercise in Schizophrenia	Icahn School of Medicine at Mount Sinai	0255-3351-4609		$44,496
93.242	Induced neuronal cells: A novel tool to study neuropsychiatric diseases				$688,361
93.242	In-Home Sleep Monitoring to Detect Suicide Risk in Veterans	Palo Alto Veterans Institute for Research	WOS0023-02		$31,210
93.242	Integrated, cell type specific functional genomics analyses of regulatory sequence elements and their dynamic interaction networks in neuropsychiatric brain tissues				$1,728,194
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				$187,873
93.242	Integrative computational models of latent behavioral and neural constructs in children: a longitudinal developmental big-data approach			$19,813	$784,714
93.242	Interrogation of network-wide neuronal dynamics during fear memory in mouse default mode network				$157,492
93.242	In-utero exposure to psychotropic medications and the risk of neurodevelopmental disorders	Brigham and Women's Hospital	119487		$23,541
93.242	Investigating the neural mechanisms of repetitive brain stimulation with invasive and noninvasive electrophysiology in humans				$32,978
93.242	Large-scale image-based meta-analysis of functional MRI data	University of Texas at Austin	UTA19-000290		$148,881
93.242	Latrophilin Function in Synapse Formation				$749,549
93.242	Learning and brain plasticity in children with autism: relation to cognitive inflexibility and restricted-repetitive behaviors				$275,822
93.242	Ligand-Receptor Dynamics and Cellular Responses Studied In Situ Using Venturi Easy Ambient Sonic-Spray Ionization Mass Spectrometry				-$2,898
93.242	Machine learning to distinguish HAND from Alzheimer's disease in HIV over age 60	University of California, San Francisco	11254sc		$304,910
93.242	Mapping Neural Circuit Activity Mediating MDMA's Prosocial Effect				$220,071
93.242	Maternal hair cortisol concentrations, perinatal psychopathology, and offspring behavioral phenotypes	Harvard University	117369-5122227		$33,885
93.242	Mechanistic circuit markers of transcranial magnetic stimulation outcomes in pharmacoresistant depression			$292,708	$1,058,795
93.242	microRNA tuning of gregarious versus antisocial behavior in juveniles				$41,518
93.242	Molecular Logic Sculpting Cell-Specific Contributions of Neurexin-1 at the Tripartite Synapse				$169,977
93.242	Molecular mechanisms of synaptic neurotransmitter release				$562,812
93.242	Molecular tools for labeling and manipulating functional brain circuits				$1,223,438
93.242	Neural circuits of frustration				$221,967
93.242	Neural Mechanisms of Navigational Decision Making				$15,404
93.242	Neurobehavioral Trajectories of Pediatric Depression and Insulin Sensitivity				-$56
93.242	Neuropeptide S and arousal				$858,133
93.242	Next generation in-vivo diffusion imaging at submillimeter resolution			$619,229	$833,686
93.242	NIPreps: integrating neuroimaging preprocessing workflows across modalities, populations, and species			$240,512	$453,525
93.242	NMDAR Modulation As A Therapeutic Target and Probe of Neural Dysfunction in OCD			$13,623	$173,909
93.242	Novel Quality Measures for Primary Care Management of Attention-Deficit/Hyperactivity Disorder				$161,892
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				$551,998
93.242	OpenNeuro: An open archive for analysis and sharing of BRAIN Initiative data				$974,637
93.242	Precise neuromodulation for encoding reward in the hippocampus				$297,422
93.242	Predictive Functions and Neural Mechanisms of Spontaneous Cortical Activity				$26,955
93.242	Probing synaptic and circuit mechanisms of hippocampal plasticity with all-optical electrophysiology				$42,933

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93.242	Psychobiological Mechanisms Underlying the Association Between Early Life Stress and Depression Across Adolescence				$915,129
93.242	Psychosis Risk Evaluation, Data Integration and Computational Technologies (PREDICT): Data Processing, Analysis, and Coordination Center	Brigham and Women's Hospital	124050		$163,848
93.242	Research Career Development Institute for Psychiatry (R25)	University of Pittsburgh	AWD00005793 (138047-2)		$21,224
93.242	Research Training for Child Psychiatry and Neurodevelopment				$376,134
93.242	Role of L-type Calcium Channels in Human Interneuron Migration and Integration				$388,224
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		$84,691
93.242	Sex Chromosome GWAS of Post-Traumatic Stress Disorder (PTSD)			$112,261	$282,271
93.242	Sex hormone effects on neurodevelopment: Controlled puberty in transgender adolescents			$3,978	$622,797
93.242	Sex hormones and post-traumatic stress disorder (PTSD)			$105,899	$435,189
93.242	Sleep Disturbance and Emotion Regulation Brain Dysfunction as Mechanisms of Neuropsychiatric Symptoms in Alzheimer's Dementia				$1,087,847
93.242	Small molecule regulation of endogenous transcription factors for circuit-specific neuromodulation				$678,763
93.242	Social factors in the mental health of young adults: Bridging psychological and network analysis				$984,349
93.242	STudents RIsing aboVE: Offsetting the health and mental health costs of resilience	University of California, Los Angeles	0875 G LA505		$31,680
93.242	Study of a PST-Trained Voice-Enabled Artificial Intelligence Counselor (SPEAC) for Adults with Emotional Distress	University of Illinois at Chicago	19127		$15,840
93.242	Target Engagement of a Novel Dissonance-Based Treatment for DSM-5 Eating Disorders R33 Phase			$117,111	$325,468
93.242	Telehealth 2.0: Evaluating effectiveness and engagement strategies for asynchronoustexting based trauma focused therapy for PTSD			$282,991	$499,560
93.242	Teneurin-3 and Latrophilin-2 in circuit-wide topographic target selection of the extended hippocampal network				$35,828
93.242	TESTING A COMPUTATIONAL MODEL OF NEURAL RESPONSES IN AUTISM	University Of Washington	UWSC12592; BPO 54858		-$183
93.242	Thalamic Circuits for Prosocial Behaviors in Mice				$584,680
93.242	The Dynamics of Neural Representations for Distinct Spatial Contexts and Memory Episodes				$129,451
93.242	The Effects of Early Life Stress on the Development of Brain Networks: Predicting Risk for Depression and Suicidal Ideation in Adolescence				$455
93.242	The role of Myt1l in the developing and adult mouse brain				$786,257
93.242	The role of the septum in social memory				$6,982
93.242	Towards elucidating PTSD pathogenesis with ultra-portable and low-costneuroimaging				$25,449
93.242	Training Program in Basic Neuroscience				$690,409
93.242	Trans-synaptic bidirectional tracing tools for imaging and omics analysis				$3,870
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				$503,694
93.242	What are we stimulating with transcranial ultrasound in Mice?				$166,067
93.243	Chekws: Hope for Tomorrow	Two Feathers Native American Family Services	158007		$59,662
93.243	Mental Health Technology Transfer Center (MHTTC) National Coordinating Center (NCC)			$184,217	$852,411
93.243	Rates of substance use in a homeless health care setting.	American Academy of Addiction Psychiatry	MFG-2021-5		$2,020
93.262	Occupational Exposure to PM2.5 and Cardiovascular Disease(CVD)			$7,199	$5,940
93.273	3/3 COMpAAAS Tripartite: ART-CC, KP, and VA	Yale University	CON-80003259 (GR114482)		$981
93.273	A Pilot Trial to Prevent Intoxicated and Impaired Driving Among Adolescents			$8,836	$54,631
93.273	A SMART evaluation of an adaptive web-based AUD intervention for service members andtheir partners			$28,165	$220,600
93.273	A Telehealth Intervention to Increase Screening and Treatment for Alcohol Use Disorder	Ria Technology Management Inc.	SPO 251736		$69,498
93.273	Alcohol: A Modifiable Risk Factor for Ataxia and Decline in MCI			$320,218	$739,649
93.273	Alcohol-related sleep disturbances and circuit dynamics of arousal neuropeptides				$329,454
93.273	CNS Deficits: Interaction of Age and Alcoholism	SRI International	PO61769		$263,874
93.273	Compounded Neuronal Damage in Comorbid Cigarette Smoking and Addiction	Indiana University	IN4687305SU / PO0511706		$215,133
93.273	Defining Phenotypes of Alcohol-Associated Liver Disease with Acute Hepatic Decompensation				$235,110
93.273	Effects of GABA Co-Release on Alcohol-Induced Synaptic Plasticity				$18,893
93.273	Ethanol and aldehyde dehydrogenases in health and disease				$701,579
93.273	HIV & Alcohol Research center focused on Polypharmacy (HARP)	Yale University	CON-80003832 (GR117457)		$173,853
93.273	Improving alcohol and substance use care access, outcomes, and equity during the reproductive years: A Type 1 Hybrid Trial in Family Planning Clinics	Columbia University	2(GG013892-01)		$72,603
93.273	Longitudinal Analysis of Diffusion Tensor Imaging to Discover Adolescent Alcohol Use Effect				$99,871
93.273	Longitudinal Study of Recovery: Psychosocial Functioning, Relapse, and Neuro-Behavioral Markers	Virginia Tech	412710-19751		$20,249
93.273	NCANDA: Data Analysis Resource -Uploading Legacy Data to NDAR			$564,096	$957,961
93.273	Neural Basis of alcohol/substance use disorders and suicide in American Indians	Scripps Research Institute	5-53951		$29,611
93.273	Personalized Integrated Alcohol and Sexual Assault Prevention among College Students	Georgia State University	SP00015075-03		$31,863
93.273	Smartphone sensors to detect shifts toward healthy behavior during alcohol treatment	Rutgers, The State University of New Jersey	SUB00002523		$40,461
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		$33,222
93.273	The trajectory of fetal alcohol spectrum disorders (FASD) across the Life Span: Continuing Prevention and longitudinal epidemiology	University of North Carolina at Chapel Hill	5114785		$9,516
93.273	Tracking HIV Infection and Alcohol Abuse CNS Comorbidity with Neuroimaging	SRI International	PO32128		$409,541
93.273	Understanding and testing recovery processes for PTSD and alcohol use following sexual assault	University Of Washington	UWSC11653; BPO 45799		$44,289
93.279	A comprehensive dissection of cell types, circuits and molecular adaptations during opioid use	University of North Carolina at Chapel Hill	5121156		$485,557

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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
93.279	A patch versus matrix circuit dissection of opioid abuse				$89,491
93.279	A Preliminary Investigation of Pre-Frontal repetitive Transcranial Magnetic Stimulation (rTMS) for the Treatment of Cannabis Use Disorder				$58,506
93.279	A Social Network AOD Intervention for Homeless Youth Transitioning to Housing	Rand Corporation	SCON-00000412		$15,142
93.279	Advanced Nucleation Technologies for Membrane Protein Crystallization to Accelerate Structure-Based Drug Design for Substance Use Disorders	DeNovX	SPO 250820/2R44DA047146-02		$126,926
93.279	Alaska Native Family-Based, Financial Incentives Intervention for Smoking Cessation: an RCT	Mayo Clinic	BOA-297565/PO #68714504		$27,804
93.279	Allosteric modulation of the mu-opioid receptor	University of Michigan	SUBK00011171 // 3006153540		$81,866
93.279	Applying novel technologies and methods to inform the ontology of self-regulation	Dartmouth College	R1075		-$5,315
93.279	Cannabis, Depression and Neurobiological Function in Transition-Age Youth				$14,477
93.279	Center for Dissemination and Implementation At Stanford (C-DIAS)			$879,878	$2,112,028
93.279	Characterizing the role of fronto-striatal connectivity in value-based decision-making				$60,213
93.279	Collegiate recovery programming in the U.S.: An implementation science and mixed methods study				$1,147
93.279	Computational Methods for Identification of Genetic Factors Affecting the Response to Drug Abuse				-$45,225
93.279	Effect of pain catastrophizing on prescription opioid craving				$175,136
93.279	Examining patterns of opioid overdose hotspots and opioid treatment deserts in California				$21,572
93.279	Feasibility, Acceptability, and Efficacy of the Cannabis Awareness and Prevention Toolkit				$275,930
93.279	HD2A Research Adoption Support Center (RASC)			$441,368	$1,284,449
93.279	HEAL Data2Action Modeling and Economic Resource Center	Weill Cornell Medical College	222892-1		$18,302
93.279	Identifying and Disseminating Substance, Treatment, Strategy (STS) recommendations to AIDS Service Organizations	Ohio State University	GR128886		$28,227
93.279	Improving the Measurement of Brain-Behavior Associations in Adolescence_46843172				$70,731
93.279	Inhibitory synaptic transmission, stress, and drugs of abuse			$127,697	$442,738
93.279	Interdisciplinary Research Training in Pain and/or Substance Use Disorders				$405,246
93.279	Interpretable Deep Forecasting of Hazardous Substance Use during High School			$30,241	$208,933
93.279	Interrogation of dopaminergic activity using non-invasive ultrasound				$279,023
93.279	Making Better Decisions: Policy Modeling for AIDS and Drug Abuse			$99,411	$830,278
93.279	Medication for Opioid Use Disorder, Predictability of Retention vs Attrition	Oregon Health & Science University	1017225-005_STANFORD_C4		$274,882
93.279	Modulation of protracted opioid withdrawal by dorsal raphe dynorphin neurons				$157,076
93.279	Multivariate Machine Learning to Characterize Opioid-induced Alterations in the Brain in Chronic Pain				$179,640
93.279	Neural circuit dynamics of drug action:revealing, uncoupling, and restoring altered brain states				$1,269,583
93.279	Neural circuit mechanisms of drug-context associations in the hippocampus				$13,232
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		$5,587
93.279	Prevention Research Center: Parenting Among Women Who Are Opioid Users	University of Oregon	217300F		$184,046
93.279	Prospects for hepatitis C elimination in networks of people who inject drugs through improvements in the care continuum				$74,468
93.279	Psychological Risk Factors for Persistent Opioid Use and Prevention of Chronic OpioidUse and Misuse After Surgery: Postoperative Motivational Interviewing and GuidedOpioid Weaning				$461,117
93.279	Reducing racial disparities in the treatment of opioid use disorder using machine learning-based causal analysis				$238,270
93.279	Research and Mentoring in Innovative Patient Oriented Pain and Opioid Science				$205,938
93.279	RTC of Woebot for Treating Substance Use Disorders	Woebot Health	SPO#138716-3		$77,612
93.279	Single Session Pain Catastrophizing Class: Efficacy & Mechanisms for Reducing Opioid Use Among Chronic Pain Patients				$190,285
93.279	Stagewise Implementation-To-Target- Medications for Addiction Treatment (SITT-MAT)			$284,834	$576,442
93.279	Structural and molecular identification of circuitry underlying joint processing of motivation and aversion				$622,625
93.279	Substance use and DNA methylation at the intersection of sex and gender.	University of California, San Francisco	12802sc		$115,933
93.279	Targeting natural killer cells to HIV in intravenous drug users				$723,610
93.279	Telemedicine for Treatment of Opioid Use Disorder	Harvard University	153367.5117905.0003		-$2
93.279	Thalamic Circuits Underlying Opioid Seeking				$397,104
93.279	The Comparative Effectiveness and Safety of Pharmacotherapies for the Treatment of Opioid Use Disorder in Pregnancy	Brigham and Women's Hospital	123125		$96,852
93.279	The Epidemiology and Economics of Chronic Back Pain				$185,853
93.279	Tracking the opioid epidemic with social media: an early warning system				$117,661
93.279	Understanding the Mechanistic Interrelationship between Sleep, Co-Occurring Cannabis and Alcohol Use Disorder, and Neurocircuit Dysfunction during Early Abstinence	Palo Alto Veterans Institute for Research	PAD0006-01		$139,265
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				-$4,269
93.279	Western States Node of the National Drug Abuse Treatment Clinical Trial Network	Oregon Health & Science University	1017225_STANFORD		$168,779
93.286	"Array-Compressed Parallel Transmission for High Resolution Neuroimaging at 7T"	Vanderbilt University	62239AM1/PO P22009266		-$16
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		$257,674
93.286	A Wireless, Implantable Microdevice for Closed-Loop Drug Delivery to Prevent the Morbidity of Diabetes Therapy-Induced Hypoglycemia				-$9,701
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				-$11,304
93.286	An acquisition and reconstruction framework to enable mesoscale human fMRI on clinical 3 Tesla scanners				$225,025
93.286	Anatomically Guided Sodium MRI: Accurately Monitoring Chronic Ion Pump Dysfunction in the Human Brain				$523,590
93.286	B7-H3 Targeted Ultrasound Molecular Imaging System for Early Breast Cancer and Metastatic Detection				$167,931

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93.286	Cancer Classifiers Based on RNA Sensors in Living Cells				$175,161
93.286	Center for Advanced Imaging Innovation and Research (CAI2R) Sub ID 8315, TR&D 3:Enriching the Data Stream: MR and PET in Concert	New York University	PO #M240697902/19-A0-00-000454		$36,313
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		$162,113
93.286	Cerebrovascular Reserve Imaging with Simultaneous PET/MRI Using Arterial Spin Labeling and Deep Learning				$105,756
93.286	Clutter Suppression in Echocardiography Using Short-Lag Spatial Coherence Imaging				$128,370
93.286	CRCNS: Crossbeam Transcranial Ultrasound Technology to Stimulate the Deep Brain				$255,730
93.286	CRCNS: US-France-Israel Research Proposal: A personalized approach to brains timulation				$290,051
93.286	Development and Translation of High Performance Receive Arrays for Pediatric MRI			-$2,403	-$2,403
93.286	Development and Translation of Hyperpolarized C-13 Prostate Cancer MRI Methods	University of California, San Francisco	11361sc		$107,447
93.286	Development and Validation of Radiation-Free Pediatric Renal Function Quantification			$4,033	$139,778
93.286	Development of Imaging Probes for Risk Assessment of Alzheimer's Disease using Phage Display				$211,702
93.286	Development of Molecular Microbubble Probes and Ultrasound-Guidance in Immunotherapeutic Strategies				$100,575
93.286	Dissecting distributed representations by advanced population activity analysis methods and modeling				$86,619
93.286	Dual layer x-ray detector for coronary artery calcium scoring	University of California, Santa Cruz	A22-0655-S001		$177,499
93.286	Dual orthogonal fluorescent protease sensors for image guided surgery				$227,498
93.286	Elementary Neuronal Ensembles to Whole Brain Networks: Ultrahigh Resolution Imaging of Function and Connectivity in Humans	University Of Minnesota	N006269301 / U01 EB025144		$148,362
93.286	Enabling the Next Generation of High Performance Pediatric Whole Body MR Imaging			$211,979	$738,133
93.286	Endovascular Interventional MRI: Optimizing Tools and Techniques at 3T	University of California, San Francisco	11070sc		$98,559
93.286	Engineered biomaterials to modulate cell-cell signaling for the robust expansion of stem cells				$204,193
93.286	Enhanced MR for morphological characterization of ligaments, tendons and bone	State University of New York at Buffalo	R1334075		$74,231
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		$45,442
93.286	Exploring concepts in nanophotonics and metamaterials to create a 'super-scintillator' for time-of-flightpositron emission tomography				$227,422
93.286	Fingerprinting-Based Neuronal Fiber Identification inBrain Surgery	New York University	19-A0-00-1002836/PO M230653585		$12,206
93.286	Flexible and Wireless Bioelectronics for Continuous Monitoring of Intracranial Pressure				$3,132
93.286	fMRI Technologies for Imaging at the Limit of Biological Spatiotemporal Resolution	Massachusetts General Hospital	236792 / R01 EB019437		$124,244
93.286	Focused kV X-ray Modulated Conformal Radiotherapy for Small Targets				$435,985
93.286	Hatching Organoids for Continuous Tissue Production Pipelines				$370,830
93.286	High-Resolution Breast MRI at 3.0T				$646,763
93.286	Imaging human brain oxygenation and oxygen metabolism dynamics	University of California, Davis	A22-0970-S001		$27,628
93.286	Imaging of Metabolic Bone Response due to Localized Mechanical Loading				$312,996
93.286	Improving Liver Ultrasound Image Quality in Difficult-to-Image Patients			$21,259	$766,221
93.286	In vivo PET imaging of novel engineered AAVs informs capsid design			$483,085	$1,155,341
93.286	Injectable Hydrogels to Protect Transplanted Cells from Hypoxia			$26,330	$81,989
93.286	Investigation of nanobubble nucleation during radiation therapy				$16,846
93.286	Low-cost, handheld light sheet microscope for guiding anal cancer diagnosis	University of Arizona	610659		$57,851
93.286	Mobilize Center Supplement: Integrating OpenCap and SimTK to Enhance Data-Sharing				$941,268
93.286	Molecular Imaging of Pyruvate Kinase M2				$264,620
93.286	MR/PET Motion Correction from Coil Fingerprints				$154,685
93.286	MRI Corticography: Developing Next Generation Microscale Human Cortex MRI Scanner	University of California, Berkeley	00010552; PO# BB01635407		$59,252
93.286	Multi-Disciplinary Training Program in Cardiovascular Imaging at Stanford				$298,951
93.286	New Statistical Methods for Medical Signals and Images				$412,534
93.286	New tools for tracking single cells in vivo			$55,837	$664,521
93.286	Novel Transducer Technology for Transcranial Ultrasound				$54,644
93.286	Osteoarthritis: Quantitative Evaluation of Whole Joint Disease with MRI			$195,604	$698,367
93.286	Pediatric volumetric ultrasound scanner				$30,760
93.286	PET tracer for imaging senescence				$3,712
93.286	Probing basophil function in microfluidic systems for allergic disease diagnosis				$263,678
93.286	Quantitative Assessment of Early Metabolic and Biochemical Changes in Osteoarthritis				$102,832
93.286	Rapid MRI Acquisition for Pediatric Low-grade Gliomas				-$1
93.286	Rapid Robust Pediatric MRI			$60,100	$130,166
93.286	Real time non-invasive monitoring of endotracheal tube placement and 3D lung monitoring in infants using electrical impedance tomography	Colorado State University	G-70007-02		$36,280
93.286	SCH: INT: A Virtual Surgery Simulator to Accelerate Medical Training inCardiovascular Disease				$477,364
93.286	Single-Shot Quantitative X-ray Imaging for Interventional Procedures				$113,223
93.286	Skin-like wearable biosensors for multimodal mental health biomarker monitoring				$10,092
93.286	Stanford Biodesign/Bioengineering Clinical Need Identification Bootcamp for Undergraduates				$25,870
93.286	Staphylococcus serine hydrolases as targets for therapeutic and imaging contrast agents				$83,866
93.286	Sub-Millimeter PET System Design	University of California, Santa Cruz	A20-0581-S002 / R01 EB028091		-$110
93.286	Synthetic DNA-free Circuits for "Scarless" Programming of Mammalian Cells				$229,901
93.286	Translation and Validation of a Radiofrequency-Penetrable PET insert for Simultaneous PET/MRI imaging of Neurological Disorders			$132,628	$682,500
93.286	Tumor-targeted delivery and cell internalization of theranostic gadolinium			$539	$108,093

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93.286	Ultraprecision Positron Emission Tomography (PET) via Picosecond Optical Detection				$31,455
93.286	VINE Catheter: Soft, Tip-extending, Robotic Catheters with Shape Control for Endovascular Surgery	University of California, San Diego	705614/PO# KR705614		$69,385
93.307	A Promotora-centric Community Collaborative to Improve Connections to Mental Health Services			$68,588	$963,677
93.307	Common and Distinct Influences of Prenatal and Postnatal Early-Life Adversity on Epigenomic Trajectories in Mexican American Children	University of California, Berkeley	00011196/R01MD016595BB 01687814		$94,110
93.307	Development and Cross-Validation of a Hospital Risk Screening Tool for Posttraumatic Psychological Disorder	Palo Alto Veterans Institute for Research	CAS0012-02		$31,484
93.307	Elucidating lung cancer etiology among Asian American female never smokers	University of California, San Francisco	11984sc		$14,704
93.307	Epigenomic mechanisms of risk and resilience: The role of parenting	Emma Pendleton Bradley Hospital aka Bradley Hospital	712-7665 / R01 MD015401		$34,165
93.307	Hospital quality, Medicaid expansion and racial/ethnic disparities in maternal mortality and morbidity	University Of South Carolina	21-4270		$21,851
93.307	Identifying, refining, and testing sexual orientation and gender identity measures to detect and delineate sexual and gender minority populations for population research				$40,783
93.307	Immigrant Families and Childrens Health: The Intergenerational Health Impact of Federal and State Immigration Policy			$128,222	$836,763
93.307	Increasing Medicaid Acquisition and Sustainment among the Uninsured				$28,262
93.307	Machine Learning Models of Appropriate Medevac Utilization in Rural Alaska				$206,955
93.307	Preventing HIV among Native Americans through the treatment PTSD & substance use	University Of Washington	UWSC11400 // PO-0100022140		$37,040
93.307	Quantifying patient-specific tumor evolutionary dynamics and resistance mechanisms in HER2-positive breast cancers treated with targeted therapy				$6,459
93.307	Race/Ethnicity, DNA Methylation, and Disparities in Cardiovascular Mortality: NHANES 1999-2002	University of Michigan	3004739345 / R01 MD011721		$118,951
93.307	Reducing Disparities for the Uninsured: Identifying Opportunities for Improved Coverage Through Emergency Medicaid Programs				$159,342
93.307	Stanford Precision Health for Ethnic and Racial Equity (SPHERE) Transdisciplinary Collaborative Center			-$138,126	$120,856
93.307	The ADELANTE Trial: Testing a multi-level approach for improving household food insecurity and glycemic control among Latinos with diabetes			$63,986	$477,471
93.307	Using census data linkages to study long-term impacts on disparities in DNA methylation				$21,985
93.310	4DN Interrogation of T Cell Exhaustion in Cancer				$503,081
93.310	A Framework for the Social Impact of Algorithms in Health Care				$377,409
93.310	A Global Map of Interactions Among All Human Cell Surface Proteins and Secreted Ligands	California Institute of Technology	S586569		$153,449
93.310	A single cell pooling framework for deciphering the regulatory wiring of allergy in pathophysiologic contexts				$354,676
93.310	Blood bank community-listening sessions	Scripps Research Institute	5-54734		$42,072
93.310	Brain-wide screen for a neural pacemaker of aging				$2,188,514
93.310	Building the foundations of commensal vaccines				$747,288
93.310	Center for Undiagnosed Diseases at Stanford				$560,217
93.310	Closing the loop: development of real-time, personalized brain stimulation				$598,021
93.310	Comprehensive Structural and Functional Mapping of Mammalian Colonic Nervous System	University of California, Los Angeles	1556 G WA054		-$252
93.310	Creating a Catalog of Cancer Clonotype Drug Sensitivities with Single-Cell Genome Sequencing				$169,471
93.310	Creating high-resolution, epitope-focused vaccines			$142,122	$998,087
93.310	Developing approaches for universal organ transplantation				$185,757
93.310	Engineering and Imaging 3D genome structure-function dynamics across time scales	University of Pennsylvania	5-U01-DK-127405-03/ PO 4885094		$207,044
93.310	Enhancing the RADx Data Hub for Data FAIRness			$2,084,643	$3,806,217
93.310	Forecasting tumor evolution: can the past reveal the future?				$934,691
93.310	From Optogenetic Functional MRI to Mechanogenetic Functional Ultrasound				$2,021,124
93.310	Glioma Circuitry: Bridging Systems Neuroscience and Cancer				$884,150
93.310	Harnessing the chromatin conformational code for epigenetic regulation				$356,499
93.310	High dimensional atlas of circulating neutrophils as reporters of solid organ functional status				$719,186
93.310	Hijacking the T cell machinery for logic-gated CAR T cell control				$359,330
93.310	In Vivo Control and Functional Visualization of Stem Cell-Driven CNS Regeneration				-$9
93.310	Innovations and mechanisms in tumor subcellular metabolism				$563,127
93.310	Live-cell multiplex super-resolution imaging of chromatin state transitions				$882,237
93.310	Midwest Murine-Tissue Mapping Center (MM-TMC) - DATA ANALYSIS CORE	University Of Minnesota	P010409604		$1,675
93.310	Multimodal histologic atlas of human bone marrow			$152,207	$1,578,422
93.310	Covid-19: Multi-Modal Wireless COVID Monitoring & Infection Alerts for Concentrated Populations			$79,465	$1,385,267
93.310	Next-Generation Genomic Imaging Technology				$126,981
93.310	OCT as a Platform for Non-Invasive Virtual H&E Biopsy				$301,498
93.310	PRIDEnet for the All of Us Research Program			$365,676	$2,735,971
93.310	Real-time biosensor for mapping the function of the pancreas			$51,065	$50,623
93.310	Role of Innate Immune Dysregulation in the Etiology of Dementia				$1,139,878
93.310	Stanford MoTrPAC Bioinformatics Center				$2,553,160
93.310	Covid-19: Stanford Precision Health for Ethnic and Racial Equity (SPHERE) Transdisciplinary Collaborative Center			$189,890	$454,567
93.310	Stanford Tissue Mapping Center			$61,430	$100,692
93.310	Stanford Tissue Mapping Center - STELLAR			$95,916	$2,078,753
93.310	Stanford/Salk MoTrPAC Site for Genomes, Epigenomes and Transcriptomes			$232,756	$2,924,045
93.310	Stanford-SLAC CryoET Specimen Preparation Service Center (SCSC)				$1,384,365
93.310	Structure and Pharmacologic Modulation of the Mitotic Chromosome's Central Axis				$282,911
93.310	Targeted Advertising for Cancer Prevention				-$10,540
93.310	The Stanford-SLAC CryoEM Center				$13,316,715
93.310	Trillion cell culture to fuel organ biofabrication				$618,108
93.310	Unraveling neuronal circuits and causal underpinnings of long time-scale social strategic behaviors				$642,317
93.323	Covid-19: CA-FACTS: Solano and Santa Clara County	Public Health Foundation Enterprises, Inc.	SPO 219313		$7,657

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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93.323	Covid-19: CALSCOPE: Seroepidemiology survey for COVID with CDPH	Public Health Foundation Enterprises, Inc.	0187.1170		$68,028
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				$710,419
93.350	An automated system to differentiate Kawasaki disease from febrile illness with real life clinical datasets in New York City	HBI Solutions, Inc.	168393		$167,573
93.350	Collaborative care teams for hospitalized patients with opioid use disorders: Translating evidence into practice (START)	Cedars-Sinai Medical Center	0002074888		$25,100
93.350	Effect of Microgravity on Drug Responses Using Engineered Heart Tissues			$314,245	$520,426
93.350	Institutional Career Development Core (KL2)				$1,890,005
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	Stakeholder Guidance to Anticipate and Address Ethical Challenges in Applications of Machine Learning and Artificial Intelligence in Algorithmic Medicine: a Novel Empirical Approach				$536,376
93.350	Stanford Center for Clinical & Translational Education and Research (Spectrum)			$285,962	$8,609,734
93.350	Tissue Chip Modeling of Synovial Joint Pathologies: Effects of Inflammation and Adipose-Mediated Diabetic Complications	University of Pittsburgh	CNVA00056727 (136357-2)		$47,043
93.350	Understudied GPCRs connecting signaling in primary cilia to obesity and metabolic disease				$157,763
93.351	A suite of conditional mouse models for secretome labeling				$12,893
93.351	Abberior Infinity Line Upright 3D STED/Confocal Microscope				$727,370
93.351	Agilent 6495 Triple Quadrupole Mass Spectrometer for Targeted Quantitation				$569,654
93.351	Animal Research Equipment, Digital Cages & Metabolic, Avoidance, Fear Conditioning, Place Preference, Self-Administration, Open Field & Microdialysis Systems for Translational Neuroscience				$67,613
93.351	Bellymount: A platform for ultra-long term imaging of abdominal organs in live adult Drosophila				-$2,223
93.351	Comparative Medicine Biosciences Training Program				$186,980
93.351	Enabling AI-based Mouse Genetic Discovery				$19,702
93.351	Frequent concatemeric insertions during AAV6/Cas9-mediated genome editing: Detection and Prevention				$271,912
93.351	Immunogenomics of susceptibility to tuberculosis (TB) among nonhuman primate species				$135,382
93.351	Kinetic Imaging Cytometer (KIC) for High Throughput Studies of Cellular Physiology				$368,128
93.351	Multiparametric, deep tissue microscope for in vivo and in vitro imaging				$600,000
93.351	Research Opportunities in Comparative Medicine				$3,308
93.351	Understanding SHRF, an RNA exosome-linked disease with multi-organ involvement				$98,193
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:3007222548		$205,779
93.353	BAY AREA & ANDERSON TEAM AGAINST ACQUIRED RESISTANCE - U54 PROGRAM (BAATAAR-UP)	University of California, San Francisco	12033sc		$111,659
93.353	Breast Pre-Cancer Atlas Center	Duke University	A030739, A030743 / U2C CA233254, A032658		$388,563
93.353	Cancer Immunotherapy Trials Network Central Operations and Statistical Center	Fred Hutchinson Cancer Center	0001110501		$8,232
93.353	CD22 and CD19/22 CAR immunotherapies for childhood leukemia	Children's Hospital of Philadelphia	3201380619 / PO 20031486-RSUB		$379,953
93.353	Center for therapeutic targeting of the Fusion Oncoprotein of Fibrolamellar Hepatocellular Carcinoma	Rockefeller University	1U54CA243126-01 PI Dr. Simon		$585,396
93.353	Discovery and Development of Optimal Immunotherapeutic Strategies for Childhood Cancers (Admin Core)	Children's Hospital of Philadelphia	Sub3201380619 PO20031499-RSUB		$4,445
93.353	Discovery and Development of Optimal Immunotherapeutic Strategies for Childhood Cancers (Project 1)	Children's Hospital of Philadelphia	3201380619 PO 20028638-RSUB		$42,723
93.353	Discovery and Development of Optimal Immunotherapeutic Strategies for Childhood Cancers (Project 3)	Children's Hospital of Philadelphia	PO 20031487-RSUB / 3201380619		$4,111
93.353	Engineering the next generation of T cells	University of Pennsylvania	578222 PO 4789738		$181,142
93.353	Human Tumor Atlas Network: Data Coordinating Center	Dana-Farber Cancer Institute	1288405		$119,720
93.353	Humoral Immunity after CAR-T cell therapy for B cell malignancies: The HICAR Study	Fred Hutchinson Cancer Center	0001141213		$25,375
93.353	Precancer Atlas of Familial Adenomatous Polyposis				$674,674
93.353	Protein Kinase Therapeutic Targets for Non-Small Cell Lung Carcinoma (P01)	Dana-Farber Cancer Institute	1244109		-$33,140
93.353	Stanford Cancer Immune Monitoring and Analysis Center (CIMAC)				$1,754,142
93.353	The Cellular Geography of Therapeutic Resistance in Cancer	Dana-Farber Cancer Institute (505)	1206304		$170,512
93.353	The Center for Therapeutic Targeting of EWS-oncoproteins	Dana-Farber Cancer Institute	1207105		$453,061
93.353	The Lung PCA: A Multi-Dimensional Atlas of Pulmonary Premalignancy	Boston University	4500003003		$166,184
93.361	A mixed-methods study of the nature, extent and consequences of artificial intelligence (AI) for individualized treatment planning in end-of-life and palliative care (EOLPC)	University of Colorado Denver	FY23.1160.002		$18,280
93.361	Aspiration in Acute Respiratory Failure Survivors	University of Colorado	FY22.342.005-FY23.342.013		$26,216
93.361	Building a causal pathway framework to identify interventions to eliminate racial/ethnic disparities in severe maternal morbidity			$91,400	$819,693
93.361	More than a Movement Disorder: Applying Palliative Care to Parkinson's Disease	University Of Rochester	SUB00000258 / URFAO: GR532709		$2,480
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		$133,307
93.361	Severe Maternal Morbidity: An Investigation of Racial-Ethnic Disparities, Social Disadvantage & Maternal Weight			$64,164	$179,567
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		$8,730
93.365	Sickle Cell Treatment Demonstration Program	Center for Inherited Blood Disorders (CIBD)	CIBDIX2014HRSA-STAN-09		$26,352

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93.386	Role of the microenvironment in ovarian cancer metastasis	University of California, San Francisco	14150sc		$104,873
93.393	(PQ1) Identifying and targeting human glioblastoma migrating in the peritumoral niche				$19,901
93.393	Advancing Science & Policy in the Retail Environment (ASPiRE)	University of North Carolina at Chapel Hill	5112337	$105,912	$693,798
93.393	AGA/CISNET Blood Biomarker Analyses	Memorial Sloan Kettering Cancer Center	PO C22296148		$12,372
93.393	An integrative omics approach to investigate gene-environment interaction in colorectal cancer risk	Fred Hutchinson Cancer Research Center	0001153565		$3,829
93.393	Biological and cancer-associated role of epitranscriptomic gene expression regulation				$63,595
93.393	Breast Cancer Family Registry Cohort	Columbia University	5(GG013725-08)/PO#G15627		$272,694
93.393	Breast Pre-Cancer Atlas Center	Duke University	A030740		$667,324
93.393	Characterizing germline and somatic alterations by glioma subtypes and clinical outcome			$885,589	$1,265,585
93.393	CIPN R01: Leveraging machine learning to improve risk prediction for chemotherapy induced neuropathy			$384,764	$537,451
93.393	Comparative Modeling of Effective Policies for Colorectal Cancer Control	Memorial Sloan Kettering Cancer Center	MSKSUB00000141/POC22283120A		$7,939
93.393	Comparative modeling of gastric cancer disparities and prevention in the US and globally	Columbia University	GG015389-02/SAPO G17113		$79,153
93.393	Comparative Modeling of Lung Cancer Prevention, Early Detection and Treatment Interventions	University of Michigan	SUBK00012359 / PO #3006744964		$41,377
93.393	Comparative Modeling of Precision Breast Cancer Control Across the Translational Continuum:Supplement to Study Treatment Dissemination from Insurance Claims	University of Wisconsin-Madison	0000001488 / U01 CA253911		$372,862
93.393	Comprehensive profiling of the tumor microenvironment to predict patient response to immunotherapy				$34,826
93.393	Defining the Mechanism of Genome Rearrangements in Ph-Like ALL to Determine Predictive Markers in High-Risk Hispanic Populations	University of California, Irvine	2022-1669 / R37 CA266042		$55,536
93.393	Development and clinical evaluation of the CapScan gastrointestinal sampling device for metabolomics monitoring	Envivo Bio Inc.	Stanford Subaward 1		$5,155
93.393	Discovery, Biology and Risk of Inherited Variants in Glioma			$415,572	$730,160
93.393	Epigenetic drivers of cancer progression	Johns Hopkins University	2004395797		$76,811
93.393	Evaluation of genetic, clinical, and environmental risk factors to establish effective screening strategies for second primary lung cancer			$45,074	$665,211
93.393	Evaluation of the Be Vape Free Curriculum of the Tobacco Prevention Toolkit				$632,179
93.393	Feasibility Study of a Country-Wide Colorectal Cancer Screening Program in Chile	Memorial Sloan Kettering Cancer Center	PO #C22402301		$15,702
93.393	Flexible NLP toolkit for automatic curation of outcomes for breast cancer	Mayo Clinic - Arizona	LSJ-303290; PO#68962847		$47,774
93.393	Functional and Translational Epigenomics of Acute Lymphoblastic Leukemia				$414,791
93.393	Genetic testing, treatment use, and mortality after diagnosis of breast and ovarian cancer: The Georgia-California GeneLINK Initiative			$16,186	$29,388
93.393	Genomic and Morphologic Predictor of High-Risk DCIS			-$334	-$334
93.393	Histone deacetylation signaling in aging and cancer pathways	Palo Alto Veterans Institute for Research	CUA0006-01		$134,939
93.393	Insights from Asian populations into disparities in breast cancer prognosis and outcomes	University of California, San Francisco	12260sc		$96,437
93.393	Integrating Multiple Electronic Health Records Systems to Improve Lung Cancer Outcomes				$25,607
93.393	Integrative approaches to elucidate p53 transcriptional networks during carcinogenesis				$950,289
93.393	Leveraging Diversity in Cancer Epidemiology Cohorts and Novel Methods to Improve Polygenic Risk Scores	University of Southern California	SCON-00003762 / U01 CA261339		$174,891
93.393	Leveraging gnotobiotic models to study the gut microbiota and anti-tumor immunity				$86,086
93.393	Leveraging Implementation Science to Promote Behavior Change and Reduce Cancer Health Disparities among American Indian and Alaska Native Older Adults				$89,024
93.393	LncRNA mechanisms in cancer				$830,416
93.393	Local Flavor Policies to Enhance Equity in Tobacco	University of Kentucky Research Foundation, The	PO: 7800006031		$74,026
93.393	Mechanism of Action of the TBX3 Gene in Breast Cancer				$85,523
93.393	Molecular mechanisms of SCLC initiation and detection in mice and humans			$10,035	$479,561
93.393	Molecular Pathoepidemiology of Contralateral Breast Cancer	Fred Hutchinson Cancer Center	0001124481		$13,702
93.393	Molecular Pathoepidemiology of Contralateral Breast Cancer	Sloan Kettering Institute for Cancer Research	SUB00000131AM5 BD526393B		$4,843
93.393	Multicenter Randomized Controlled Trial of Brief Behavioral Therapy for Cancer Related Insomnia	Virginia Commonwealth University	FP00017971_SA002		$143,361
93.393	Multilevel Determinants of Racial/Ethnic Disparities in Lung Cancer Screening Utilization	Kaiser Foundation Research Institute	RNG211988-Stanford		$21,940
93.393	NGTC - STANFORD (Developing next generation cell therapies for children with solid tumors)				$362,073
93.393	Organoid-Based Discovery of Oncogenic Drivers and Treatment Resistance Mechanisms				$48,202
93.393	Pancreatic cancer stem cells: PD2-mediated novel mechanistic link and metabolomic alterations				$92,821
93.393	Population Modeling of Bladder Cancer Detection and Control	Brown University	00002241		$43,571
93.393	Precision Prostate Cancer Screening with Genetically Adjusted Prostate-Specific Antigen Levels			$242,579	$448,477
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		$32,726
93.393	Regulatory Impact on Vape Shops and Young Adults' Use of ENDS	George Washington University	19-M72		$71,091
93.393	Retail Environment for Tobacco and Marijuana in California: Impact on CollegeStudent Use				$165,190
93.393	Reversing Cellular immortality in cancer				$173,673
93.393	Role of NSD3 in regulation of cancer pathogenesis	University of Texas MD Anderson Cancer Center	3002170957		$97,114

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93.393	Role of SETD5 in Chromatin Regulation and Tumorigenesis	University of Texas MD Anderson Cancer Center	3001326346		$116,259
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		$54,150
93.393	Symptom Screening Linked to Care Pathways for Children with Cancer: a Cluster Randomized Trial (Aims 1 & 3)	Hospital for Sick Children	6610100234		$46,612
93.393	The mechanistic basis for constitutional MLH1 methylation (epimutation)	Cedars-Sinai Medical Center	0001625789		$113,578
93.393	The regulation of innate immune sensors to control GVHD and GVL after allogeneic hematopoietic stem cell transplantation				$88,760
93.393	Theory and methods for mediation and interaction	Harvard University	117202-5120557		$13,761
93.393	Tobacco Retail Policy Innovation to Reduce Health Disparities	University of California, San Francisco	11572sc	$15,080	$61,577
93.393	Unraveling mechanisms of tumor suppression in lung cancer				$498,264
93.393	Very-long term neurocognitive outcomes in breast cancer survivors	Virginia Commonwealth University	FP00018011_SA002		$60,559
93.393	Very-long term neurocognitive outcomes in breast cancer survivors				-$16
93.393	Virally-induced tumorigenesis controlled by the microbiota	University of Chicago	Sub FP068995-02-4		$93,010
93.394	A Genomic Framework for Molecular Risk Prediction & Individualized Lymphoma Therapy				$561,874
93.394	A Noninvasive Integrated Genomic Approach for Early Cancer Detection and Risk Stratification after Transplantation			$4,066	$602,301
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		$112,777
93.394	Abbreviated Non-Contrast-Enhanced MRI for Breast Cancer Screening				$505,968
93.394	Advanced Development of the MasSpec Pen for Cancer Diagnosis and Surgical Margin Evaluation	Baylor College of Medicine	7000001687 / R33 CA229068		$32,181
93.394	Advanced Imaging Tools to Assess Cancer Therapeutics in Pediatric Patients				$453,825
93.394	An integrated microtechnology platform for spatially resolved mass spectrometry-based proteomics				$129,764
93.394	Analysis of urine tumor nucleic acids for detection and personalized surveillance of bladder cancer				$567,776
93.394	Automated Volumetric Molecular Ultrasound for Breast Cancer Imaging				$301,640
93.394	Changing brachytherapy with MRI remnant-tumor segmentation and active-catheter placement	Johns Hopkins University	PO #2004786918		$21,568
93.394	Chemical Glycoproteomics				$461,857
93.394	Circulating Genomic Determinants of Treatment Failure in Hodgkin Lymphoma			$5,080	$915,780
93.394	Clinical Validation of Metabolic Markers Detected by Mass Spectrometry Imaging for Diagnosis of Thyroid Fine Needle Aspiration Biopsies	Baylor College of Medicine	P700000211		$11,856
93.394	Co-Clinical Research Resource for Imaging Tumor Associated Macrophages				$597,634
93.394	Computational analysis of tumor ecosystems and their regulation and association with outcomes				$118,603
93.394	Computational imaging approaches to personalized gastric cancer treatment				$139,612
93.394	Copper-depleting nanotheranostics for treating triple negative breast cancer			$71,668	$531,416
93.394	DESI-MS detection of positive surgical margins in kidney cancer				-$29,255
93.394	Distributed Learning of Deep Learning Models for Cancer Research			$51,288	$52,637
93.394	Dual Modality X-ray Luminescence CT for in vivo Cancer Imaging				$516,941
93.394	Early therapeutic monitoring of response to therapy with serial ultrasound in metastatic RCC				$39,570
93.394	Enhanced Deuterium Metabolic Imaging (DMI) of Metabolic Reprogramming in Brain Tumors				$418,446
93.394	Evaluation of Patients with Low-Risk and Intermediate-Risk Prostate CancerScheduled for High-Dose Rate Brachytherapy Using 68Ga-RM2 PET, 68Ga-PSMA-11PET and Multi Parametric MRI				$80,154
93.394	Exploring a promising design for the next generation time-of-flight PET detector				$441,376
93.394	Glycosylation and Immune Evasion in Urologic Tumors				$552,763
93.394	HIFU-immunotherapy in pancreatic cancer				$656,326
93.394	High Resolution Ultrasound in Interventional Radiology			$199,740	$451,630
93.394	Highly Sensitive Detection of Occult Pancreatic Cancer Using Intraoperative Molecular Imaging				$76,217
93.394	Identification of serum protein biomarkers by profiling N-glycoproteomes of patient-derived xenografts of clear cell renal cell carcinoma				$133,540
93.394	Image Analysis Tools for mpMRI Prostate Cancer Diagnosis Using PI-RADS	Eigen	SPO 162975		$35,788
93.394	Imaging and circulating DNA markers to assess early response and predict treatment failure patterns in lung cancer				$516,185
93.394	Imaging Biomarkers for Glioma Treatment Response				$157,917
93.394	Imaging Modulation of Immune Phenotype			$53,536	$653,152
93.394	Improving diagnostic US for reduction of benign breast biopsies using US-guided Optical Tomography	Washington University in St. Louis	WU-21-40-MOD-2 / PO ST00000058		$44,081
93.394	Insonation of ultrasound microbubbles at low frequency to enhance image-guided therapy				$376,868
93.394	Intraoperative integration of artificial intelligence during cystoscopic surgery				$475,760
93.394	Large aperture and wideband modular ultrasound arrays for the diagnosis of liver cancer			$103,842	$178,499
93.394	Leveraging deep learning for markerless motion management in radiation therapy				$334,412
93.394	Mechanisms and Duration of Immunity to SARS-CoV-2			$37,242	$1,994,534
93.394	Molecular Imaging Methods for the Detection of Pancreatic Ductal Adenocarcinoma				$230,717
93.394	Molecularly-Targeted Ultrasound in Ovarian Cancer				$147,032
93.394	MR-Guided Focused Ultrasound Combined with Immunotherapy to Treat Malignant Brain Tumors				-$120,631
93.394	Multimodal iterative sequencing of cancer genomes and single tumor cells				$314,177
93.394	Multi-modal machine learning to guide adjuvant therapy in surgically resectable colorectal cancer				$40,323
93.394	Multiregional imaging phenotypes and molecular correlates of aggressive versus indolent breast cancer				$338,504
93.394	Multi-scale modeling of glioma for the prediction of treatment response, treatment monitoring and treatment allocation				$776,057
93.394	Nanoparticle-based Triple Modality Imaging and Photothermal Therapy of Brain Tumors				$1,570
93.394	Optical Imaging to Improve Surgery & Targeted Therapy in Brain Tumors			$12,072	$476,463
93.394	Outcomes for CLL patients treated with novel therapy	Mayo Clinic	LSJ-287002-01; PO# 68952769		$36,086

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93.394	Pancreatic Cancer Imaging Repository	University of Texas MD Anderson Cancer Center	3001529436		-$473
93.394	Pathomic Predictors of Prostate Cancer Progression			$365,594	$833,063
93.394	Preclinical microphysiological tumor models for nuclear medicine				$152,220
93.394	Predicting Relapse at the Time of Diagnosis in Acute Lymphoblastic Leukemia				$723,159
93.394	Prognostic Metabolic Signatures of Cancers through Mass Spectrometry Imaging				-$3,930
93.394	Prostate Cancer Active Surveillance Study (PASS) Cohort: Infrastructure Support for Cancer Research	Fred Hutchinson Cancer Center	#0001110246		$23,177
93.394	Quantitative volumetric ultrasonic and photoacoustic tomography				$442,253
93.394	Rad-pathomic deep learning models to assist radiologists in differentiating aggressive from indolent prostate cancer on MRI				$598,806
93.394	Rapid and affordable magneto-nanosensors for ctDNA-guided lung cancer management			$128,812	$488,568
93.394	Serial Ultrasound to Detect Early Response to Immunotherapy in Metastatic RCC				$192,660
93.394	The Impact of FUS-Mediated Brain Cancer Therapy on BBB Transport, Cytokines, and Immunocyte Trafficking				$284,496
93.394	The Prognostic Significance and Mechanistic Determination of Chromatin Remodeling Biomarkers in Non-Functional Pancreatic Neuroendocrine Tumor	University of Pittsburgh	AWD00004384 (136403-1)		$102,774
93.394	Therapeutic miRNA Modulation of Hepatocellular Carcinoma Using Ultrasound Guided Drug Delivery				$70,610
93.394	Three-Dimensional Multi-Parametric Ultrasound for Monitoring Therapy of Liver Metastasis				$419,479
93.394	Treatment Resistance in Breast Cancer: Cellular-to-Molecular Profiling	University of California, Berkeley	00010696 BB01464994		$12,295
93.394	Ultrabright Theranostic SERRS Nanoparticles for Gastrointestinal Endoscopy				$868,723
93.394	Ultrasound-enhanced drug penetration for treatment of pancreatic cancer			$105,958	$297,110
93.394	Validation of Biomarkers for Early Diagnosis and Risk Prediction of Pancreatic Neoplasms	University of Pittsburgh	CNVA00047829 (133836-4		$18
93.395	3' tsRNAs: biologic function and pre-clinical targeting for treating human disease				$44,216
93.395	A Cas13d-based screening approach to engineer exhaustion-resistant CAR T cells				$94,884
93.395	A micro-dissection platform for generating uniform-sized patient-derived tumor organoids (PDOs) for personalized cancer therapy				$193,613
93.395	A Novel Paradigm for the Development of a Peptide Vaccine to Treat KRAS Mutant Cancers				$163,864
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		$82,618
93.395	Bone Marrow Grafting and Cellular Therapy for Leukemia and Lymphoma				$2,939,105
93.395	Chemical manipulation of creatine kinases to treat acute myeloid leukemia	Dana-Farber Cancer Institute	1318701		$118,179
93.395	Circadian regulation of cancer therapy-associated neuroinflammation				$187,396
93.395	COG NCTN Committee Leadership - Kimberly Pyke-Grimm	Public Health Institute	AR10369/PO# 0000003600		$9,052
93.395	Comprehensive Investigation of Multiple Myeloma Genetic Susceptibility in African Americans				$152,767
93.395	Degrading therapeutically important kinases using small molecules			$304,153	$362,725
93.395	Developing Safe and Effective GD2-CAR T Cell Therapy for Diffuse Midline Gliomas			$42,450	$762,157
93.395	Development of AI-Augmented quality assurance tools for radiation therapy			$11,118	$48,118
93.395	Development of novel protein-based therapeutics for lung cancer	University of California, San Francisco	10698sc		$180,804
93.395	Diagnostic Imaging Reviewer Study ID: AEWS1221 (AR61597)	Public Health Institute	AR61597/0000004532		$3,749
93.395	Discovering and exploiting mechanisms of neuroblastoma therapy resistance	Children's Hospital of Philadelphia	GRT-00000636 / PO# 20213670		-$53
93.395	Discovery and optimization of novel mutant-selective allosteric inhibitors of EGFR T790M	Dana-Farber Cancer Institute	1273107		$439,554
93.395	ECOG-ACRIN Operations Center - Administrative	ECOG-ACRIN Medical Research Foundation, Inc.	U10CA180820-06-STU1A		$10,303
93.395	Effects of FLASH Radiation on Cancer and the Immune Response				$546,661
93.395	Elucidating the role of cancer-associated FGL1 in tumor immunity and developing FGL1-guided anti-LAG-3 cancer immunotherapy	New York University	22-A0-00-1007872 / M230686511		$24,217
93.395	Engineering 3D Osteosarcoma Models to Elucidate Biology and Inform Drug Discovery				$114,067
93.395	Enhancing Cancer Immunotherapy: Targeting the Tumor and Targeting the Host				$807,214
93.395	Generating a Systemic Immune Response Using Localized Delivery of Chemotherapy in Brain Tumors			$110,571	$273,045
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		$99,308
93.395	HIJACKING CANCER DRIVERS TO ACTIVATE PROAPOPTOTIC GENES IN DLBCL				$341,689
93.395	Identification of serum protein biomarkers by profiling N-glycoproteomes of patient-derived xenografts of neuroendocrine prostate cancer				$134,435
93.395	Immunotherapy Modeling in Organoids Co-preserving Tumor and Infiltrating Immune Compartments				$788,225
93.395	Improving the Safety and Quality of Eye Plaque Brachytherapy by Assembly with Intensity Modulated Loading				$23,897
93.395	Increasing the therapeutic index of brain tumor treatment through innovative FLASH radiotherapy	University of California, Irvine	2020-1309 / P01 CA244091		$655,456
93.395	Innovative Cell Therapy for Pediatric Acute Myeloid Leukemia				$1
93.395	Integrated ligand and target discovery by chemical proteomics for glioblastoma treatment.			$290,633	$598,475
93.395	Molecular basis of tumor suppression by Cdk4/6 inhibition	University of California, Santa Cruz	A19-0344-S001-P0700755		$96,588
93.395	Molecular Strategies to Widen the Therapeutic Index of Radiotherapy			$65,375	$1,489,345
93.395	Molecularly-based outcome and toxicity prediction after radiotherapy for lung cancer			$7,476	$516,078
93.395	New Materials to Deliver mRNA: Applications in Cancer Immunotherapy				$504,348
93.395	NIH National Clinical Trials Network (NCTN)	Public Health Institute	AR61845 PO:0000004611		$16,446
93.395	NK cells, their receptors, and cancer therapy	University Of Minnesota	P008703403		$32,904
93.395	Non-genomic resistance mechanisms in EGFR-mutant lung cancer	Massachusetts General Hospital	241302		$50,332

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93.395	Novel Intervention Approaches to Alleviate Allogeneic Transplant-Related Morbidity & Mortality	Fred Hutchinson Cancer Center	0001110489/0001142854		$19,254
93.395	Novel Mechano-Acoustic Enhancement of Immunotherapy				$112,330
93.395	Novel therapeutic approaches for enhancing anti-tumor immunity in SCLC (00005748)	University of Texas MD Anderson Cancer Center	3001826340		-$7
93.395	NRG Oncology Network Group Operations Center	NRG Oncology Foundation, Inc.	NRG-Le-GY6 / U10 CA180868		$105,488
93.395	Pathology Review: NIH National Clinical Trials Network (NCTN) Grant (2U10CA180886)	Public Health Institute	AR61846 PO:0000004610		$46,466
93.395	Patient- and tumor-specific biomarkers and mechanisms that predict irAEs resulting from checkpoint inhibition	Vanderbilt University Medical Center	VUMC74848		$144,565
93.395	Pediatric Brain Tumor Consortium	St. Jude Children's Research Hospital	11006823I-8080815, 11006824I-8143163		$52,506
93.395	Phase 1 and 2 Molecular and Clinical Pharmacodynamic Trials ETCTN	Beckman Research Institute Of The City Of Hope	61984.2008185.669303		$95,848
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			$133,841	$839,232
93.395	Preclinical optimization of ultra-high dose rate (FLASH) radiotherapy parameters for translational relevance	University of Texas MD Anderson Cancer Center	3002038840		$208,975
93.395	Preserving Erectile Function by Quantifying the Nerve-Sparing step of the Robotic Prostatectomy	University of Southern California	SCON-00003680		$34,213
93.395	QBS10072S for the Treatment of Brain Metastatic Triple-Negative Breast Cancer	Quadriga Biosciences, Inc.	SPO 183921		$200,375
93.395	Radioluminescence dosimetry solution for precision radiation therapy			$187,989	$343,789
93.395	Randomized Controlled Trial of Virtual Reality for GI Cancer Pain to Improve Patient Reported Outcomes	Cedars-Sinai Medical Center	0001900521		$8,770
93.395	Strategies for Receptor inhibition in immunotherapy			$79,078	$324,223
93.395	Synthetic IL9R signaling to rewire T cells for adoptive cell therapy of cancer				$309,024
93.395	Synthetic Studies Related to Cancer Research/Treatment				$454,761
93.395	Targeting ALK through Degradation and Allosteric Inhibitors			$195,743	$368,089
93.395	Targeting apoptotic cells to enhance radiotherapy				$344,171
93.395	Targeting CDK7 in CCNE1-amplified Ovarian Cancer			$669,573	$900,188
93.395	Targeting colorectal cancer stem cells with ALDH1B1 antagonists				$444,382
93.395	Targeting Dectin-2 on Tumor-associated Macrophages for the Treatment of Cancer				$396,418
93.395	Targeting Ferroptosis in BRAF (V600E) Mutant Anaplastic Thyroid Cancer				$16,527
93.395	Targeting the transcriptional and epigenetic landscape in chemo-refractory Small-Cell Lung Cancer	New York University	17-A0-00-008395 M220526771		-$1
93.395	The molecular basis of IMiD induced neo-substrate recruitment to the CRL4CRBN ubiquitin E3 ligase	Dana-Farber Cancer Institute	1300006		$125,003
93.395	The TOPAS Monte Carlo simulation toolkit for physics, biology and clinical research in radiotherapy	University of California, San Francisco	10824sc / U24CA215123-05		$279,209
93.395	Therapeutic targeting of NSD2 in lung adenocarcinoma	University of Texas MD Anderson Cancer Center	3002200065		$3,972
93.395	TOPAS - nBIO, a Monte Carlo Tool for Radiation Biology Research	Massachusetts General Hospital	236149 / R01 CA187003		$105,030
93.395	Tumor Hypoxia: Molecular Studies & Clinical Exploitation			-$3,466	-$3,466
93.396	(#6) A novel animal model for determining the role of circadian timing in breast cancer development				$533,080
93.396	(PQ4) Quantitative and multiplexed analysis of gene function in cancer in vivo				$323,481
93.396	A Novel Assay to Individualize Resensitization of Iodine-Refractory Thyroid Cancer				$10,601
93.396	A robust platform for multiplexed, subcellular proteomic imaging in human tissue				$196
93.396	Adipocytes are Important Players in the Acute Lymphoblastic Leukemia Microenvironment	University of California, Los Angeles	1645 G VA145		-$11,649
93.396	ATP-Dependent Chromatin Remodeling in Human Malignancy				$259,579
93.396	Cellular Senescence Network: New Imaging Tools for Arthritis Imaging			$50,000	$737,737
93.396	Delineating developmental programs driving tumorigenesis in triple-negative breast cancer				$486,368
93.396	Determining and targeting mechanisms controlling cancer cell division			$242,734	$1,040,270
93.396	Dissecting the interplay between aging, genotype and the microenvironment in lung cancer				$471,150
93.396	Effect of radiotherapy on dendritic cell subsets: implications for immunotherapy				$156,075
93.396	Elucidating the Role of Trop2 in Prostate Cancer			$32,512	$143,057
93.396	Elucidating the Role of UCHL1 in Aggressive Prostate Cancer			$9,670	$94,224
93.396	Genetic Determinants of Tumor Growth and Drug Sensitivity in EGFR Mutant Lung Cancer	Yale University	CON-80003286(GR113944)		$219,424
93.396	Genetic dissection of oncogenic Kras signaling				$496,683
93.396	High resolution dissection of oncogene enhancer networks via CRISPR screening and live-cell imaging.				$331,547
93.396	Human Acute Myeloid Leukemia Stem Cells				$375,994
93.396	Identifying and Targeting Mechanisms for Membrane Signaling in Human Cancer	University of California, San Francisco	12578sc		$193,601
93.396	Inferring the roots of metastases and their effects on patient survival				-$10,731
93.396	Integrating cancer genomics and spatial architecture of tumor infiltrating lymphocytes				$94,529
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		$181,302
93.396	Investigating molecular and cellular mechanisms of SCLC development to identify novel therapeutic strategies				$940,553
93.396	Investigating the roles of extracellular cGAMP and harnessing it for cancer treatment				$122,710
93.396	Macrophage phenotype polarization in clinical neoplasia				$320,389
93.396	Matrix in pre-cirrhotic HCC				$297,528
93.396	Measuring and Modulating DNA Damage Surveillance Pathways				$466,527
93.396	Mechanisms of autoimmune endocrine diseases in patients receiving checkpoint inhibitors (Sponsor award: 5 R01CA227473-04)	Yale University	CON-80003987 (GR118421)		$260,894
93.396	Mechanisms of Lymphomagenesis of Skin-Resident gamma delta T cells	Northwestern University	60061607 STAN		$40,205
93.396	Molecular dissection of Lkb1-mediated tumor suppression				$301,942

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93.396	Neural Niche in Promoting Brain Metastatic Tumor Progression	University of Texas Southwestern Medical Center Dallas	GMO 220809 PO 0000002740		$153,081
93.396	Neuronal Regulation of Low-Grade Gliomagenesis			$407,349	$1,014,443
93.396	Novel Therapeutics for Adult Glioblastoma (Project 3)	Brigham and Women's Hospital	126696		$124,660
93.396	Novel Therapeutics for Adult Glioblastoma (U19 Admin Core)	Brigham and Women's Hospital	126686		$18,423
93.396	Pancreatic Cancer Development: Genetic and Immune Regulation			$80,828	$2,076,565
93.396	Program the Immune System against RAS-driven Cancer				$41,431
93.396	Proliferation and Differentiation of Bladder Epithelial Cells in Regeneration and malignancy				$205,161
93.396	Regulators of Tumorigenesis				-$111
93.396	Role of extracellular matrix malleability in mediating breast cancer cell invasion and migration			$13,011	$332,835
93.396	Role of the METTL13 Lysine Methyltransferase in Signaling and Cancer			$111,344	$461,533
93.396	Single cell modeling of cancer mutations				$23,860
93.396	Software and algorithms for elucidating the structure, function, and evolution of extrachromosomal DNA	University of California, San Diego	704826		$76,700
93.396	Stem Cell Biology, Cancer Stem Cell Biology, and Cancer Immunotherapy				$1,082,490
93.396	Systems analysis of mechanisms driving response to immunotherapy in clear cell cancers				$463,073
93.396	Targeting Lymph Node Dependent Immune Tolerance in Cancer				$489,021
93.396	Targeting the cancer glycocalyx			$114,370	$444,948
93.396	Targeting the MYC Pathway for the Treatment of Cancer				$928,843
93.396	The Impact of Mitochondrial Repression and Lipid Accumulation by HIF on Tumor Growth				-$138,082
93.396	The role of the RNA demethylase FTO in metabolic reprogramming of renal cell carcinoma				$176,724
93.396	Triggering a New Cancer Cell Death Mechanism in Sarcoma				$35,416
93.397	Center for Cancer Nanotechnology Excellence for Translational Diagnostics (CCNE-TD)				-$3,133
93.397	Dana Farber/ Harvard Cancer Center SPORE in Gastrointestinal Cancer (SPORE FGFR degrader-Wolpin)	Dana-Farber Cancer Institute	1220614		$30,743
93.397	Deconvolution and interruption of the cancer-neuro-immune axis facilitating brain metastases				$1,531,246
93.397	Evolutionary dynamics and microenvironmental determinants of metastatic breast cancer			$41,717	$2,056,358
93.397	Phenotype Heterogeneity and Dynamics in SCLC	Vanderbilt University	UNIV60169; P22052363		$52,209
93.397	Project 3: Deciphering Germline and Somatic Genomic Landscape of Gliomas in Black and Hispanic Minority Groups (SPORE in Brain Cancer)	University of Texas MD Anderson Cancer Center	3001851301 / P50 CA127001		$21,980
93.397	Shaping of the Microenvironment in Colonic Pre-Cancer by Epithelia and Microbiota	Vanderbilt University Medical Center	VUMC106012		$11,997
93.397	Spatial-Genomic Integrative Multi-Species Analysis of Lymphnode Metastasis				$175,297
93.397	SPORE in Multiple Myeloma	Dana-Farber Cancer Institute	1224819		$19,783
93.397	Stanford Cancer Institute				$3,813,417
93.397	Targeting microenvironmental dependencies for glioblastoma therapy (Project 4)	Brigham and Women's Hospital	122260		$199,111
93.397	The Cancer Cell Map Initiative v2.0 - Project 1	University of California, San Francisco	13934sc		$70,970
93.397	The Cancer Cell Map Initiative v2.0 - Project 3	University of California, San Francisco	13935sc		$8,496
93.397	The Upstream Center: Income Interventions to Address the Fundamental Causes of cancer Inequities				$65,460
93.398	253729 K08 Kinase 1-alpha -Targeting casein kinase 1-alpha for cancer therapy				$270,193
93.398	Bioengineering programmable and drug-controllable synthetic receptors fortunable CAR-T cell behaviors				$58,016
93.398	Canary Cancer Research Education Summer Training (Canary Crest) Program				$136,329
93.398	Cancer immunotherapy using injectable hydrogels for precise and tunable multidrug delivery				$33,228
93.398	Defining Pre-treatment Correlates of Patient GD2 CAR T Cell Exhaustion and Memory Using Multi-Dimensional Immune Profiling				$182,054
93.398	Defining the Role of Senescence in Limiting Therapeutic Efficacy of CAR T Cells				$39,536
93.398	Determinants of resistance to engineered T-cell therapies targeting CD19 in lymphoma				$15,355
93.398	Dissecting reciprocal interactions between cancer cells and endothelial cells in SCLCliver metastasis.				$137,650
93.398	Dissecting the Mechanism of Acute Myeloid Leukemia Induced Bone Marrow Failure to Identify Therapeutic Interventions				$187,126
93.398	Dissecting the Mechanism of Polycomb Eviction by the BAF Complex				$25,963
93.398	Dissecting the Roles and Requirements for RBM39 in Acute Myeloid Leukemia andNormal Hematopoiesis				$307,898
93.398	Do Tumor-Immune Interactions Prime Systemic Tolerance of Triple-Negative Breast Cancer Brain Metastases?				$148,464
93.398	Engineering Brain Cancer in a Dish: Hydrogel-based 3D in vitro Models for Pediatric Brain Tumor				$37,719
93.398	Exploring O-glycoproteomics to prevent metabolic radioresistance in the tumor microenvironment				$134,927
93.398	Family-building After Cancer: Preferences, Decisions, and Planning for Young Female Survivors				$114,515
93.398	Functional characterization of novel oncogenic loci driving progression and immune response in gastrointestinal cancer				$110,742
93.398	Functional Proteomic Analysis and Biomarker Identification in a Novel Mouse Model of Metastatic Hepatocellular Carcinoma (HCC)				$158,846
93.398	High resolution profiling of cellular communities in the tumor microenvironment				$65,191
93.398	Hijacking cancer driver to activate cell death by chemically induced proximity				$38,510
93.398	Identifying Mechanisms of Paracrine cGAMP Signaling in the Tumor Microenvironment				$10,119
93.398	Immune Targeting of non-Hodgkin Lymphoma through Integrative Antigen Presentation Profiling				$137,499
93.398	Integrating Spatial Omics and Drug Imaging to Dissect the Role of Pancreatic TumorMicroenvironment in Drug Resistance				$123,282

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93.398	Integrative subtyping to improve therapeutic options for metastatic hormone receptor-positive breast cancer				$225,286
93.398	Leveraging innovative technologies in basic and clinical cancer research				$500,762
93.398	Lymphoma Antigen Density and Circulating Tumor DNA Profiling As Determinants of Novel CAR Therapies				$205,448
93.398	Magnetic Particle Imaging (MPI) for Imaging and Magnetothermal Therapy of Brain Tumors				-$3,846
93.398	Mechanistic insights into lysosomal nutrient efflux in cancer				$296,094
93.398	Molecular Characterization and Personalized Approaches to Non-Hodgkin Lymphoma from Circulating Tumor DNA				$184,616
93.398	Molecular dissection of extrachromosomal DNA formation, development, and evolution				$6,984
93.398	Molecular mechanisms of NFIB in small cell lung cancer metastasis				$6,550
93.398	Non-invasive characterization of human soft tissue sarcoma response to radiation therapy				$278,907
93.398	Noninvasive Risk Stratification of Prostate Cancer Using Cell-Free Nucleic Acids				$278,780
93.398	PRECISE - a PErsonalized Risk Score for gastrIc CancEr				$180,942
93.398	Psychobiological stress vulnerability, executive control, and emotion regulation in children and adolescents with cancer				$289,430
93.398	Raf-1 As a Regulator of Glutamine Metabolism				$34,544
93.398	Real-Time Freehand Ultrasound Molecular Imaging with Deep Learning				$75,879
93.398	Regulation and retention of extrachromosomal oncogene amplifications in cancer				$35,165
93.398	Repurposing systemic therapies to improve clinical outcomes in advanced basal cell cancer				$73,584
93.398	Role of novel cis-acting long non-coding RNAs in DNA replication timing and chromosome stability in cancer				$81,352
93.398	Role of the candidate protein methyltransferase METTL18 in cancer biology				$32,985
93.398	Simultaneous Multi-Tracer Positron Emission Tomography for Interrogating Molecular Pathways of Neurological Disorders				$30,128
93.398	Single cell characterization of human acute myeloid leukemia				$75,056
93.398	Stanford Cancer Imaging Training (SCIT) Program				$449,615
93.398	Stanford Molecular Imaging Scholars (SMIS) Program				$408,636
93.398	Systematic Discovery and Characterization of Novel Cancer Anti-Phagocytic Mechanisms				$80,316
93.398	Targeting Radiation-Induced Myeloid Cells to Promote T cell Immunity in Undifferentiated Pleomorphic Sarcoma				$74,057
93.398	The role of DNMT3A in gene regulation and stem cell expansion				$92,583
93.398	The role of fallopian tube microbiome in ovarian carcinogenesis				$199,411
93.398	The role of membrane lipid remodeling in cancer cell ferroptosis sensitivity				$39,327
93.398	Uniting Mass Spectrometry and Glycoscience to Investigate Cancer Biology				$3,479
93.399	AALL1131 Supplemental PCR	Children's Hospital of Philadelphia	FP00034095_SUB17_01		-$2
93.399	COG NCTN Per Case Reimbursement	Public Health Institute	U10CA180886; AR65898		$19,531
93.732	Addiction Medicine Fellowship				$108,993
93.788	Medication Assisted Treatment (MAT) Expansion Project: CA Hub & Spoke System Training and Learning Collaborative	University of California, Los Angeles	No. 2000 S YF 767,A-1		$3,882
93.837	4D Multimodal Image-Based Modeling for Bicuspid Aortic Valve Repair Surgery	University of Pennsylvania	585280 // PO 4965013		$45,153
93.837	A Critical Role for Leukotriene B4 in Lymphedema	Palo Alto Veterans Institute for Research	NIM0013-02		$23,430
93.837	A Meta-Epidemiological Assessment of the Role of Pilot Studies in the Design of Well-Powered Trials - The Pilot Project	University Of South Carolina	20-3899 PO#2000048662		$66,598
93.837	A protein traffic control system that regulates left-right patterning and heart development			$322,295	$723,637
93.837	A transcriptional network which governs smooth muscle transition is mediated by causal coronary artery disease gene PDGFD				$110,331
93.837	ADAR mediated RNA editing is a causal mechanism in coronary artery disease				$11,583
93.837	AIM-AHEAD Coordinating Center Data Infrastructure Core	National Alliance Against Disparities in Patient Health	2021-AA-004		$1,013
93.837	ALDH Activation to treat Fanconi Anemia				$1,352
93.837	Aligned Nanofibrillar Scaffolds Enhance Angiogenesis and Viability in Ischemia				$79,971
93.837	Alpha-catenin function in cardiomyocyte adhesion and cytoskeletal organization	University of Pittsburgh	AWD00004587 (136701-1)		$102,812
93.837	American Heart Association Tobacco Center for Regulatory Science (A-TRAC) 2.0	American Heart Association	FX-ATRAC-5U54HL120163-SU-09		$31,329
93.837	An automated system to interpret echocardiography to predict adverse outcomes in patients with right ventricular dysfunction in daily hospital practice	mProbe Inc.	214447 / R41 HL160362		$27,774
93.837	An electrophysiology platform that enables robust, scalable and long-term intracellular recording of cardiomyocytes			$101,750	$483,932
93.837	An evaluation of insomnia treatment to reduce cardiovascular risk in patients with posttraumatic stress disorder	Duke University	303002351		$8,513
93.837	Anastrozole in Pulmonary Arterial Hypertension: AIPH2	University of Pennsylvania	581275/PO# 4820971		$16,840
93.837	Angiogenic Bioengineered Systems to Optimize Post-Infarction Myocardial Recovery				$880,653
93.837	Applying statistical learning tools to personalize cardiovascular treatment				$547,487
93.837	Asian American Prevention Research: A Populomics Epidemiology Cohort (ARISE)				$10,183
93.837	Biomechanical Optimization of Cardiac Valve Repair Operations				$640,285
93.837	Biomechanical Optimization of Mitral Valve Repair Operations for Mitral Regurgitation				-$7,881
93.837	Blood Stem Cell Transplantation as Immunotherapy				$57,174
93.837	Bridging the gap between mutation & cellular effects: Defining the mechanisms of hypertrophic cardiomyopathy				$139,954
93.837	Calcineurin compartmentation and regulation of pathological cardiac remodeling			$20,859	$671,907
93.837	Cardiomyocyte phenotype and mechanotransduction in Filamin C gene variants causing arrhythmogenic cardiomyopathy	University of Colorado Denver	FY20.217.001/25A8857		$69,117
93.837	Cardioprotective Therapy for Doxorubicin Using iPSC Microtissue and CRISPR Screening				$305,141
93.837	Cardiovascular and Chronic Disease Prevention Training Program				$298,513
93.837	Catheter-injectable system for local drug delivery after myocardial infarct				$11,259
93.837	Causal variant association mechanisms in TCF21 binding coronary disease loci				$554,307
93.837	Cavopulmonary Assist to Reverse the Fontan	Indiana University	Sub 8777; PO0511131		$77,434
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		-$16
93.837	Clonal expansion, resistance to efferocytosis and innate immunity in atherosclerosis				$1,007,750

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93.837	Comprehensive CT Guided Coronary Artery Bypass Graft Surgery			$131,139	$652,027
93.837	Computational model-driven design to mitigate vein graft failure after coronary artery bypass				$332,575
93.837	Computational Stability Analysis to Predict Heart Failure after Myocardial Infarction				$147,950
93.837	CORD-CHD: Clamp OR Delay among neonates with Congenital Heart Disease	Research Institute at Nationwide Children's Hospital	700312-0324; PO 4610223-0-46		$2,539
93.837	Coronary Magnetic Resonance Angiography				$360,332
93.837	Cryo-electron tomography to determine crosstalk mechanisms of calcium channels in cardiomyocytes				$103,332
93.837	Deciphering the Endothelial Cell-Cardiomyocyte Crosstalk in LMNA Cardiomyopathy				$415,812
93.837	Deep Neural Networks To Treat Atrial Fibrillation				$155,470
93.837	Delineating the Genetic Susceptibility of Smoking-Induced Vascular Dysfunction				$44,175
93.837	Developing and Evaluating Health and Environmental Messages to Improve Diet in Emerging Adults				$123,943
93.837	Developmental basis for vascular smooth muscle cell dysfunction in Marfan syndrome aortic aneurysm				$2,129
93.837	Dynamic Biomaterial Design to Probe the Cellular Response to Fibrotic Stiffening				$363,188
93.837	E-cigarette aerosol effects on the cardiovascular system in rodents				$71,957
93.837	Electrical Mapping Signatures of Adverse Structural and Functional Remodeling in Ventricular Arrhythmia				$102,322
93.837	Elucidating anti-angiogenic tyrosine kinase inhibitor-induced vascular dysfunction				$42,096
93.837	Elucidating CHD in Down Syndrome with Cardiac Organoids and 3D Genome Architecture				$438,307
93.837	Elucidating ECM Signaling in Cardiac Organoids with Machine Learning and Single-cell Multiomics				$798,134
93.837	Elucidating Electro-Mechanical Dysfunction in Heart Failure with Human Stem Cell Models			$1,222,444	$2,304,728
93.837	Elucidating Genotype-Phenotype Relationship of Polygenic Dilated Cardiomyopathies: Administrative Supplement (INCLUDE)				$512,796
93.837	Elucidating the Biology of Cardiovascular Risk in Hemodialysis Patients Using Proteomics	University of Texas Southwestern Medical Center Dallas	GMO 230908 - PO 0000002761		$111,088
93.837	Elucidating the Role of Microenvironment Mechanics in Regulating Cardiac Fibroblast Plasticity				$17,200
93.837	Elucidation of the Development and Function of the Cardiac Conduction System				$155,101
93.837	Engineered matrix microarrays to enhance the regenerative potential of iPSC-derived endothelial cells				$125,739
93.837	Escalating Proportion of Weight-Loss Maintainers Via Modules Prior to Weight Loss				-$97
93.837	Evidence Based Evaluation and Acceptance of Donor Hearts for Transplantation			$2,818	$57,317
93.837	Exercise-induced cardiac adaptation in hypertrophic cardiomyopathy				$103,310
93.837	Extracellular Matrix Biomechanical Properties Contribute to Aneurysm Formation in Marfan Syndrome				$75,690
93.837	Covid-19: Genome Editing of Human iPSCs to Study Inherited Hypertrophic Cardiomyopathy				$205,977
93.837	Genome-wide association study of coronary artery disease in individuals of African ancestry	Vanderbilt University Medical Center	1152170-100-DHDAM		-$63,056
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		$687,308
93.837	Harnessing Big Data to Identify Effective Peripheral Artery Disease Treatments in Chronic Kidney Disease				$337,000
93.837	Harnessing Dynamic Cardiac Parameters to Optimize Donor Heart Utilization				$62,427
93.837	High-Resolution Whole Heart Quantitative CMR Perfusion Imaging in Ischemic Heart Disease				$345,071
93.837	High-throughput cellular genetics to connect noncoding variants to coronary artery disease genes	Broad Institute, Inc.	5001797-5500001920		$188,617
93.837	hiPSC Modeling of Restrictive Cardiomyopathy for Drug Testing				$22,093
93.837	Human Induced Pluripotent Stem Cells for Cardiovascular Disease Modeling				$448,525
93.837	Human iPSC Model to Elucidate Metabolic Interplay in Diabetic Cardiomyopathy				$567,291
93.837	Identification of Causal T-Cell Mechanisms in Immune Checkpoint Inhibitor Induced Myocarditis				$208,645
93.837	Identifying Angiocrine Factors for Cardiomyocyte Maturation Using Single-Cell Sequencing				$44,433
93.837	Identifying Proteomic Markers of Exercise Training in Heart Failure				$58,205
93.837	Identifying tobacco-genetic interactions through study of the aryl hydrocarbon receptor pathway				$580,012
93.837	Improving Tissue Engineered Vascular Graft Performance via Computational Modeling	Research Institute at Nationwide Children's Hospital	700284-0323-00/PO:4608967-0-46		$142,230
93.837	Injectable Hydrogels to Deliver Gene Therapy for Myocardial Infarct				$441,683
93.837	Integrating Volumetric Light-Field with Computational Fluid Dynamics to Study Myocardial Trabeculation and Function	University of California, Los Angeles	1564 G ZA140		$305,712
93.837	International Consortium for Multimodality Phenotyping in Adults with Non-compaction			$229,593	$607,898
93.837	Investigating the Pathological Features of Clonal Hematopoiesis-derived Macrophages				$89,367
93.837	Investigating the Role of Dach1 in Artery Specification and Collateral Artery Development				$4,747
93.837	ISCHEMIA Trial	New York University	10-01073		$286,241
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		$19,586
93.837	Leveraging Spatial Epidemiology to Reduce Hypertension Disparities				$164,466
93.837	Lipid Peroxidation-Induced Mitochondrial Injury Inhibits Vascular Function in Single Ventricle Congenital Heart Disease				$19,438
93.837	LncRNA Transcriptional Mechanisms of Coronary Artery Disease Risk			$3,974	$311,463
93.837	Machine Learning for Ventricular Arrhythmias				$3,391
93.837	Machine Learning in Atrial Fibrillation			$289,748	$889,990
93.837	Mapping, modeling, and manipulating 3D contacts in vascular cells to connect risk variants to disease genes			$209,749	$735,793
93.837	Marfan Aortic Embryologic Origin Influences Aneurysm Formation				$725,631
93.837	Mechanotransduction and transcriptional regulation during artery development				$518,345

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93.837	Mediators of Systemic Inflammation and Heart Failure Risk in the Community	Cedars-Sinai Medical Center	1572381		$49,992
93.837	META - Mentor, Educate, Train, Advocate: Patient Oriented Researchers inCardiometabolic Disease				$133,707
93.837	Mitochondrial health, cardiovascular risk, and blood pressure targets in hypertensive adults	Northern California Institute for Research and Education	JOTV2359-03 / R01HL151564		$179,659
93.837	Mitochondria-rich microvesicles for restoration of intracellular bioenergetics				$92,099
93.837	Modeling Anthracycline-Induced Cognitive Impairment Using iPSC-Derived Brain-On-Chips			-$84	$922,197
93.837	Modeling Endothelial Dysfunction in LMNA-related Dilated Cardiomyopathy				$33,673
93.837	Modeling myosin mechanobiology towards understanding the mechanisms of hypertrophic cardiomyopathy				$53,072
93.837	Modeling Tyrosine Kinase Inhibitor-Induced Vascular Dysfunction Using Human iPSCs			$8,743	$387,047
93.837	Molecular Characterization of Cardiomyopathy Mutations in Human Cardiac Myosin	University of Colorado	RHL117138C/1556322/1001023086		$112,254
93.837	Molecular mechanisms of vascular calcification and their connection to coronary disease risk				$441,924
93.837	Molecular phenotyping for autopsy-defined sudden cardiac death	University of California, San Francisco	12636sc		$59,449
93.837	Motivational Determinants of Postpartum Lifestyle Behaviors, Weight Retention, and Metabolic Syndrome	University of California, Davis	A20-3069-S003		$18,821
93.837	Mulan: a novel regulator of mitochondrial dynamics, mitophagy and heart function				$1,843
93.837	Multicenter International Durability and Safety of Sirolimus in LAM Trial (MIDAS) Clinical Study	LAM Foundation	MIDAS Site Agreement - 1		$19,342
93.837	Multi-Institutional Neurocognitive Discovery Study (MINDS) in Adult Congenital Heart Disease (ACHD): MINDS-ACHD Study	New England Research Institute, Inc.	150312 MINDS-ACHD Study		$11,202
93.837	Multilevel Mobile Health Program to Improve Rural Hypertension	University of Pittsburgh	AWD00005950 (138426-1)		$18,270
93.837	Multimodality Molecular Imaging of Stem Cell Therapy for Ischemic Cardiomyopathy				$216,545
93.837	Neurometabolic Outcomes of Different Cardiopulmonary Bypass Strategies				$772,004
93.837	Objective Physical Activity and Cardiovascular Health in Older Women: OPACH2	University of California, San Diego	705688		$39,844
93.837	Parallel Characterization of Genetic Variants in Chemotherapy-Induced Cardiotoxicity Using iPSCs				$13,380
93.837	Pathogenic hotspots illuminate mechanism and therapeutic potential in arrhythmogenic cardiomyopathy				$188,292
93.837	Patient Specific Induced Pluripotent Stem Cell Derived Cardiomyocytes to Define Mechanisms of Electrical-Mechanical Dysfunction in DilatedCardiomyopathy				$85,899
93.837	Patient-Directed Computational Analysis of Atrial Fibrillation	University of California, San Diego	131549675 PO S9002618		$254,026
93.837	PCSK9 Inhibition after Heart Transplantation				$403,587
93.837	PDGFD regulates a transcriptional network to modulate smooth muscle cell transition and coronary artery disease risk				$563,519
93.837	Perinuclear Signaling and Cardiac Hypertrophy	University of Connecticut	UCHC7-144253015		$409,771
93.837	Physical Activity to Improve CV Health in Older Women: A Pragmatic Trial	Fred Hutchinson Cancer Center	0001129277		$974,567
93.837	Precision Medicine by Harmonizing Real World Evidence and RCT Data			$117,812	$424,567
93.837	Preclinical testing of a 3D printed external scaffold device to prevent vein graft failure after coronary bypass graft surgery	BioGraft Inc.	2022-162397-2		$46,554
93.837	Preeclampsia to cardiovascular disease: Life course analysis of biomarkers and risk			$84,537	$1,960,463
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		$34,360
93.837	Protein Kinase C Isozymes in Ischemic Heart				$209,573
93.837	R38 Stanford Integrated Cardiovascular/Pulmonary Residency Research Training Program				$394,010
93.837	Radiomics approach to engineering an artificial intelligence based echocardiography platform to predict cardiovascular surgery and heart failure outcomes.				$601,681
93.837	Rapid Free-Breathing Self-Gated Spiral Pulse Sequences for Simultaneous Cine and T1 mapping				$362,737
93.837	RE-ENERGIZE FONTAN - RandomizEd Exercise INtERvention desiGned to MaximIZE Fitness in Pediatric FONTAN patients			$43,355	$709,071
93.837	Regulation of Histone Deacetylases by mAKAP Signalosomes			$282,794	$379,083
93.837	Regulation of Inflammation and Atherosclerosis by TCF21				-$40,393
93.837	Rhythm Evaluation for Anticoagulation with Continuous monitoring of Atrial Fibrillation (REACT AF)	Northwestern University	60062965 STAN		$1,000,265
93.837	Covid-19: Share, Trust, Organize, Partner: The COVID-19 California Alliance (STOP COVID-19 CA) Phase 3	University of California, Los Angeles	1790GZA118 / OT2HL158287		$488,287
93.837	Shear stress and light-field to elucidate the initiation of cardiac outflow tract	University of California, Los Angeles	1564 G YA759		$67,071
93.837	Single-cell Multi-omic Profiling of Drug Responses Using Pooled iPSC-CM Differentiation				$621,260
93.837	Single-cell splicing analysis of the heart in myotonic dystrophy				-$26,680
93.837	Small Molecule NOTCH Inhibitors for the treatment of pulmonary hypertension				-$2,735
93.837	Spatiotemporal visualization of adenylyl cyclase signaling				$45,363
93.837	Stanford BSSR Pre-Doctoral Training Program at the Intersection of Data Sciences with Behavioral, Social, and Population Health Research				$283,322
93.837	Stanford Cardiovascular Summer Research Training Program for Medical Students				$77,217
93.837	Stanford Undergraduate URM Summer Cardiovascular Research Program				$104,430
93.837	Structure function relationships from deep mutational scanning in human cardiomyopathy				$519,880
93.837	Studying guinea pig development to discover how natural collateral arteries form				$222,056
93.837	SURPASS: (Statin Use and Risk Prediction of Atherosclerotic Cardiovascular Disease in minority Subgroups)				$153,817
93.837	Systematically mapping variant effects for cardiovascular genes	Vanderbilt University	VUMC105689		$172,619
93.837	T32 Training Program in Mechanisms and Innovation in Vascular Disease				$362,821
93.837	Targeting the genotype to phenotype link in HCM as a therapeutic strategy			$92,882	$581,113
93.837	TCF21 is a causal coronary artery disease gene that modulates coronary smooth muscle phenotypic transition via epigenetic mechanisms				$59,606
93.837	Teen screen diets and their relationships with dietary intake: setting the stage for precision interventions and evidence-based policies				$45,895

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93.837	The 3E study: Economic and Educational Contributions to Emerging Adult Cardiometabolic Health	Fordham University	FORD0087-30387		$10,060
93.837	The Dynamics of Human Atrial Fibrillation			$112,091	$690,344
93.837	The Effect of Estrogen on Cardiac Arrhythmic Propensity				-$42
93.837	The Effect of Value-based Payment on Heart Failure Quality of Care (Value-HF)				$234,695
93.837	The Epigenetic Regulator Prdm16 Controls Smooth Muscle Phenotypic Modulation and Atherosclerosis Risk				$39,691
93.837	The Impact of School Water Access on Child Food and Beverage Intake and Obesity			$59,832	$115,885
93.837	The International Study of Comparative Health Effectiveness with Medical and Invasive Approaches (ISCHEMIA) trial EXTENDed Follow-up (EXTEND)	New York University	20-00-00-1002596 // 116454		$53,998
93.837	The LIMIting AAA with meTformin (LIMIT) Trial			$21,933	$1,160,609
93.837	The Role of 3-Dimensional Genome Integrity In Cardiac Laminopathies				$573,434
93.837	The Role of RBM20 Sequence and Expression in Dilated Cardiomyopathies				$133,919
93.837	The SMAD3 signaling network in coronary artery disease risk				$39,463
93.837	The Vascular Common Coordinate Framework of the Human Heart				$148,476
93.837	The WHI Strong and Healthy SilenT Atrial fibrillation Recording study (WHISH STAR)			$20,523	-$41,444
93.837	Training in Myocardial Biology at Stanford				$201,302
93.837	Tweet4Wellness: Development and RCT of Mobile Social Support Groups for Sedentary Behavior Reduction				$153,222
93.837	Uncertainty aware virtual treatment planning for peripheral pulmonary artery stenosis				$16,174
93.837	Unraveling Adverse Effects of Checkpoint Inhibitors Using iPSC-derived Cardiac Organoids				$57,336
93.837	Unraveling the pathogenesis of familial dilated cardiomyopathy towards precision medicine				$571,417
93.837	Unraveling the role of endothelium in chemotherapy-induced cardiotoxicity				$445,192
93.837	Using artificial intelligence to enable early identification and treatment of peripheral artery disease				$152,159
93.837	Using Atrial Mechanics To Identify Fibrosis In Patients with Atrial Fibrillation			$335,820	$783,273
93.837	Using Deep Learning to Predict Induced Pluripotent Stem Cell-Derived Cardiomyocyte (iPSC-CM) Differentiation Outcomes				$39,303
93.837	Using miRNA to identify new therapeutic pathways for dilated cardiomyopathy				$27,426
93.837	Using Modern Data Science Methods and Advanced Analytics to Improve the Efficiency, Reliability, and Timeliness of Surgical Quality Data	Emory University	A632369		$369,146
93.837	Vaccine Induced Immune-Inflammatory Response and Cardiovascular Risk	Cedars-Sinai Medical Center	1891939		$25,503
93.837	Validating Cardiac MRI Biomarkers and Genotype-Phenotype Correlations for DMD				-$1,817
93.837	Validation of Cancer Prevention and Control Using Smarthphones, Cognitive Computing & Family Social Support.	Vignet Inc.	HHSN261201700003C		$1
93.837	Whole-genome sequencing analysis of coronary atherosclerosis and related traits	University of Texas Health Science Center at Houston	SA0000633		$33,123
93.838	1/1: ARREST RESPIRATORY FAILURE DUE TO PNEUMONIA (ARREST PNEUMONIA)			$670,492	$1,393,581
93.838	2/1 Arrest Respiratory Failure due to Pneumonia (ARREST PNEUMONIA)				$260,186
93.838	A critical role for macrophage ferroptosis in promoting fungal invasion in lung transplant recipients				$650,379
93.838	A Mechanistic Clinical Trial of JAK Inhibition to Prevent Ventilator-induced Diaphragm Dysfunction				$410,198
93.838	A novel microfluidic platform to study exosome biology in PAH.				$173,844
93.838	A universal genome editing strategy to develop an airway stem cell therapy for cystic fibrosis				$6,642
93.838	Air pollution disrupts Inflammasome Regulation in HEart And Lung Total Health (AIRHEALTH)			$339,729	$1,080,239
93.838	ASSESSMENT OF IMPLEMENTATION METHODS IN SEPSIS AND RESPIRATORY FAILURE	Society of Critical Care Medicine	SPO 282979		$12,470
93.838	Case-Control Study of Methamphetamine in Pulmonary Arterial Hypertension	University of Pennsylvania	583172 / PO# 4954746		$102,646
93.838	Cause and effect of transient changes in stress, gene expression, and RV fiber orientation during RV remodeling, and its impact on RV function and inter-ventricular coupling in pulmonary hypertension	University of Colorado Denver	FY22.864.001/PO 1001650710		$133,037
93.838	Cellular and molecular mechanisms of alveolar repair				$195,512
93.838	Covid-19: Characterization of Autoantibodies in PASC	NYU Langone Health System	PATHO-PH2-SUB_16_23		$116,445
93.838	Complement Mediated Remodeling in Pulmonary Vascular Disease	University of Colorado Denver	FY21.032.003/PO #1001417854		$79,471
93.838	Covid-19: California Alliance (STOP COVID-19 CA)	University of California, Los Angeles	1790 G YA230 / OT2 HL156812		-$229
93.838	Defining optimal tacrolimus dosing and concentrations in the early post-lung transplant period based on short- and long-term clinical impacts	University of Pennsylvania	Subaward 586182		$47,600
93.838	Defining the cellular and molecular mechanisms driving neointimal lesion growth in pulmonary hypertension				$635,559
93.838	Developmental Heterogeneity of Pulmonary Endothelial Phenotype at Single Cell Resolution			$27,252	$713,654
93.838	Dissecting the cell autonomous and non-cell autonomous of TBX1 in the human Pharyngeal Endoderm				$464,608
93.838	Diverse Homeostatic Roles for Distinct Macrophages in the Developing Lung Vasculature			$39,011	$856,537
93.838	Elafin Therapy for Pulmonary Arterial Hypertension				$996,167
93.838	Eliminating Monitor Overuse (EMO) Hybrid Effectiveness-Deimplementation Trial	Children's Hospital of Philadelphia	GRT-00001474/U01 HL159880		$3,985
93.838	Endothelial toll-like receptor 3 in the pathogenesis and therapy of pulmonary arterial hypertension	Ohio State University	GR118945 / PO# SPC-1000004075		$7,124
93.838	Endothelial-pericyte interactions in the pathogenesis of pulmonary arterial hypertension			$15,686	$596,784
93.838	Genetic Disorder of Mucociliary Clearance	University of North Carolina at Chapel Hill	5122013		$42,931
93.838	High Shear Stress Alters Gene Regulation in Pulmonary Arterial Hypertension				$798,092
93.838	Hydrocortisone for BPD Respiratory and Development Outcomes Study (HYBRID Outcomes Study): Clinical Coordinating Center	Children's Hospital of Philadelphia	3200930822/PO#20306796		$20,558
93.838	Identifying niche factors regulating distinct properties of AT2 stem cells				$309,971

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93.838	Immune Checkpoints in Acute Respiratory Distress Syndrome (IC-ARDS)	Benaroya Research Institute at Virginia Mason	064102s03-A04		$7,509
93.838	Immunometabolic phenotypes in adult severe asthma and disease progression	Brigham and Women's Hospital	122869		$97,855
93.838	Impact of Early-in-life Disruption of Lung Development on Adult Lung Progenitor Function	University of California, San Diego	KR 703867		$158,133
93.838	Integrated Health, Behavioral and Economic Research on Current and Emerging Tobacco Products	University of California, San Francisco	10984sc / U54 HL147127		$147,979
93.838	Covid-19: International Coordinating Center for ACTIV-3 Trial Initiative VATICO Pathway	Massachusetts General Hospital	239574		$12,440
93.838	Long Term Follow up of the Lung Transplant Outcomes Group Cohort	University of Pennsylvania	PO# 4699778		$51,167
93.838	Longitudinal Impact of Respiratory Viruses and Lung Infections on Bronchiolitis Obliterans Syndrome in Allogeneic Hematopoietic Cell Transplant Recipients	Fred Hutchinson Cancer Research Center	0001102471		$29,674
93.838	Molecular characterization of pulmonary edema: a window to an injured lung			$356,219	$606,954
93.838	Covid-19: NIH RECOVER: Research on Pathobiological Mechanisms Underpinning the Clinical Phenotypes, Symptomatic Manifestations, and Multi-tissue/organ Pathology of Post-Acute Sequelae of SARS-CoV-2	NYU Langone Health System	PO# M230598292		$11,825
93.838	Novel Molecular Mechanisms Promote GPCR-Induced Bronchodilation in Asthma	Thomas Jefferson University	PO 2000139768/080-02000-Z69104		$85,729
93.838	Optimizing Surgical Transplant of CFTR Gene-Corrected Human Basal Stem Cells to the Upper Airway				$445,322
93.838	Parametric Response Mapping (PRM) for the detection of chronic lung injury in hematopoietic cell transplant recipients	University of Michigan	SUBK00015625/PO #3007299371		$30,250
93.838	Pathogenesis of Pf Bacteriophages in Pseudomonas Cystic Fibrosis lung Infections				$378,551
93.838	Patient-Reported Outcomes for Acute Asthma Care and Treatment (PROAACT)				$164,796
93.838	Pericytes and postnatal alveolarization: Role of hypoxia inducible factors				$680,539
93.838	Covid-19: PETAL Network CCC, Lead CRC position	Massachusetts General Hospital	224404		$20,531
93.838	Phenotypic and biological features of mucus plugs in asthma	University of California, San Francisco	13678sc		$58,792
93.838	Population-level Pulmonary Embolism Outcome Prediction with Imaging and Clinical Data: A Multi-Center Study			$216,673	$557,505
93.838	Probing the mechanisms of epithelial barrier restoration in the distal lung				$32,806
93.838	Proteomic and Transcriptomic Biomarkers of Circadian Timing			$585,845	$1,131,827
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		$313
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		-$268
93.838	Pulmonary Hypertension in Genetically Modified Mice				$452,598
93.838	Reclassifying Pulmonary Arterial Hypertension Into Immune Phenotypes Using Machine Learning				$183,291
93.838	Regulatory T Cells and Pulmonary Hypertension	Palo Alto Veterans Institute for Research	NIM0015-01		$21,502
93.838	Covid-19: Researching COVID to Enhance Recovery (RECOVER) Initiative: A multi-site Observational Study of Post-Acute Sequelae of SARS-CoV-2 Infection in Adults.	New York University Grossman School of Medicine	PATHO-PH2-SUB_15_23		$26,956
93.838	Covid-19: Role of adipose tissue in post-acute sequelae of COVID-19	NYU Langone Health System	PATHO-PH2-SUB_18_23		$153,714
93.838	Role of Cardiac Dysfunction and Injury in High-Risk Acute Respiratory Distress Syndrome Subphenotypes				$55,681
93.838	Sequencing B cell repertoires to elucidate autoantibodies and the role of EBV in PASC	NYU Langone Health System	PATHO-PH2-SUB_17_23		$106,469
93.838	Stanford Training Program in Lung Biology				$254,540
93.838	T Regulatory Cells in Pulmonary Arterial Hypertension	Palo Alto Veterans Institute for Research	NIM0015-02		$26,230
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 / R61 HL155160		$32,926
93.838	The BMP-PPARγ Axis and Pulmonary Hypertension				$386,229
93.838	The Wnt7a/ROR2 axis in the pathogenesis of pulmonary arterial hypertension			$38,925	$723,903
93.838	Therapeutic Rescue of a Deficient BMPR2 Hypoxic Response in Pulmonary Arterial Hypertension				-$225
93.838	Covid-19: Understanding Adaptive and Innate Immune Cell Dysfunction in Patients With PASC	NYU Langone Health System	PATHO-PH2-SUB_14_23		$171,024
93.838	Understanding and targeting molecular as well as structural events governing right ventricular adaptation, failure and recovery in pulmonary hypertension using repurposed drugs			$36,974	$412,914
93.838	Vaccination responses in lung transplant recipients				$241,893
93.839	Adenylate Kinase 2 Deficiency and the Failure of Myelopoiesis			$10,332	$648,524
93.839	Biochemistry of Platelet Desialylation				$41,730
93.839	BMT Clinical Trial Network at Stanford				$126,469
93.839	Clonal hematopoiesis in human aging and disease				$448,229
93.839	Clonal hematopoiesis in the Women's Health Initiative	Fred Hutchinson Cancer Center	0001134400		$103,953
93.839	Elucidating the functions of red blood cell factors in malaria parasite invasion				$27,531
93.839	Epigenetic, Transcriptional, and Microenvironmental Determinants of Human HSC Self-Renewal				$220,332
93.839	Hepatic Gene Transfer for Treatment of Hemophilias A & B				$742,412
93.839	Innate cellular responses against Adeno-associated virus in hematopoietic stem and progentitor cells influence cell survival and repopulation capacity				$63,440
93.839	Investigating immunophenotype and metabolism of TCR KO donor and third-party CD19-targeted chimeric antigen receptor T cells				$155,237
93.839	Modulating HSC-niche interactions to understand aging and improve transplantation				$2,589
93.839	Molecular targeting of erythroid progenitor cells in normal and disordered human erythropoiesis	Feinstein Institute for Medical Research	GRT1900016;AWD0000100 8-Stanfor		$28,421
93.839	Program in Translational and Experimental Hematology				$301,087
93.839	Transfusion of Prematurity Early School Age Follow up (TOP 5) CCC	University of Iowa	S00706-05		$38,133
93.846	"Lnc"ing XIST Ribonucleoprotein Particles to Female Sex-Attributed Biases in Autoimmunity				$86,178
93.846	A Superiority Trial of Radiofrequency Ablation for Low Back Pain (ASTRAL)	University Of Washington	UWSC13927 BPO 67983		$17,767
93.846	Advanced MR Imaging of Early Osteoarthritis				$127,824

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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93.846	Agile Development of a Digital Exposure Treatment for Youth with Chronic Musculoskeletal Pain				$152,221
93.846	Back Pain Consortium (BACPAC) Research Program Data Integration, Algorithm Development and Operations Management Center	University of California, San Francisco	14410sc		$34,349
93.846	Back Pain Consortium (BACPAC) Research Program Data Integration, Algorithm Development and Operations Management Center	University of North Carolina at Chapel Hill	5123299		$641,342
93.846	BEG4/MIM Function in Epithelial Neoplasia			-$9,270	-$9,270
93.846	Can hydroxychloroquine prevent preeclampsia and preterm delivery in lupus pregnancy?			$252,459	$643,441
93.846	Characterization of Chronic Pain and its Biopsychosocial Mechanisms in Lupus using Electronic Health Records				$138,373
93.846	Chromatin Dynamics During Epithelial Commitment				$323,076
93.846	Customized MSCs to Enhance Healing of Bone Defects				-$55
93.846	Defining the role of mechanoresponsive adipocyte-to-fibroblast transition in wound fibrosis.				$98,716
93.846	Determining how cell growth triggers cell division in epidermal stem cells				$232,784
93.846	Developing and Testing a Tool for Preference Elicitation in Carpal Tunnel Syndrome				$150,198
93.846	Development of Sodium Fluoride PET-MRI for Quantitative Assessment of Knee Osteoarthritis			$46,927	$252,045
93.846	Digital Biomarkers of Post-traumatic Osteoarthritis: Toward Precision Rehabilitation	Carnegie Mellon University	1090749-465054		$59,386
93.846	Enhanced Bone Healing Around Implants by Transplanted NF-kB Driven Immunomodulating MSCs				$29,317
93.846	Epidermal Signaling Regulators				$54,351
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)		$54,726
93.846	Establishing a Single-Cell Proteomic Atlas for Normal and Osteoarthritic Articular Cartilage				$481,456
93.846	Evaluating the potential of human induced pluripotent stem cells (hiPSC) for Cartilage Repair				$94,020
93.846	Examining Skeletal Stem Cell Diversity and its Role in Intervertebral Disc Regeneration				$34,786
93.846	Get moving, GET living: Graded exposure treatment for adolescents with chronic musculoskeletal pain.				-$55
93.846	HEAL Initiative: Back Pain Consortium (BACPAC) Research Program Technology Research Sites	University of North Carolina at Chapel Hill	5126160		$43,907
93.846	Imaging of Joint Response to Physiological Stress with Age, Sex and in Osteoarthritis				$246,245
93.846	IMPACCT: Infrastructure for Musculoskeletal Pediatric Acute Care Clinical Trials	Ann & Robert H. Lurie Children's Hospital of Chicago	901634-Stanford		$3,776
93.846	Improved Diagnostic MRI around Metallic Implants	University of Southern California	SCON-00003334		$135,718
93.846	Instant Stem Cell Labeling with a new Microfluidic Device				$94,771
93.846	Interactions of PTH and Wnt signaling in bone formation			$15,587	$189,035
93.846	Investigating Isthmin as an adipose-to-muscle messenger that promotes muscle protein synthesis				$28,021
93.846	Mechanisms of Epidermal Homeostasis and Early Neoplasia				$539,161
93.846	Mentoring and Research in Biobehavioral Aspects of Pediatric Pain				$187,634
93.846	Mitochondrial inner membrane architecture in skeletal muscle pathophysiology				$438,721
93.846	Monitoring of Stem Cell Engraftment in Arthritic Joints with MR Imaging				$323,963
93.846	Mucosal Breaks in the Initiation and Progression of Rheumatoid Arthritis			$434,249	$978,124
93.846	Novel digital tools for home-based monitoring of skin disease				$60,805
93.846	Novel PET/MR Imaging Approach for Persistent Postsurgical Pain Following Joint Replacement				$108,832
93.846	Pain Rehabilitation Virtual Reality (PR-VR): Innovations to enhance mobility in the presence of pain				$155,626
93.846	Patient Oriented Research in Vulnerable Populations with Skin Disease				$170,582
93.846	Postgraduate Training in Epithelial Biology				$261,496
93.846	Rapid Low-Cost Quantitative 3D MRI and Gait Assessment of the Knee				$491,559
93.846	Regulating Gli Function in Hair Follicle Progenitors				$308,290
93.846	REGULATION OF SKIN HOMEOSTASIS BY RNA-BINDING PROTEINS				$43,678
93.846	REGULATORS OF EPIDERMAL GENE EXPRESSION				$325,496
93.846	Regulatory Variants in HUMAN SKIN DISEASES				$490,591
93.846	Sliding hydrogels for accelerating cartilage regeneration				$410,152
93.846	STABILITY 2: ACL Reconstruction +/- Lateral Tenodesis with Patellar vs. Quad Tendon	University of Pittsburgh	AWD00001277 (133933-20)		$8,839
93.846	Stromal Regulation of Basal Cell Carcinoma Formation				$497,517
93.846	Systems Modeling Guided Bone regeneration	University of Texas Health Science Center at Houston	SA0000046		$1,898
93.846	Targeted therapeutic modulation of inflammatory cytokines through manipulation of non coding RNA regulation of innate immunity in atopic dermatitis				$196,059
93.846	Targeting DNA Demethylation Regulators in Osteoarthritis				$12,660
93.846	The BEST Trial: Biomarkers for Evaluating Spine Treatments Study (Part of HEAL Initiative: Back Pain Consortium (BACPAC) Research Program Technology Research Sites)	University of California, San Francisco	11817sc		$128,908
93.846	Tissue Engineering Approaches for Improved Treatment of Early Stage Osteonecrosis of the Hip				$330,925
93.846	Training Program in Adult and Pediatric Rheumatology				$374,079
93.846	Transcriptional Regulatory Complexes in Epidermal Differentiation				$6,127
93.846	Urine cadmium and risk of fracture and bone loss	Stony Brook University, State University of New York	1171294/2/92721		$33,871
93.846	Vascularization in bone tissue engineering constructs				$349,467
93.846	Vesicle Trafficking and Osteoblast Function				$152,188
93.847	226534 DREAMS CDTR	Kaiser Permanente	RNG211603-01		$62,355
93.847	A Clinical Study of Latiglutenase as a Treatment for Type 1 Diabetics with Celiac Disease	ImmunogenX	138618		$107,853
93.847	A Model for Human Liver Fibrosis				$462,803
93.847	A Multi-Level Intervention to Promote Healthy Beverage Intake through Childcare			$148,888	$688,979
93.847	A novel approach for treating diabetes using pulsed focused ultrasound and intra-arterial delivery of mesenchymal stem cell based therapies directly into the pancreas			$28,630	$523,424
93.847	A Randomized Controlled Trial of a Group-Based Therapeutic Yoga Intervention for Urinary Incontinence in Ambulatory Older Women	University of California, San Francisco	11117sc		$73,694

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93.847	A stem cell activated cryogel bioscaffold that restores islet bioenergetics while providing oxygen and nutrients at extravascular sites of transplantation			$17,603	$550,189
93.847	Adult and Pediatric Nephrology and Urology Research Training Program				$340,723
93.847	An Encyclopedia of the Adipose Tissue Secretome to Identify Mediators of Health and Disease	Rockefeller University	1RC2DK129961-01 Dr. Paul Cohen		$135,294
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		$38,118
93.847	Assessment of eligibility for kidney donation among potential living donors	University of California, San Francisco	11918sc		$6,260
93.847	BMP5 cells and signaling in BPH pathogenesis				$131,617
93.847	Bone Health in Patients with Urinary Stone Disease				$156,332
93.847	Bridging the gap between type 2 diabetes GWAS and therapeutic targets	University of North Carolina at Chapel Hill	5125106		$614,998
93.847	Calcineurin in pancreatitis				$14,562
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				$104,163
93.847	CFTR-Independent Bicarbonate Secretion is a Novel CF Therapeutic Target				$189,878
93.847	Characterization of novel insulin resistance genes by gene editing, high-throughput phenotyping and in vivo studies				$267,781
93.847	Characterization of the Role of Nemo-like Kinase in Normal and Diamond Blackfan Anemia Models of Erythropoiesis.				$154,286
93.847	Chemical control of energy metabolism by N-acyl amino acids				$497,153
93.847	Chemical interrogation of metabolic tissue crosstalk				$759,649
93.847	Chronic kidney disease of unknown etiology: applying a multidisciplinary approach to investigate the world's most common tubulointerstitial kidney disease			$79,129	$334,364
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		$44,032
93.847	Co-Formulations of Amylin Analogues with Insulin Analogues for Treatment of Diabetes				$1,126,258
93.847	Continuation of the Coordinating Center for the Chronic Renal Insufficiency Cohort (CRIC) Study	University of Pennsylvania	582534 / PO#: 4944805		$38,706
93.847	Continuation of the Scientific Data Research Center (SDRC) of the Gastroparesis Clinical Research Consortium (GpCRC) 4	Johns Hopkins University	2005830964		$20,327
93.847	Control of glucose homeostasis through the insulin-independent Isthmin pathway				$378,694
93.847	Data Coordinating Center for the Type 1 Diabetes in Acute Pancreatitis Consortium (T1DAPC)	Penn State College of Medicine	STUDK127384-SUP		$202,615
93.847	Data Coordinating Center for Type 1 Diabetes TrialNet	University of South Florida	6163-1082-30-BN		$243,734
93.847	Defining Small Intestinal Microbial Landscapes To Improve Therapeutics For Gastrointestinal Disease				$41,988
93.847	Determining the mechanisms linking cell growth to the cell cycle in the liver				$341,685
93.847	Developing A Platform Technology For -Cell-Targeted Drug Delivery				$39,509
93.847	Development of Beta-Cell-Targeted Regenerative Therapeutics Using A Novel Prodrug Strategy				$357,834
93.847	DEVELOPMENT OF CONCENTRATED, STABLE ULTRA FAST-ACTING INSULIN FORMULATION			$12,074	$282,814
93.847	Development of long-acting glucose-responsive insulin formulations			$97,829	$722,402
93.847	Diabetes and extracellular matrix in NASH				$303,388
93.847	Diabetes, Endocrinology and Metabolism Training Grant				$200,218
93.847	Diabetes-Docs: Physician-Scientist Career Development Program (DiabDocs)			$256,179	$425,008
93.847	Dietary and Microbial Reprogramming of Intestinal Microbiota-Produced Metabolites			$70,637	$461,890
93.847	Direct conversion of fibroblasts to urothelial stem cells				$188,615
93.847	Discovering genetic and hormonal mechanisms underlying diabetes risk from flies to humans				$177,468
93.847	Discovery Science Collaborative for CKDu			$82,684	$178,912
93.847	Covid-19: Effect of obesity on HIV pathogenesis, antiretroviral therapy, and metabolic comorbidities	Oregon Health & Science University	1015566-002_Stanford		$16,389
93.847	Elucidating the role of mechanical forces in diabetic wound healing				$23,175
93.847	Engineered Immune Cells for T1D				$994,635
93.847	Epigenetic and functional determination of colon organoids as a patient-specific preclinical model of ulcerative colitis			$35,807	$201,924
93.847	Family Matters: Optimizing Family-Based Interventions for Adolescents with Type 1 Diabetes				$149,267
93.847	Fatty Acid Signaling via GPCRs in Primary Cilia Controls Adipogenesis and Insulin Secretion, Regulating Obesity and Diabetes				$35,564
93.847	From stomach tissue to cellular mechanisms: unraveling the role of mononuclear phagocytes in the pathophysiology of gastroparesis				$428,377
93.847	Gene Therapy for Diabetes	Oregon Health & Science University	1015967_STANFORD		$190,035
93.847	Genetic and physiologic regulation of pig islet development and function			$206,331	$507,353
93.847	Gluten peptide presentation in celiac disease: investigating the role oftransglutaminase 2 using novel chemical probes				$39,564
93.847	Gut Bacteriophage Correspondence with Inflammation and Clinical Dietary Interventions				$64,208
93.847	Hepatitis B Research Network (HBRN): Natural History and Treatment Studies	University of California, San Francisco	11506sc		$82,247
93.847	High School Program in Biomedical and Health Sciences				$178,567
93.847	Human Pancreas Analysis Program-T2D	Vanderbilt University Medical Center	VUMC81249		$374,512
93.847	Immune Checkpoints for Intestinal Innate Lymphoid Cells				$233,835
93.847	Impact of Diet on Intestinal Microbiota-Host Dynamics				$325,685
93.847	Impact of symbiotic protists on intestinal T cell homeostasis and inflammation.				$514,668
93.847	Impaired Autophagy, Mitochondrial Dysfunction, and Inflammation in Pancreatitis	University of California, Los Angeles	1564 G ZA709		$221,456
93.847	Improving Glycemia & Reducing Diabetes Distress in Adolescents & Young Adults with T1D	Joslin Diabetes Center	003423-2150168		$396,168
93.847	Improving Overactive Bladder Treatment Access and Adherence ThroughPersonalized Behavioral Modifications and Mobile Technology-Based Interventions				$160,659
93.847	In vivo systems to discover mechanisms regulating human islet alpha cell function			$308,627	$514,145
93.847	Increasing Diversity in Hematology: Training for URM Students				$99,875

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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93.847	Insights into pancreatic beta-cell development from a novel mouse model of neonatal diabetes				$168,576
93.847	Integrated Islet Distribution Program (U24) - 2021	City of Hope National Medical Center	PO# 3000238805		$183,064
93.847	Covid-19: Intestinal organoid modeling of SARS-CoV-2-stimulated innate and adaptive immunity				$252,184
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.	1329760-Stanford		$1,487
93.847	Investigation and Translation of the Intestinal Stem Cell Niche				$398,392
93.847	Leveraging the Uniquely High Beta-Cell Zinc Content for Targeted Drug Delivery				$554,701
93.847	Localizing Pathogenically Relevant Transglutaminase 2 in Celiac Disease			$220,530	$361,653
93.847	Longitudinal Multi-Omic Profiles to Reveal Mechanisms of Obesity-Mediated Insulin Resistance				$87,426
93.847	Long-term effectiveness of BPH/LUTS pharmacological therapies and using machine learning based predictive analytics to tailor treatment.			$28,340	$149,481
93.847	Lymph Node Extracellular Matrix in Antigen Presentation and Immune Regulation			$50,179	$155,218
93.847	MagSToNE - a magnetic system for kidney stone fragment elimination				$240,792
93.847	Mapping Protein Communication Between Organs in Homeostasis and Disease	Harvard University	153277.5107753.0004		$123,065
93.847	Maximizing Geographic and Scientific Reach Through a Northern California Apollo Network: Application for Clinical Center	University of California, San Francisco	10942sc		$13,359
93.847	Mechanisms and Consequences of Defective Flow-Induced Potassium Secretion in the Metabolic Syndrome			$9,953	$88,858
93.847	Mechanisms of NAT2 Regulation of Insulin Resistance and Mitochondrial Dysfunction				$452,145
93.847	Mechanisms of Physiological Organ Shrinkage				$510,097
93.847	Mechanistic Basis of Calcium Sensing Receptor Signaling				$650,201
93.847	Mentoring Patient-Oriented Clinical Investigators in Nephrology				$164,906
93.847	MRI-based Quantitative Susceptibility Mapping of Hepatic Iron Overload	University of Wisconsin-Madison	813K923 / R01 DK117354		$64,545
93.847	Multidisciplinary K12 Urologic Research at Stanford (KUReS) Career Development Program				$2,078
93.847	NADPH oxidase inhibition in NASH				$223
93.847	ONBOARD: OvercomiNg Barriers & Obstacles to Adopting Diabetes Devices				$222,386
93.847	Optimizing a scalable intervention to maximize guideline-recommended diabetes testing after GDM	University of California, Davis	A21-1599-S002		$12,660
93.847	Optimizing self-monitoring in a digital health intervention for weight loss				$163,907
93.847	Patient-Derived Kidney Organoids For Modeling Kidney Injury				$70,112
93.847	Peer Support for Weight Loss Maintenance	University of Connecticut	163965176 PO# 505015		$9,730
93.847	Polarizing T Cell Responses in vivo With Dendritic Cells				-$47,900
93.847	Porphyrias Consortium	Icahn School of Medicine at Mount Sinai	0255-B226-4609		$38,780
93.847	Post-Surgical Predictors of Depression and Weight Regain After Bariatric Surgery	Sanford Research North	SR-2019-209		$3,419
93.847	Primary Outcomes in Glomerulonephritis Study (PROGRESS)	University of Pennsylvania	582484 PO: 4722611		$4,544
93.847	Proteomic determinants of direct measures of insulin sensitivity				$1,139,965
93.847	Pumps for Kids, Infants, and Neonates (PumpKIN) Clinical Trial	New England Research Institute, Inc.	Task Order 6		$4,381
93.847	Quantifying the Metrics of Surgical Mastery: An Exploration in Data Science			$281,450	$719,155
93.847	Reaching Equity in ACess to Home Dialysis And Re-Transplantation (REACH-DART)	University of California, San Francisco	13676sc		$20,785
93.847	Reducing Disparities in Pediatric Diabetes: Building the Evidence Base to Inform Effective Diabetes Technology Interventions in Underrepresented Minorities				$153,455
93.847	Refining repeat screening for coronary artery disease in kidney transplant candidates				$165,295
93.847	Regulation of gastrointestinal hormone signaling and metabolism by Neuromedin U				$44,110
93.847	Response Training for Obesity Treatment: Translational Neuroscience			$186,516	$483,854
93.847	Robust Statistical Methods to Identify and Use Surrogate Markers in Diabetes	University of Texas	UTAUS-SUB00000526		$60,344
93.847	Role of a lactate-derived signaling metabolite in tissue crosstalk and energy balance				$12,145
93.847	Role of Transglutaminase 2 in Celiac Sprue			$215,383	$575,154
93.847	Signal integration by specialized mesenchyme in urothelial homeostasis and Interstitial Cystitis / Bladder Pain Syndrome				$515,162
93.847	Signaling Pathways in MDS				$70,063
93.847	Sit Less, Interact and Move More (SLIMM) 2 Study	University of Utah	10057603-01 / U000338299		$106,976
93.847	Spring Mediated Enterogenesis				$383,311
93.847	Stanford Diabetes Research Center			$24,917	$1,652,749
93.847	Stanford O'Brien Urology Research Center			$6,116	$1,058,874
93.847	Stratification of Non-alcoholic Fatty Liver Disease using the SAFE Score				$692,547
93.847	Structural Insights to Insulin Receptor Ligands	University of Utah	10059395-01; PO# U000343539		$81,321
93.847	Structure/Function Correlations Over Copper Enzymes				$469,207
93.847	Covid-19: Structure-based Bioengineering of Wnt Surrogates for Intestinal Stem Cell Biology and Therapy				$496,558
93.847	Structure-based strategy for developing inhibitors of the kidney chloride channel CLC-Ka			$39,856	$482,858
93.847	Targeting bacterial proteases involved in PAR signaling to treat inflammatory bowel diseases			$39,207	$243,545
93.847	Teamwork, Targets, Technology, and Tight Control in Newly Diagnosed Pediatric T1D:4T Study				$709,716
93.847	The Atrial Fibrillation - Factor Identification to Risk Modification Study in CKD/ESRD	Baylor College of Medicine	P700000377		$87,507
93.847	The Effects of Telemedicine on Health Outcomes, Costs, and Perceptions of Care Delivery in In-Center Hemodialysis	Baylor College of Medicine	7000001789		$16,338
93.847	The impact of glomerular disorders on bone quality and strength	Columbia University	5(GG015009-01); G13413		$4,109
93.847	The Optimal Pathway to Implanted Autonomous Insulin Delivery				$234,151
93.847	The Role of Hyaluronan and CD44 in the Pathogenesis of Type 2 Diabetes				$336,444
93.847	The Role of Pretransplant Services on Outcomes and Costs in Kidney Transplantation				$28,869
93.847	The role of SPRY2 in the colonic epithelial response to inflammation	Children's Hospital Los Angeles	RGF011923-B		$43,998
93.847	The Stanford Clinical Center for the Study of Chronic Pancreatitis, Diabetes, and Pancreatic Cancer				$608,171

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93.847	The Stanford Clinical Center for the Study of Type 1 Diabetes in Acute Pancreatitis				$258,861
93.847	The Stanford Pre-Renal Initiative: Undergraduate Training in Kidney Health				$110,316
93.847	Therapeutic targeting of human islets with recombinant regulatory T cells			$130,406	$726,382
93.847	Towards a mechanistic understanding of the role of gut microbiota in postnatal growth impairment				$53,496
93.847	Training Grant in Academic Gastroenterology				-$2,746
93.847	Training in Pediatric Nonmalignant Hematology and Stem Cell Biology				$320,973
93.847	Training Research Leaders in Type 1 Diabetes				$202,112
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	AWD-001440.SUB00000463		$169,200
93.847	Treating Kidney Injury by Modulating Heat Shock Proteins Using SoundwavesCombined with Mesenchymal Stem Cells and Their Extracellular Vesicles				$454,858
93.847	Type 2 cytokines and innate lymphoid cells in pediatric ulcerative colitis				$472,378
93.847	Understanding mechanisms by which microbial strains and metabolites in fermented foods decrease systemic inflammation				$78,085
93.847	Understanding the developmental xenobarrier				$247,099
93.847	Understanding tissue selective phenotypes in ribosomopathies with new technologies				$359,714
93.847	United States Renal Data System (USRDS)	Hennepin Healthcare Research Institute	75N94019C00006_Option Period 3		$5,418
93.847	Validation of a Neurogenic Bladder Management Solution to Promote Independence and Reduce Long-Term Morbidity for Patients Unable to Perform Intermittent Catheterization	CRM Medical Devices, Inc.	SPO 250052		$4,933
93.847	Valine as a Metabolic Modulator of Hematopoiesis				$92,092
93.847	Virtually Supervised Exercise for Kidney Transplant candidates	Palo Alto Veterans Institute for Research	LIC0001-01		$41,485
93.847	Whole blood gene expression to identify biomarkers of disease risk, progression and response to therapy in Type 1 diabetes				$82,251
93.847	Wise Social Psychological Interventions to Improve Outcomes of Behavioral Weight Control in Children with Obesity				$749,997
93.847	Wnt4(+) Cell Fate Mapping and ENaC Activity in Furosemide-treated Mice	University of Pittsburgh	CNVA00060589 (131753-2)		-$3,371
93.853	"NIH StrokeNet National Coordinating Center" - Administrative Consulting Agreement - Albers	University of Cincinnati	011414-Adm-Albers		$7,467
93.853	A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior	California Institute of Technology	S399719		$134,089
93.853	A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior	Harvard University	149420.5104941.0503- 7		$216,455
93.853	A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior	University Of Washington	UWSC10311/BPO40343-5		$60,478
93.853	A molecular investigation of retinoic acid-dependent homeostatic synaptic plasticity				$449,572
93.853	A Novel Genome-Wide Screen to Identify and Characterize Regulators of ALS DiseaseModifier Gene Ataxin-2				$6,918
93.853	A RIPK2-Targeting Apoptosis-Inducing Small Molecule for the Treatment of Glioblastoma	Scripps Research Institute	5-54490		$127,424
93.853	A robotic multi-armed two-photon microscope for imaging neural interactions across multiple brain areas				$623,113
93.853	A Shared Neuroscience Platform for National Dissemination and Training in Brain Organogenesis, Behavioral and Brain Disease Models, Viral Vectors, and Imaging Technologies				$1,648,946
93.853	A youth-specific helmet for preventing traumatic brain injury	Savior Brain Inc.	RNS119134A		-$13,810
93.853	Activity-dependent endocannabinoid control in epilepsy			$51,191	$238,889
93.853	Adaptive Neurostimulation to Restore Sleep in Parkinson's Disease: An Investigation of STN LFP Biomarkers In Sleep Dysregulation and Repair	University of Nebraska	34-5385-2100-203		$71,713
93.853	An Engineered Hydrogel Platform to Improve Neural Organoid Reproducibility for a Multi-Organoid Disease Model of 22q11.2 Deletion Syndrome				$8,989
93.853	An Open Source Simulator for Multi Degree of Freedom Brain-Machine Interfaces	University of California, Los Angeles	0160 G ZB833		$15,658
93.853	ARCADIA CSI (Cognition and Silent Infarcts)			$924,109	$1,099,831
93.853	Automated Phenotyping in Epilepsy			$349,619	$660,877
93.853	Axonal myelination of interneurons in cortex: functional significance and plasticity				$450,809
93.853	B Lymphocyte-Mediated Autoimmunity in Pain after Trauma	Palo Alto Veterans Institute for Research	CLA0042-01		$122,384
93.853	BBB dysfunction in post-stroke dementia			$57,197	$492,603
93.853	Bilateral Closed Loop Deep Brain Stimulation for Freezing of Gait using Neural and Kinematic Feedback				$836,251
93.853	Biologically plausible computational models of Perirhinal Cortex				$35,952
93.853	Bioluminescent indicators for noninvasive imaging of acetylcholine release				$29,266
93.853	Biophysical Characterization of Subthalamic Local Field Potentials in Parkinson's Disease	Duke University	303-000093		$93,891
93.853	Biophysical Society Meeting on Molecular Biophysics of Membranes				$15,000
93.853	Brainwide Computations Underlying Future Action Plans				$20,535
93.853	Cannabinoid control of epilepsy			-$735	$58,329
93.853	CDKN2A couples lipid metabolism to Ferroptosis in Glioblastoma	University of California, Los Angeles	PO 1490GZA883		$65,290
93.853	Cell-cell communications in neural circuit assembly				$422,951
93.853	Center for Undiagnosed Diseases at Stanford				$188,405
93.853	Central Thalamic Stimulation for Traumatic Brain Injury	Weill Cornell Medical College	225831-3		$218,534
93.853	Characterization of central pain mechanisms using simultaneous spinal cord-brain functional imaging				$680,285
93.853	Characterization of sexual dimorphism in the brain				$533,218
93.853	CHILD NEUROLOGIST CAREER DEVELOPMENT PROGRAM (CNCDP)	Kennedy Krieger Institute	CNCDP/PO9000099		$15,060
93.853	Circadian mechanisms of myelination				$179,517
93.853	Circuit mechanisms for encoding naturalistic motion in the mammalian retina	University of Chicago	FP069821-01		$50,956
93.853	Circuitry and Molecular Mechanisms for Descending Pain Facilitation				$130,409
93.853	CLC-2 voltage-gated chloride channel structure and ligand recognition				$110,997
93.853	Clinical Translation of Targeted and Noninvasive Ultrasonic Propofol Uncaging				$1,318,837
93.853	Clinical Translation of Ultrasonic Ketamine Uncaging for Non-Opioid Therapy of Chronic Pain			$235,947	$381,458
93.853	Clinical Trial Readiness for SCA1 and SCA3	Houston Methodist Research Institute	AGMT00004435AM3		$100
93.853	Close-loop, spatially addressable multiphoton functional imaging	Cornell University	88390-11314		$93,565
93.853	Cofilin signaling in Hemorrahgic Stroke	University of Toledo	N-2023-25		$1,770

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93.853	Combinatorial matrix-mimetic recombinant proteins as engineered nerve guidance conduits				-$5,365
93.853	Computational modeling of dynamic causal brain circuits underlying cognitive dysfunction in Alzheimer's disease			$38,139	$476,703
93.853	Control of Axon Initial Segment in Epilepsy			$416,832	$899,355
93.853	Correction of Mucopolysaccharidosis type 1: Targeting safe harbor loci using genome editing				$14,422
93.853	Cortical basis of complex motor sequences in humans for neural interfaces			$518,495	$1,086,199
93.853	CRCNS: Deconstructing dynamics of motor cortex in freely moving behavior				$297,447
93.853	CT Perfusion to Predict Response to Recanalization in Ischemic Stroke Project 2(CRISP 2)			$11,750	$390,040
93.853	Deconstructing the sertonin system in the mouse brain				$45,300
93.853	Defining and perturbing gene regulatory dynamics in the developing human brain				$103,004
93.853	Dermatomal Mapping with Spinal Cord Functional Magnetic Resonance Imaging				$54,048
93.853	Development of A Novel Imaging Strategy for Evaluation of CAR T-Cell Therapy in glioblastoma				$135,808
93.853	Development of selective cannabinoid receptor 2 agonists for treatment of addiction				$705,152
93.853	Developmental Synaptopathies Associated with TSC, PTEN and SHANK3 Mutations	Boston Children's Hospital	GENFD0002117034		$58,034
93.853	Developmental Synaptopathies Associated with TSC, PTEN, and SHANK3 Mutations (CT Pilot)	Boston Children's Hospital	GENFD0002117097		$41,999
93.853	Diagnosing the Unknown for Care and Advancing Science (DUCAS)	Harvard University	151858.5124925.0105		$60,650
93.853	Discovery and validation of novel biomarker signature of peripheral painful neuropathy	LASMED, LLC	199665		$43,260
93.853	Discovery of novel TDP-43 splicing targets: the Achilles heel for FTD and towards sensitive biomarkers and therapeutic targets			$384,294	$809,943
93.853	Dissecting hypothalamic pathways for seizure control				$172,282
93.853	Dissecting neocortical field potential dynamics using optical voltage imaging in genetically targeted cell-types				$203,577
93.853	Dissecting neuronal lipid metabolism				$238,121
93.853	Dissecting the Cognitive Roles of Hippocampus and Other Temporal Lobe Structures in Patients Undergoing Epilepsy Surgery	Emory University	A510155		$3,863
93.853	Disseminating a validated mouthguard sensor to investigate the effect of head impacts on brain health				$90,102
93.853	Dopamine Degradation Pathway and Alpha-synuclein Aggregation			$446	$12,675
93.853	Dopamine modulation of synaptic plasticity and integration in the striatum				$588,311
93.853	Effects of TrkB Activation on Abnormalities in Neocortical FS interneuron				$198,640
93.853	ENIGMA Parkinson's Initiative: A Global Initiative for Parkinson's Disease	University of Southern California	SCON-00002524		$176,299
93.853	Epilepsy Training Grant				-$1,105
93.853	Establishing and benchmarking advanced methods to comprehensively characterize somatic genome variation in single human cells				$28,035
93.853	Excitatory neurotransmission in the ventral tegmental area following neuropathic injury				$75,270
93.853	Experimental Study of Goal-Directed Behavior and Memory During Temporal Lobe Epileptic Activity				$45,625
93.853	Extramural Research Programs in the Neurosciences and Neurological Disorders	Wake Forest University	1319-45205-11000000737		$80,934
93.853	Feasibility, Acceptability, and Pilot Testing of a Behavioral Intervention for Chronic Migraine				$231,646
93.853	Focal Sustained Release Chemotherapy-Loaded Biomaterials at Tumor Sites	Tufts University	HH4218; PO# EP0173100		-$30,634
93.853	Free water imaging in PD				$18,694
93.853	G Protein Coupled Receptor Structure, Dynamics and Signaling				$251,746
93.853	Genetic and cellular analysis of glial development and function in vertebrates				$642,318
93.853	Genetic control of neural stem cell homeostasis				$346,001
93.853	HEAL Study (High-dose Erythropoietin for Asphyxia and Encephalopathy)	University of California, San Francisco	9681sc		$590
93.853	How do neurons coordinate alternative energy sources to meet the demands of computation?			$56,853	$279,009
93.853	How Does 3' UTR Secondary Structure Program mRNA Transport in Myelination?				$156,421
93.853	How Does Actin Disassembly Drive Myelin Wrapping?				$370,418
93.853	Human Infrared Vision at Molecular and Cellular Scale				$1,457,691
93.853	Imaging B cells in the brain and beyond: developing an immuno-PET toolbox to improve understanding and treatment of multiple sclerosis				$287,395
93.853	Imaging inflammation in the whole body and brain of ME/CFS patients				$19,499
93.853	Impact of actin binding protein Coronin 1C in the pathogenesis of Parkinson's disease				$218,091
93.853	Impact of sleep-wake circuits on cortical synapse plasticity during motor learning			$78,681	$279,778
93.853	Inflammatory injury-mediated synaptic plasticity in the periaqueductal gray				$78,273
93.853	Inhibitory Controls of Thalamic Neurons				$141,429
93.853	Injectable drug-delivery system to repair the blood-brain-barrier after ischemic stroke				$51,819
93.853	Innovating Yeast and Human Genetics Approaches to Define Mechanisms of Neurodegenerative Disease				$1,451,287
93.853	Instructive Signals for Motor Learning				$577,679
93.853	Integrating Pragmatic Comparative Effectiveness Research into a Tertiary Pain Management Center				$185,943
93.853	Integration of Advanced Diffusion MRI and 3D Histology for Improved Neurosurgical Targeting				$38,497
93.853	Interaction of external inputs with internal dynamics: influence of brain states on neural computation and behavior			$308,157	$5,454,454
93.853	Interneuron-based mechanisms of temporal lobe epilepsy				$597,377
93.853	Investigating the pathogenesis of Moyamoya Disease using patient derived induced pluripotent stem cells				$257,097
93.853	INVESTIGATING THE ROLE OF NLRP3 INFLAMMASOME IN CEREBRAL ADRENOLEUKODYSTROPHY	Children's Hospital of Philadelphia	3202030623-XX/PO 20399991		$56,414
93.853	Ischemic Brain Damage and Single Quantum Sodium MRI				$242,066
93.853	KIR and HLA effects in CNS paraneoplastic syndromes and related neuroimmune conditions			$108,160	$552,119
93.853	Label-free Optical Recording of Neuroelectric Activities			$128,821	$362,268
93.853	Large-scale recordings in Primate Prefrontal Cortex: Mechanisms of Value and Attention			$278,368	$661,043
93.853	Maladaptive Myelination in Pediatric Epilepsy				$233,718
93.853	Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs (MONEAD)			$1,266,917	$1,715,891

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93.853	Mechanisms and Control of Thalamocortical Synchrony in Absence Epilepsy				$44,690
93.853	Mechanisms and Therapeutic Options of Hypersomnia in Myotonic Dystrophy				$50,627
93.853	Mechanisms of Presynaptic Maintenance in C. elegans				$37,811
93.853	Mechanistic and Therapeutic Studies of GPR124/RECK/WNT7-Regulated Blood-Brain Barrier Function				$163,529
93.853	Mentoring in Discovery and Validation of Clinical Chronic Pain Biomarkers				$75,507
93.853	Mesh electronics for understanding space encoding in the amphibian brain				$244,525
93.853	Modulating miR-218 in human motor neurons using assembloids				$163,938
93.853	Molecular Genetic Analysis of TORC1 and TORC2 Signaling in Neuronal Maintenance				$406,210
93.853	Molecular Mechanisms of Pathogenesis in Huntingtons disease	University of California, Irvine	2020-1730		$59,541
93.853	Molecular Mechanisms of Pathogenesis in Huntington's disease	University of California, Irvine	2022-1729		$62,924
93.853	Molecular Mechanisms Regulating Inhibitory Circuitry in the Spinal Cord				$375,837
93.853	Molecular Regulations of Mitochondrial Structure in Neuronal Homeostasis and Survival				$535,961
93.853	Motor neural dynamics of free behavior enabled through 3D computer vision				$233,102
93.853	Multi-Arm Optimization of Stroke Thrombolysis (MOST) Stroke Trial	Washington University in St. Louis	WU-22-0055,PO ST00002693		-$6
93.853	Multi-color optical voltage imaging of neural activity in behaving animals			$71,931	$523,677
93.853	Multimodal approach investigating the immunomodulatory effect of neural stem cells in stroke recovery				$665,920
93.853	Multi-regional neural circuit dynamics underlying short-term memory	Baylor College of Medicine	7000001047		$71,724
93.853	Nanocage-based systemic delivery of TGFb trap for immunomodulation of brain neoplasms	Johns Hopkins University	2005153819		$108,090
93.853	Network mechanisms of delayed, immune-dependent hippocampal dysfunction after juvenile stroke	Kennedy Krieger Institute	113126-0722-25B		$184,214
93.853	Neural circuit mechanisms controlling seizures				$75,013
93.853	Neural computations underlying vocal sensorimotor transformations	New York University	19-A0-00-1002501/PO#M200283440		$32,524
93.853	Neural representation of mating partners by male C. elegans.	California Institute of Technology	S447445 / 1222148-1-DDLEH		$122,633
93.853	Neuroimaging-Based Brain and Spinal Cord Biomarkers for Cervical Radiculopathy				$197,286
93.853	Neuromodulation of Brain States				$595,200
93.853	Neuronal activity-regulated mechanisms of glioma growth				-$7,082
93.853	Neuronal and behavioral responses to spinal cord injury				$698,757
93.853	Neurostimulation by Ultrasound: Physical Biophysical and Neural Mechanisms				$1,279,208
93.853	Neurostimulation of the Nucleus Basalis of Meynert for the cognitive-motor syndrome in Parkinson's disease				$868,343
93.853	New cell biology tools to study myelin development, dynamics, and disease				$35,287
93.853	Next Generation Brain PET Imaging				$667,423
93.853	NIH StrokeNet National Data Management Center (NDMC)	Medical University of South Carolina	A00-1427-S001		-$445
93.853	Non-coding RNA regulation of sex differences in stroke				$382,613
93.853	Noninvasive Optogenetic Interventions for Epilepsy				$90,447
93.853	NORthern California Acute care RESearch (NORCARES) Hub	University of California Davis Comprehensive Cancer Center	A23-0751-S001		$49,441
93.853	Novel AAV vector generation methods to prevent immunogenic unmethylated CpGsthat trigger efficacy-limiting CTLs in human gene therapy				$156,683
93.853	Novel fluorescent sensors for imaging neuromodulation	University of California, Berkeley	00010178 / BB01634635		$228,702
93.853	NRSA application: Characterizing acetylcholine, noradrenaline, and dopamine diffusion through the extracellular space in three subregions of macaque neocortex				$57,118
93.853	Optimization of flexible neural probe arrays for multi-region recordings in rodents and nonhuman primates	University of Southern California	SCON-00004138		$121,667
93.853	Optogenetic approaches to study post-stroke recovery mechanisms				$764,387
93.853	Optogenetics to improve hand function after spinal cord injury.	University Of Washington	UWSC13153 / BPO No. 73765		$118,197
93.853	Pathways to Neurosciences			$32,346	$171,013
93.853	Patterning dendritic branches with environmental and neuronal surface molecules				$378,990
93.853	Peiz01 in neural stem cell mechanoregulation	University of California, Irvine	2018-3650		$32,995
93.853	Perisomatic inhibition in epilepsy				-$991
93.853	Population Neural Activity Mediating Sensory Perception Across Modalities			$285,262	$751,945
93.853	PRECISE (PeRfusion imaging to identify postErior CIrculation candidateS for thrombectomy)			$91,155	$896,201
93.853	PREcision Care In Cardiac ArrEst - ICECAP (PRECICECAP)			$512,363	$1,349,580
93.853	Preventing Epilepsy Using Vigabatrin in Infants with Tuberous Sclerosis Complex	University Of Alabama In Birmingham	000510297-SC002		$808
93.853	Prognostic biomarkers for high-impact chronic pain: Development and validation			$42,289	$1,406,322
93.853	Rapid brain-wide optogenetic screening with a noninvasive, dynamically programmable in vivo light source				$458,784
93.853	Recombinant Immunolabels for Nanoprecise Brain Mapping Across Scales	University of California, Davis	A19-1044-S003		$88,576
93.853	Responsive Neurostimulation for Loss of Control Eating	University of Pennsylvania	583688 PO# 4914157		$42,992
93.853	Small-molecule probes for study of CLC-2 chloride-channel function in the central nervous system				$545,597
93.853	Spatial and temporal regulation of synapse formation through phase separation				$123,306
93.853	Spatial Regulators of Skeletal Muscle Regeneration and Disease				-$16,638
93.853	Speaking of Spikes: Connectivity and Language in Benign Epilepsy with Centrotemporal Spikes				$222,054
93.853	SPRINT: Signature for Pain Recovery IN Teens			$712,166	$1,671,482
93.853	Stanford Neurosurgery and Neurology Resident Research Education Program				$103,173
93.853	Stanford University Regional Coordinating Stroke Center for the NIH Stroke Trials Network				$264,785
93.853	State-dependent Decision-making in Brainwide Neural Circuits	Columbia University	7(GG017143-07)		$27,642
93.853	Statistical Models and Mechanisms Linking Biomarkers of Aging to Cognitive-Physical Decline and Dementia	University of Maryland	20709 Request:2683PO1000013468		$26,714
93.853	Structural Basis of Signal Instigation Through Family C GPCRs			$15,074	$744,528
93.853	Structure and function of spontaneous network activity during circuit formation				$114,549

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93.853	Synthesis of peripherally active CB1 agonists as analgesics	University of Health Sciences and Pharmacy in St. Louis	827-1-01		$255,466
93.853	Targeting GPCRs in amygdalar and cortical neural ensembles to treat pain aversion	University of North Carolina at Chapel Hill	5119107		$363,167
93.853	Targeting Lag-3 and PD-1 in Myeloid Cells of GBM			$15,800	$353,722
93.853	The biophysics of skin-neuron sensory tactile organs and their sensitivity to mechanical and chemical stress			$58,091	$663,845
93.853	The Global Leukodystrophy Initiative Clinical Trials Network (GLIA-CTN)	Children's Hospital of Philadelphia	3202030623-XX/PO# 20423285		$49,633
93.853	The impact of early Tau pathology on cognitive progression and neuropsychiatric symptoms in Parkinson's disease				$1,012,442
93.853	The power of positivity: a novel class of voltage indicators for high-fidelity brain activity imaging			$94,600	$1,712,501
93.853	The role of mTORC2 in cancer cell metabolism				$63,994
93.853	The Role of Purinergic Signaling in Microglia Birth and Maturation in the Adult Brain				$35,134
93.853	The Vascular effects of Infection in Pediatric Stroke (VIPS II) Study	University of California, San Francisco	11261sc		-$2,473
93.853	Towards a Complete Description of the Circuitry Underlying Sharp Wave-Mediated Memory Replay			$348,621	$604,282
93.853	Towards a unified framework for dopamine signaling in the striatum	Harvard University	153407.5111713.0410		$243,353
93.853	Tracking pre-seizure dynamics to predict and control seizures				$400,728
93.853	Transgenic mice and multiplexed, multi-beam instrumentation for large-scale optical experiments on brain states and ensemble cellular dynamics in behaving animals				$49,418
93.853	Using brain lesions and deep brain stimulation to identify an epilepsy circuit	Brigham and Women's Hospital	127390		$17,052
93.853	Utilizing a Conductive Polymer- Stem Cell System to Augment EndogenousStroke Repair Mechanisms and Improve Functional Recovery				$250,256
93.855	A "Culture" Shift: Integrated Bacterial Screening and Antibacterial Susceptibility Test on Microfluidic Digital Array for Bloodstream Infections	Johns Hopkins University	2003726059		$125,912
93.855	A genomic tool for identifying pathogenic circulating vaccine-derivedpolioviruses				$12,002
93.855	A modular cell therapy platform for controlling immunological tolerance				$5,218
93.855	A vaccine design to induce protective B and T cell immunity against hepatitis C virus			$1,395,905	$2,687,247
93.855	AAV capsid engineering for enhancing gene transfer				$796,055
93.855	Accelerated dissociation of IgE receptor complexes				$345
93.855	Covid-19: ACTIV2b: AIDS Clinical Trials Group for Research on Therapeutics for HIV and Related Infections [A5405 ACTG CF TSG CR]	University of California, Los Angeles	1560 G ZB033		$56,760
93.855	Acute/chronic limitations to transcriptional RNAi therapies for infectious and other liver diseases				$1,001,470
93.855	Advancing a broad-spectrum anti-influenza A virus RNA packaging inhibitor to an IND				$542,732
93.855	Covid-19: Advancing the development of a novel class of small molecules for treating pan-coronavirus infections			$176,272	$717,860
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		$13,917
93.855	Aire-dependent thymic B-1a cells play a key role in neonatal tolerance induction				$119,478
93.855	Airway Inflammation and Airway Remodeling in Severe Asthma	University of California, San Diego	705514		$96,005
93.855	An Integrated Micro-Basophil Activation Test for Rapid Food Allergy Diagnostics				$17,099
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		$113,418
93.855	Applied Genomics in Infectious Diseases				$331,711
93.855	Arbovirus Prediction and Mitigation in the Indo-Pacific				$161,651
93.855	B and T Cell Biology of Protection from and Eradication of SIV/SHIV Infection	Emory University	A679561		$402,350
93.855	Big Data Analysis of HIV Risk and Epidemiology in Sub-Saharan Africa			$3,369	$3,369
93.855	Cellular & Molecular Defects in Human B Cell Development	Icahn School of Medicine at Mount Sinai	0254-4124-4609		$328,087
93.855	Center for Expanded Data Annotation and Retrieval (CEDAR)			-$2	-$2
93.855	Center For The Structural Biology of Cellular Host Elements In Egress, Trafficking, and Assembly of HIV (Cheetah Center)	University of Utah	10062103-10-LS		$20,158
93.855	Changes in Bone Quality, Sarcopenia and Fat Distribution in HIV/HCV Patients after HCV Therapy	University of Pennsylvania	# 573221; PO 4831918		$5,415
93.855	Changing Cultures in Sepsis: Rapid single-cell pathogen identification and antibiotic susceptibility testing directly from whole blood			$356,856	$836,409
93.855	Characterization of degranulation regulators in human mast cells				$155,822
93.855	Characterization of encystation pathways in Entamoeba histolytica				$5,454
93.855	Characterization of innate and IgE-mediated mast cell functions in honeybee venom allergy using Collaborative Cross mice				$526,172
93.855	Characterization of the human antibody response to a novel neutralizing HIV-1 epitope				$35,504
93.855	Characterizing infectiousness of subclinical TB and identifying novel early diagnostic strategies for preventing transmission				$341,630
93.855	CHEETAH Center for the Structural Biology of HIV Infection, Restriction, and Viral Dynamics	University of Utah	10062103-17-LS,PO-U000434580		$1,478
93.855	Chemical Mycobacteriology				$473,891
93.855	Clinical Epidemiology of Infectious Diseases				$22,732
93.855	Commercialization of New Filter Paper Technology for stabilization of Dried Blood Spot viral Samples for Collection, Shipping and Analysis	GenTegra LLC.	SPO136126		$242,459
93.855	Computational models of naturally acquired immunity to falciparum malaria	University of California, San Francisco	12040sc		$518,184
93.855	Covid-19: Computational models of naturally acquired immunity to falciparum malaria	University of California, San Francisco	12300sc		$44
93.855	Consortium for HIV/AIDS Vaccine Development (CHAVD)-Scripps	Scripps Research Institute	5-54887		$71,878
93.855	Contrasting biotic and abiotic drivers of adaptive evolution in a host-pathogen conflict				$5,513
93.855	Covid-19: Covalent inhibitors of host cell entry by SARS-CoV-2 for treatment of COVID-19				$180,545
93.855	Cryo-ET Structural Biology of Herpesvirus Infection and Morphogenesis In Situ.				$79,780
93.855	Culture-free pathogen tracking in hospitalized patients				$803,966

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93.855	CXLD PTA - Delivery Technologies for In Vivo Genome Editing	Beth Israel Deaconess Medical Center	CXLD PTA		$334
93.855	Deciphering the inositol phosphate code in viral pathogenesis and immunity				$299,821
93.855	Deciphering the Role of Epstein-Barr Virus Molecular Mimicry and B cell Transformation in Multiple Sclerosis				$160,985
93.855	Defining the Role of Host Hsp70 Subnetworks in Dengue Virus Replication				$1,428
93.855	Covid-19: Defining the role of natural killer cells in COVID-19				$43,895
93.855	Delivery Technologies for In Vivo Genome Editing	Beth Israel Deaconess Medical Center	01062663		-$2
93.855	Detection of asymptomatic Salmonella enterica serotype Typhi and Paratyphi A carriage by serum antibodies targeting YncE	Massachusetts General Hospital	233137		$74,868
93.855	Developing CRISPR genome editing technology for Entamoeba				$2,880
93.855	Development of outpatient antiviral cocktails against SARS-CoV-2 and other potential pandemic RNA viruses.			$173,743	$13,376,688
93.855	Differentially Culturable Tubercle Bacteria - The missing link in TB Transmission	Wits Health Consortium (Pty) Ltd	D1811140-05		$51,930
93.855	Discovery and engineering of novel anti-IgE disruptive inhibitors				$271,615
93.855	Disentangling the human vector relationship to disrupt dengue and chikungunyavirus outbreaks in Kenya			$34,646	$694,801
93.855	Dissecting Mechanisms of Granuloma Macrophage Polarization and Granuloma Formation in Chronic Salmonella Infection				$195,167
93.855	DIVINCI: Dissection of Influenza Vaccination and Infection for Childhood Immunity	St. Jude Children's Research Hospital	112525040-8077030		$350,063
93.855	Drivers of strain-specific and strain-transcendent antimalarial immunity in childhood	University of California, San Francisco	12219sc		$21,208
93.855	Drug Development against Entamoeba Histolytica				$107,195
93.855	Effects of aging on primary and secondary vaccine responses in a 15-year longitudinal cohort				$211,582
93.855	Emerging novel mechanisms of antibiotic resistance in the prevalent foodborne pathogen, Salmonella				$357,500
93.855	Engineered Regulatory T cells with Enhanced Stability and Suppression for Autoimmunity				$8,745
93.855	Enhancing immunity to malaria in young children with effective chemoprevention			$982,116	$1,537,608
93.855	Enhancing surveillance systems to slow the spread of antimicrobial-resistant gonorrhea in the United States	Yale University	GR109896 (CON-80002439)		$33,923
93.855	Epigenetic Histone Landscape Profiles in HIV			$24,265	$131,288
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		$45,390
93.855	Evaluating the role of allergen dose and duration in the safety and efficacy of multi-allergen oral immunotherapy with Omalizumab				$221,616
93.855	Evaluation of a point-of-care immunochromatographic assay for enteric fever	Massachusetts General Hospital	Subaward 238674		$19,865
93.855	Evolution of drug resistance in Candida glabrata			$228,851	$534,373
93.855	Covid-19: Exosomes and the Immune Response in Allograft Outcomes in Pediatric Transplant Recipients			$690,006	$1,222,018
93.855	Exploiting and enhancing the IgE-binding epitopes of the 2S albumins of peanuts and tree nuts	University of Colorado Denver	PO1001584844:FY22.141.004		$45,634
93.855	Exploring MetAP2 as a viable drug target for Entamoeba and Naegleria				-$4,773
93.855	Focal mass drug administration (fMDA) to reduce Plasmodium vivax transmission,a pragmatic cluster randomized controlled trial in Peru	University of California, San Francisco	13866sc / U01 AI157962-01		$29,724
93.855	FUNCTIONAL ANALYSIS OF PATHOGENIC AND PROTECTIVE PEANUT ALLERGEN-SPECIFIC HUMAN ANTIBODIES				$196,512
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				$372,741
93.855	Giant MagnetoResistive (GMR) Sensors for Measuring Influenza Vaccine				$8,238
93.855	Glycan-Lectin Receptor Regulation of Macrophage Maturation and Lung Innate Defenses in the Fetus and Newborn Infant			$69,479	$75,209
93.855	Gut Microbiota Modulation of Chikungunya Virus infection and Pathogenesis	Washington University in St. Louis	WU-22-0325/ PO#ST00006053		$28,080
93.855	Harnessing the Unique Biogenesis of the Apicomplexan plastid organelle forAntimalarial Targets				$500,887
93.855	High resolution longitudinal immune monitoring for elucidating immune aging dynamics			$912,774	$2,560,922
93.855	HIV Drug Resistance Database				$770,820
93.855	HIV Latency Reversal Through Novel, Potent PKC Modulators	University of California, Los Angeles	2301 G ZC969		$7,566
93.855	Host blood biomarkers for the diagnosis, prognosis and treatment response of childhood TB	University of Cape Town	ERA28691,UCT00035673		$20,116
93.855	Host Determinants of Adeno-Associated Virus Entry and Trafficking				$283,584
93.855	Host determinants of enterovirus RNA replication and in vivo neuropathogenesis			$201,232	$454,563
93.855	Host Genes Critical for Flavivirus Infection				$326,655
93.855	Household transmission of the human gut microbiota after antibiotic exposure				$82,008
93.855	How Hepatitis C Virus Regulates Desmosterol to Affect RNA Replication: a New Virus-Host Interaction				$61,602
93.855	Human 3D neuro-muscular assembloids to study cell tropism and host factor utilization of divergent neuropathogenic enteroviruses				$911,076
93.855	Human Cytomegalovirus Entry into Cells Mediated by Pentamer and Trimer Complexes	Oregon Health & Science University	1018176_STANFORD		$608,927
93.855	Identifying The Machinery That Translocates Toxoplasma Effectors Into The Host Cell				$301,712
93.855	Immune Tolerance Network	Benaroya Research Institute at Virginia Mason	FY22ITN357		$28,275
93.855	Immunization against filamentous bacteriophages to prevent bacterial infection	University of Montana	PG18-61062-01		$298,851
93.855	Impact of HIV exposure, feeding status, and microbiome on immune ontogeny and vaccine responses in infants			$48,978	$50,418
93.855	Implicit Bias in the Evidence: An Evaluation of Female-Predominant Disease				$531,478
93.855	In vivo Wireless Sensors for Gut Redox Monitoring to Understand Host and Microbe Physiology				$165,822
93.855	Influenza responses and repertoire in vaccination, infection and tonsil organoids			$178,883	$2,707,966
93.855	Covid-19: Influenza responses and repertoire in vaccination, infection and tonsil organoids				$338,005
93.855	Innovative Technologies to Transform Antibiotic Discovery	Broad Institute, Inc.	5001434-5500001961		$152,318

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93.855	Insights into immune-related disease born from population genomics	University of Colorado Denver	FY21.1050.001/#25M9382		$100,037
93.855	Integrated Genomic and Functional Studies of Immunotherapy for Multi-Food Allergy				$1,131,295
93.855	Integrating genomic and spatial approaches for targeted control of HIV-associated tuberculosis epidemics	Yale University	GR110924 (CON-80002720)		$30,875
93.855	Integrating innate and adaptive pathways in vaccine responses	Rockefeller University	SUB00000257		$639,434
93.855	Investigating the latent HIV-1 reservoir in lymphoid tissue using multiplexed imaging and spatial transcriptomics				$45,348
93.855	Investigation of Epigenetic Dysregulation in Lupus NK Cells				$231,976
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		$10,939
93.855	Macrophage Immunosuppression by Quorum-Induced Streptococcus pyogenes	University of Illinois at Chicago	19038		$104,973
93.855	Malaria Evolution in South Asia	University Of Washington	UWSC9949/BPO65702		$30,943
93.855	Measuring and Predicting Appropriate Antibiotic Use to Combat Resistant Bacteria				$24,369
93.855	Measuring spillover effects of reactive, focal malaria elimination interventions				$100,445
93.855	Mechanisms of Diet-Induced Pathogen Expansion in the Gut				$318,124
93.855	Mechanisms of persistent Salmonella infection				$697,537
93.855	Mechanisms of Tissue and Organ Specific Human B Cell Immunity - IOFM Core: Infrastructure and Opportunity Fund Management Core (*SubProject*)	University of Alabama at Birmingham	000520244-SP008-SC017		$107,723
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		$215,215
93.855	METABOLIC ALDEHYDES AS IMMUNE EFFECTORS AGAINST TUBERCULOSIS	New York University	20-00-00-1003829/POM200367614		$10,679
93.855	Metabolic imprinting of dendritic cell fate and function in tissues				$706,610
93.855	Metagenomic shotgun microbial sequencing in post-transplant lymphoproliferative disorders (PTLD-MSMS)	Washington University in St. Louis	WU-19-427-MOD5// PO ST00000416		$48,096
93.855	MHC & KIR Sequencing and Association Analyses in the iGeneTRAiN Studies	University of Pennsylvania	582580,A-2		$27,438
93.855	Covid-19: MHC Variation in Host Response to SARS-CoV2 and COVID-19 Outcomes	University of California, San Francisco	13394sc		$177,049
93.855	Covid-19: Modeling early SARS-CoV-2 pathogenesis in human lung organoids and slice cultures				$177,165
93.855	Modeling the influence of temperature on the evolution of vector-virus interactions	Health Research, Inc.	7058-01		$66,886
93.855	Modulation of the B cell response to dengue virus infection by Plasmodium falciparum co-infection				$159,918
93.855	Molecular and Cellular Analysis of Allograft Loss in Kidney Transplant Biopsies	Hennepin Healthcare Research Institute	15416-04		$6,983
93.855	Molecular and Cellular Immunobiology				$474,816
93.855	Molecular and single-cell immunology of myalgic encephalomyelitis/chronic fatigue syndrome				$433,150
93.855	Molecular Basis of Host Parasite Interaction				$444,343
93.855	Molecular Interactions of HIV-1 with the Nuclear Pore Complex	Emory University	A791126, formerlyA237546		$140,846
93.855	Multi-omic Biomarker Discovery and Validation in Heart Transplant Patient Populations	University of Pennsylvania	579036 PO 4881220		$202,169
93.855	Nano-optical reporters of dynamic mechanotransduction in the immune system				$535,066
93.855	Natural killer cell engineering to target the HIV reservoir	University of California, Los Angeles	2301 G YG461		$340,184
93.855	Covid-19: Natural Killer cells and the immunogenetics of COVID-19	University of Colorado Denver	FY22.1050.004		$53,621
93.855	NEW HORIZONS IN THE PREVENTION AND TREATMENT OF FOOD ALLERGY-Outmatch	Johns Hopkins University Hospital	2004474750		$333,773
93.855	New Therapeutics for Post-Transplant Lymphoproliferative Disorder				$309,022
93.855	Novel transcription factors modulating the development and function of pDCs and pDC-related cells				$199,072
93.855	Obesity and COVID-19: Role of Adipose Tissue				$185,635
93.855	Optimal targeting for individual and population-level TB prevention	Harvard School of Public Health	117164-5113037		$26,697
93.855	Covid-19: Optimizing a small molecule inhibitor of SARS-CoV-2 replication and associated cytokine storm			$64,256	$829,487
93.855	Pandemrix and T Cell Immunology in Narcolepsy				$668,557
93.855	Parasite-specific proteasome inhibitors to combat multi-drug resistant malaria			$34,172	$136,838
93.855	Plasmodium Protein Kinase Focused Antimalarials Discovery	University of Central Florida	GR107045		$356,903
93.855	Point-of-care pharmacogenomic testing to optimize isoniazid dosing for tuberculosis prevention			$79,086	$201,637
93.855	PPiSeq: High-Throughput Protein-Protein Interaction Sequencing				$566,030
93.855	Primary Immune Deficiency Treatment Consortium	University of California, San Francisco	12053sc		$20,474
93.855	Programmed Cell Removal (PrCR) by Macrophages: recognition and phagocytosis of target cells				$557,597
93.855	Covid-19: Project 1: Antiviral targeting to suppress drug resistance	Sloan Kettering Institute for Cancer Research	MSKSUB00000094 / C22066756		$369,896
93.855	Project 3: Fragment-to-lead and target validation	Sloan Kettering Institute for Cancer Research	MSKSUB00000099 / C22066734		$20,564
93.855	Project 4: Covalent targeting strategies	Sloan Kettering Institute for Cancer Research	MSKSUB00000102; PO C22069257		$148,488
93.855	Prospective epidemiologic study of novel etiologic agents of pelvic inflammatory disease	University of Pittsburgh	AWD00002682 (134944-3)		$64,335
93.855	Rapid Research for Diagnostics Development in TB Network (R2D2 TB Network)	University of California, San Francisco	12362sc		$236,845
93.855	Real-time predictive modeling for public health departments to control infectious diseases				$49,739
93.855	Regulation of the IgG Fc domain repertoire				$610,802
93.855	Regulatory control of inflammatory cytokine production by a linear ubiquitin-binding protein				-$2,547
93.855	Repertoire studies of human antibodies to RSV and MPV F			$303,954	$306,927
93.855	Role of eosinophils during bacterial infection				$5,488

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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93.855	Role of nociceptive sensory neuron/mast cell interactions in cutaneous allergic inflammation				$125,655
93.855	Roles for hepatitis C virus-derived circular RNAs in infected cells				$104,329
93.855	Roles for microRNA-122 and circular RNAs in flavivirus RNA amplification				$199,305
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		$314,709
93.855	SARS-COV-2 Screening in Dialysis Facilities: Building an Optimal Strategy to Protect High Risk Populations				$1,048,027
93.855	SEAL (Stopping Atopic dermatitis and ALlergy) Study: Prevent allergy by enhancing the skin barrier			$699,942	$1,330,991
93.855	Small molecule degraders of HIV-1 Nef				$146,297
93.855	Small molecule-induced degradation of dengue proteins as an antiviral strategy				$1,196,064
93.855	Stanford TRANSFORM I2T Program				$309,374
93.855	Stanford/UNC Biomimetic U19 Research Center			$446,698	$1,611,719
93.855	Storage and recall of human B cell memory of influenza over tissues and time				$47,101
93.855	Strategies for tuberculosis control in prisons			$133,983	$347,643
93.855	Structural Biology Center for HIV/Host Interaction in Trafficking and Assembly	University of Utah	10062103-09-LS		$79,705
93.855	Structural correlates of T cell receptor signaling				$433,004
93.855	Structural interrogation of the HIV-1 5 leader RNA by multidimensional chemical mapping and cryoelectron microscopy				$25,875
93.855	Structure and function of EBV protein complexes that trigger epithelial cell entry.	Northwestern University	60049111SU		$152,519
93.855	Structure-based engineering of immune cytokine signaling				$407,646
93.855	Studies on bacteriophages in respiratory diseases				$225,620
93.855	Supplement Prepare Data Assets- Holden Maecker			$224,978	$2,840,883
93.855	SYK and ZAP70 kinases in lymphocyte selection	Yale University	CON-80003970 (GR118387)		$141,483
93.855	Covid-19: Systemic Allergic Reactions to SARS-COV-2 Vaccination (SARS Vaccination)	Benaroya Research Institute at Virginia Mason	FY21ITN458		-$7,747
93.855	Systems Approach to Immunity and Inflammation Core E - CvTOF Flow Cytometry (Highly- scalable multiplexed serology testing for COVID-19)	Scripps Research Institute	5-54605, 5-54606		-$4,848
93.855	Covid-19: Systems Approach to Immunity and Inflammation Core E - CvTOF Flow Cytometry (Highly- scalable multiplexed serology testing for COVID-19)	Scripps Research Institute	5-54612, 5-54629		$509,034
93.855	Systems biological assessment of vaccination-induced protective immunity in African children			$264,922	$349,322
93.855	Systems Biology of Early Atopy (SUNBEAM)	Johns Hopkins University	2004813184		$683,213
93.855	T Cell Reagent Research for Monitoring T Cell in Food Allergy				$50,153
93.855	Targeting Inflammation and Alloimmunity in Heart Transplant Recipients with Tocilizumab	Massachusetts General Hospital	232560		$20,287
93.855	Technology development for point-of-care detection and antimicrobial susceptibility testing of Neisseria gonorrhoeae	Johns Hopkins University	2004139484		-$788
93.855	The impact of clinical interventions for sepsis in routine care and among detailed patient subgroups: A novel approach for causal effect estimation in electronic health record data				$432,661
93.855	The Impact of Epstein Barr Virus Infection on the Immune Response in Pediatric Transplant Recipients				$48,863
93.855	Covid-19: The Impact of Epstein Barr Virus Infection on the Immune Response in Pediatric Transplant Recipients				$505,449
93.855	Tomotherapy and Hematopoietic Stem Cells for Tolerance to MHC Disparate Kidney	University of Wisconsin	Sub 0000001548		$2,666
93.855	Towards HIV eradication: New concepts and potent compounds for PKC-mediated latency reversal	University of California, Los Angeles	2301 G LB846		$14,247
93.855	Transitional dendritic cells: identifying the origin and role of a novel innate immune population during viral infection			$8,762	$534,381
93.855	Tuft cell regulation of Peyers patch composition and organization				$250,485
93.855	Ultrasensitive HIV viral load quantitation using designer DNA nanostructure capture probes and photonic resonator interference scattering microscopy			$489,556	$924,497
93.855	Understanding and targeting non-genetic mechanisms of drug resistance				$28,060
93.855	Unravelling disease tolerance and host resistance in afebrile P. falciparum infections: a prospective study in Mozambican adults	Manhiça Health Research Center	1201158-100-DHBIV		$21,778
93.855	Vaccine Induced Immunity in the Young and Aged	Emory University	A679715 (A594635)		$153,423
93.855	Vaccine-Induced Immunity in the Young and Aged PROJECT 2	Emory University	A673047 (formerly A489727)		$417,428
93.855	Validating the Flavivirus Envelope Protein as an Antiviral Target			$68,472	$1,409,804
93.855	Varicella-Zoster Virus: T Cell/Skin Tropism & Immunity				$471,805
93.855	Viral use and mimicry of autophagy pathway and components				-$179,314
93.855	Yellow fever in Brazil: new insights on an old disease				$42,217
93.859	A control center for mitochondrial navigation in neurons				$368,619
93.859	A nanophotonic approach to building DNA using enzymatic synthesis				$558,224
93.859	A Synchrotron Radiation Structural Biology Resource			$59,810	$6,153,396
93.859	A universal pipeline for functional characterization of the human microbiota at a massive scale	Massachusetts Institute of Technology	S5065 - PO 473143		$888,501
93.859	Administrative supplement application for equipment purchase				$874,608
93.859	Bacterial Cell Wall Composition and the Influence of Antibiotics				$209,623
93.859	Biophysical studies of macromolecules and molecular assemblies				$821,768
93.859	BioPortal: An Expansive Knowledgebase of Biomedical Entities and Relations			$367,964	$1,094,260
93.859	Bistability and trigger waves in cell signaling				$553,715
93.859	Capturing the Holistic Glycocode through Systems Glycobiology				$101,499
93.859	Capturing the phenotypic landscape of single-nucleotide variation via systematic genome editing				-$6
93.859	Cellular and Molecular Biology Training Program				$1,200,909
93.859	Cellular regulation of viscosity				$225,837
93.859	Cellular Response to Genetic Change				$578,172
93.859	Center For The Structural Biology of Cellular Host Elements In Egress, Trafficking, and Assembly of HIV (Cheetah Center)	University of Utah	10062103-10-LS; PO# U000385704		$75,913
93.859	Characterizing the Regulation of Ferroptosis				$158,088
93.859	Chemical Glycobiology Tool Development: LYTACs				$582,675
93.859	Chemical tools for developmental biology				$419,586
93.859	Chemogenetic control of kinase and phosphatase activity by modulating autoinhibition				$89,813
93.859	Circulating Bacteriophages for the Diagnosis of Sepsis				$231,006
93.859	Combining systems biology and structural biology to find new therapeutics				$188,898
93.859	Comparative systems biology defines regulatory mechanisms in whole-body regeneration				$300,743

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93.859	Computational- and experimental- driven discovery of splicing regulation and circRNA function				$604,544
93.859	Covalent Profiling of RNA Targets and Off-targets				$20,799
93.859	Data-Rich Strategies for Programming Ligand-Responsive RNA Regulatory Systems				$223,994
93.859	Deciphering the molecular mechanisms of sterol lipid trafficking in bacteria				$47,444
93.859	Delineation of genetic architecture underlying complex traits at molecular, individual and population levels				$215,338
93.859	Determine how protein synthesis is regulated during cell growth and division				$91,263
93.859	Determining how cell growth triggers cell division				$688,021
93.859	Determining the molecular mechanism controlling cell size in mammalian epithelia				$26,705
93.859	Developing nanoparticle optical reporters of compressive, tensile, and shear forces for use in living cells and tissues.				$799
93.859	Discovering the mechanism of GPCR-mediated arrestin stimulation to enable effective drug therapies				$104,498
93.859	Discovery and Engineering of Plant Natural Product Pathways				$340,516
93.859	Discovery of Pharmacogenomic Biomarkers for OATP1B1 and OATP1B3	University of California, San Francisco	13058sc / R01 GM117163		$37,750
93.859	Dynamic interplay of eukaryotic translation and mRNA decay				$91,529
93.859	Dynamics of Translation				$883,567
93.859	Emergent Properties of Complex Systems: From Atoms to Macromolecules; from Humans to Societies				$253,130
93.859	Engineering Cytoskeletal Motors			$21,926	$40,111
93.859	Evolutionary Genomics of Yeast				$89,193
93.859	Extending the temporal and spatial capabilities of single-molecule methods				$442,075
93.859	Fibroblast lineage mechanisms of scarless skin healing				$90,502
93.859	Fitness Effects of Beneficial Mutations				$447,582
93.859	FLWSHIP N.Till, PI C.Bertozzi-A Metabolic Engineering Strategy to Map Sialyltransferase Glycosites				$67,860
93.859	From one end to the other: dynamics of human translation initiation and its control				$105,242
93.859	From proteins to cells to tissues: A multi-scale assessment of biomechanical regulation by the myosin molecular motor			$1,050,339	$1,903,184
93.859	Function of Protein Methylation in Chromatin and Signaling Regulation				$784,618
93.859	Fundamental Studies of RNA Conformational Thermodynamics			$96,563	$412,565
93.859	Generative neural networks for structure-based antibody design				$352,147
93.859	Genetics and Developmental Biology Training Program				$495,362
93.859	Genetics of adaptation to toxic environments				$91,335
93.859	Genomics of rapid adaptation in the lab and in the wild				$1,291,978
93.859	Graduate Training in Stem Cell Biology and Regenerative Medicine				$49,385
93.859	Graduate Training Program in Biotechnology				$337,689
93.859	Guanidinium Toxins as Molecular Probes for NaV Study			$117,896	$260,270
93.859	Harnessing the human monocyte system to improve surgical recovery				$262,449
93.859	High resolution imaging of genome structure and gene regulation in development				$594,753
93.859	High-throughput precision genome editing to characterize natural genetic variants				$280,068
93.859	In vivo characterization of CNE/SNPs and identification of cis (dys)regulated genes			$398,566	$703,063
93.859	Induction of Cell Death by Dietary Fatty Acids	Washington State University	135103 SPC001412		$47,055
93.859	Investigating the establishment, structure, and function of microtubule organizing centers in differentiated cells in vivo				$311,459
93.859	Investigating the molecular details of assembly, disassembly and trafficking of GPCR-arrestin complexes				$101,038
93.859	Ion Channels and Signaling Mechanisms in T Lymphocytes				$416,690
93.859	Leveraging environmental drivers to predict vector-borne disease transmission			$87,179	$312,707
93.859	Machine Learning for Integrative Modeling of the Immune System in Clinical Settings				$327,890
93.859	Mechanism of the Eukaryotic Chaperonin TRiC/CCT				$621,568
93.859	Mechanisms and Evolution of Assembly-Line Polyketide Synthases				$299,903
93.859	Mechanisms controlling the inactivation of microtubule organizing center function at the centrosome				$390,652
93.859	Mechanisms of Ciliary Signaling Controlling Obesity and Metabolic Disease				$793,194
93.859	Mechanisms of CLC Transporters and Channels			$17,249	$651,769
93.859	Mechanisms of Kinetochore Assembly				$36,466
93.859	Mechanisms of Mechanotransduction by LIM Domain Proteins	University of Chicago	AWD103166 (SUB00000787)		$65,170
93.859	Mechanisms of R-loop-Associated Genome Instability				$407,759
93.859	Mechanisms of Smoothened Activation in Hedgehog Signaling	University of California, San Francisco	13354sc		$72,259
93.859	Mechanistic models for predicting the dynamics of microbial communities				$48,032
93.859	Mechanistic Studies of Polyketide Synthases Enabled by Unnatural Amino Acids and Antibody Fragment Structural Tools				$63,213
93.859	Mechanoresponsive Engrailed-1-negative fibroblasts activate Engrailed-1 to promote fibrosis in wound healing				$346,715
93.859	Medical Scientist Training Program				$1,704,709
93.859	Meiotic Chromosome Inheritance in C. elegans				$692,329
93.859	Modular Reagents for Programmable RNA Manipulation by Endogenous Proteins				$36,713
93.859	Molecular and cellular mechanisms of store-operated calcium channels				$145,719
93.859	Molecular Biophysics Training Program at Stanford				$594,432
93.859	Molecular Mechanism of Mitochondrial Membrane Transport			$34,974	$420,278
93.859	Molecular mechanisms of alkane hydroxylase (AlkB) selectivity and reactivity	Barnard College	SU-1R01GM130989-01A1		$134,322
93.859	Molecular mechanisms of Wnt and mechanical signaling through -catenin				$723,420
93.859	Molecular mechanisms underlying force transduction at cellular adhesion complexes				$472,944
93.859	Molecular Pharmacology Training Program				$384,442
93.859	mRNA Template-free Protein Elongation: a New Paradigm for Quality Control at the Ribosome				$328,768
93.859	Multimodal Single-molecule Analysis of DNA Interrogation by Cas9 and Cas12a: Examining the relationship between mismatches, DNA supercoiling, and conformational dynamics				$41,849
93.859	Multiplexed Nucleation Approaches for Enhanced High Throughput Screening of Co-Crystals	DeNovX	174038 / R44 GM116285		$77,738
93.859	Multi-scale, model-driven exploration of sub-generational gene expression in bacteria: individual consequences, population benefits			$46,222	$471,680
93.859	Myeloid lineage targeting to improve recovery from injury and surgery: Cellular and molecular mechanisms				$371,908
93.859	Myosin Movement In Vitro - Molecular Characterization			$67,615	$643,586
93.859	Nanoscale probes for sensing molecular functions in live cells				$519,149

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93.859	Next-generation computational/chemical methods for complex RNA structures				$709,825
93.859	Noninvasive deep-tissue single-cell imaging and nanoprobe development				$299,455
93.859	Novel Coalescent Approaches for Studying Evolutionary Processes				$84,952
93.859	Novel Mechanisms of Regenerative Tissue Repair	Baylor College of Medicine	P700000021		$9,544
93.859	Nucleic Acid Enzymes and Nucleic Acids Studied at the Molecular Level				$309,747
93.859	OpenMM: Scalable biomolecular modeling, simulation, and machine learning			$4,316	$503,161
93.859	Organ-scale regulation of stem cell dynamics				$377,588
93.859	Physiology of bacterial metabolism in the human gut microbiome				$308,066
93.859	Planar cell polarity mechanisms and systems architecture				$979,416
93.859	Platform for high-throughput biomechanical measurements using metallic islands on boron nitride nanosheets	University of California, San Diego	703883		-$41,350
93.859	Precision medicine for Asian Americans requiring anesthesia				$462,895
93.859	Probing the architecture, assembly, and function of amyloid-polysaccharide entanglements in bacterial biofilms				$23,700
93.859	Programmable evolution of optogenetic systems - P. Kyriakakis				$199,052
93.859	Protein Folding in the Eukaryotic Cytosol				$155,106
93.859	Quantifying evolutionary solutions to fitness tradeoffs in fluctuating environments				$73,512
93.859	Quantitative approaches for mapping the real-time evolution of the gut microbiota				$154,975
93.859	Quantitative, High-throughput Mechanistic Enzymology				$950,412
93.859	Recombineering-based no-cleavage gene-editing toolkit for large-scale genome engineering and functional screening				$482,950
93.859	Reconstructing and deconstructing intracellular signaling at the membrane-cytosol interface				$73,481
93.859	Regulated Protein Degradation				$250,870
93.859	Regulation of Heterotrimeric G proteins by non-receptor activators	University of Michigan	SUBK00014358 PO 3006261647		-$7,181
93.859	Regulation of proliferation and differentiation in the male germ line adult stem cell lineage				$777,185
93.859	Regulatory and Mechanistic Understanding of ADAR-Mediated RNA Editing				$772,423
93.859	Remodeling the microtubule cytoskeleton during epithelial cell division and differentiation				$49,557
93.859	Repurpose open data to discover therapeutics for understudied diseases	Michigan State University	RC110435LSJU		$19,150
93.859	Research in Anesthesia Training Program (ReAP)				$353,486
93.859	Role of pseudouridines in pre-mRNA processing				$285,224
93.859	Sexual harassment Training Of Principal investigators (STOP)			$51,682	$162,740
93.859	SimTK: An Ecosystem for Data and Model Sharing in the Biomechanics Community				$313,100
93.859	Single-cell analysis and synthetic control of mammalian chromatin dynamics and gene regulation				$253,269
93.859	Single-Molecule Imaging for Cell Biology and Super-Resolution Microscopy				$657,892
93.859	Spectroscopic Characterization of Oxygen Intermediates in Non-heme and Heme Iron Enzymes				$351,892
93.859	Stanford ChEM-H Chemistry/Biology Interface Predoctoral Training Program				$300,358
93.859	Structural Biology Center for HIV/Host Interaction in Trafficking and Assembly	University of Utah	10062103-09-LS; PO: U000385803		$209,293
93.859	Structural Dynamics and Mechanochemical Coupling in Nucleoprotein Machines			$102,023	$267,796
93.859	Structural Dynamics at LCLS				$1,809,861
93.859	Structure and dynamics of G protein coupled receptor-G protein complexes	University of California, San Diego	703861/305126 / R01 GM083118		$236,780
93.859	Structure and Function of SWEET Sugar Transporters				$335,254
93.859	Structure and mechanism of the centrosome-cilium complex			$6,155	$423,406
93.859	Structure-Function Analysis of DNA Replication Initiation Factors Implicated in Disease				$301,795
93.859	STUDIES ON INSULIN RECEPTOR ISO FORMS				$7,656
93.859	Systematic approaches to deciphering cis regulation of A-to-I RNA editing				-$7,564
93.859	Systematic elucidation of calcineurin phosphatase signaling in humans				$456,860
93.859	The population genomics of hybridization: from adaptation to genome evolution				$312,434
93.859	The Role of Chromatin in Metabolic Homeostasis Supplemental				$544,030
93.859	The Role of eIF4G1 and eIF4G2 in Translational Control of Adipogenesis and Obesity				$63,259
93.859	The Role of Membrane Architecture in Primary Cilium Signaling				$75,385
93.859	The role of UFMylation in ribosome quality control at the ER				$352,400
93.859	The ubiquitin proteasome system in ER quality control				$244,513
93.859	Transcriptional and Epigenetic Control of Pluripotency and Self-Renewal by Honey Bee Royalactin and its human structural analog				$330,091
93.859	Transcriptome Analysis with RNA-Reactive Probes				$523,328
93.859	Uncovering fundamentals of gene regulation by enhancers				$324,982
93.859	Universal Roles of Force Generation and Transmission in Biological Systems	Purdue University	11000645-006 / 4102-83304		$4
93.865	3/3- A randomized controlled trial of frozen embryo transfers performed in modified natural versus programmed cycles (NatPro)			$41,400	$285,928
93.865	A Novel Orogastric/Nasogastric Feeding Tube for Optimizing Nutritional Administration in the Neonatal Intensive Care Unit Population	TheraNova LLC	TNV 1013		$183,365
93.865	A prospective study of male factors, fertility, and pregnancy outcomes	Boston University	4500004002		$201,080
93.865	A Wnt signaling approach to improving kidney tubule regeneration and recovery after acute kidney injury in human organoid and mouse models	Weill Cornell Medical College	224014-9		$133,739
93.865	Active Surveillance of the Safety of Antipsychotic Medications in Pregnancy	Brigham and Women's Hospital	125323		$38,765
93.865	Alliance for Regenerative Rehabilitation Research & Training 2.0 AR3T Administrative Oversight component	Spaulding Rehabilitation Hospital Corporation	500628		$79,090
93.865	Brain and Behavior during Puberty in Klinefelter Syndrome.			$141,890	$649,815
93.865	Cell Surface Receptor Recognition and Membrane Fusion in Mammalian Fertilization				$250,999
93.865	CELL TYPE-SPECIFIC CONTROL of GENE EXPRESSION by RIBOSOMAL PROTEIN ISOFORMS				$9,205
93.865	Center for Reliable Sensor Technology-Based Outcomes for Rehabilitation (RESTORE)			$103,302	$768,532
93.865	Center for Sleep in Autism Spectrum Disorder				$1,039,608
93.865	Center for the Development of Phenotype-Based Treatments of Autism Spectrum Disorder	University of California, Davis	A18-0985-S002		$212,470
93.865	Chemical-inducible Epigenome Editors for Allele-specific Gene Regulation in Developmental Disorders				$39,301

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93.865	Comparative Safety of Antibiotics for Common Bacterial Infections During Pregnancy	Brigham and Women's Hospital	127850		$44,034
93.865	Comparative Safety of Non-Insulin Agents in Pregnant Women with Pregestational Diabetesomen with Pregestational Diabetes	Harvard School of Public Health	117244-5122322		$20,177
93.865	Connectivity, activity, and function of a hypothalamic pathway in female social behaviors				$549,976
93.865	Continuous Non-Invasive Blood Pressure Monitor for Neonates	PyrAmes Health	Rhine SPO 149124		-$1,764
93.865	Developing deep learning algorithms for studying infant brain and behavior relationships.				$619,916
93.865	Development of allosteric HIPK4 inhibitors as non-hormonal male contraceptives			$339,631	$693,491
93.865	Disparities in Processes and Outcomes of Care Across Asian/Pacific Islander Populations at Childbirth			$93,997	$680,430
93.865	Do Hair Cortisol and Hair Oxytocin represent the Stressful and Supportive Experiences of Preschool Children? (Administrative Supplements to Promote Diversity and Re-Entry in Health-Related Research Program: NICHD Supplemental Program)				$716,612
93.865	Dysregulation of Mitochondrial Dynamics in Sepsis				$260,417
93.865	Early and Reinfection in High Risk Women	Fred Hutchinson Cancer Center	0001127564		$233,120
93.865	Early Infection in High Risk Women AI38518	Fred Hutchinson Cancer Research Center	0001027099		-$50,582
93.865	Effects of household concrete floors on child health			$42,999	$147,498
93.865	Enhancing Effectiveness of a Dissonance-Based Obesity Prevention Program			$193,158	$304,523
93.865	Environmental, Genetic, and Epigenetic Mechanisms for Hormonal Change at Puberty	University of Texas at Austin	UTAUS-SUB00000736AM2		$31,198
93.865	Evaluation of ovarian reserve, aging and fertility preservation in women with sickle cell disease				$121,347
93.865	FMRP-mediated Regulation in Human Brain Development and Therapeutic Advancement	Emory University	A699367		$504,307
93.865	Functional dissection of a molecularly identified female-specific neural pathway in mice				$448,767
93.865	Gaining insights: the effects of the RMK gain-of-function mutations on brain development and neurodevelopmental disorders				$407,314
93.865	Genomic and neural circuit characterization of interoceptive experience-modulated female behavior in mice				$512,502
93.865	Gestational Diabetes Drugs and Perinatal Outcomes in Underserved Populations	Vanderbilt University Medical Center	VUMC99802		$13,787
93.865	Grounding models of category learning in the visual experiences of young children				$84,443
93.865	Covid-19: Impact of COVID-19 exposure on U.S. birth outcomes	University of Wisconsin-Madison	0000001869		$19,714
93.865	Imaging Chemotherapy-Induced Brain Damage in Pediatric Cancer Survivors				$63,251
93.865	Improved Targeting of Somatostatin Receptors for Neuroendocrine Cancers				$111,071
93.865	Improving outcomes of periviable births via an enhanced prediction tool			$9,399	$19,046
93.865	In situ simulation of neonatal resuscitation to improve team performance and clinical outcomes				-$3,656
93.865	Inequities in family engagement in the neonatal intensive care unit				$17,220
93.865	Influence of maternal virome and HIV status on infant gut virome, growth and immunity	Seattle Children¿s Research Institute	12533SUB		$18,465
93.865	Interventions in math learning disabilities: cognitive and neural correlates				$385,019
93.865	Intranasal vasopressin treatment in children with autism				$348,619
93.865	ISRIB as a promising therapeutic for Fragile X syndrome				$61,633
93.865	Large-scale Implementation of Community Co-led Maternal Sepsis Care Practices to Reduce Morbidity and Mortality from Maternal Infection	Duke University	303000035		$376,363
93.865	Learning-Relevant Emotion Socialization: Validation of a Novel Questionnaire Measure for Mothers and Fathers from Diverse Racial/Ethnic Backgrounds in the United States				$108,700
93.865	Listening to Mom in the NICU: Neural, Clinical and Language Outcomes				$668
93.865	Longitudinal investigations of the infant virome and its associations with obesity			$108,652	$126,448
93.865	Longitudinal Neurocognitive Studies of Mathematical Disabilities: trajectories and outcomes				$1,173,711
93.865	Measuring Neonatal Regionalization				$50,159
93.865	Medical Rehabilitation Research Resource P2C Administrative Oversight	University of Pittsburgh	AWD00002588 (135108-4)		-$765
93.865	Microbial dispersal, skin-to-skin contact, and assembly of the neonatal gut microbiome				$48,975
93.865	Mixed-Methods Evaluation of Mobile Health Adaptive Learning Training for Pediatric Healthcare Workers in Tanzania				$78,358
93.865	Molecular images and machine learning to extract placental function from maternal cfDNA				$246,118
93.865	Molecular Imaging and Diagnosis of Endometriosis using Mass Spectrometry Technologies	Baylor College of Medicine	7000001654 / R01 HD101560		$858
93.865	Multi-center Randomized Controlled Trial of Refeeding in Anorexia Nervosa	University of California, San Francisco	12914sc		$291,355
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)		$135,680
93.865	Neural mechanisms of successful intervention in children with dyslexia				$870,376
93.865	Neuromodulation of maternal immune adaptations in pregnancy				$189,301
93.865	Neuronal and genetic imprints of male mating experience				$4,740
93.865	NICHD Neonatal Research Network - Stanford University				$301,295
93.865	Novel pathways regulating calcium mediated contractility in the pregnant uterus			$17,500	$388,532
93.865	Obstetric delivery volume, regionalization, and maternal and infant outcomes			$422,373	$734,851
93.865	On-Demand Drug Delivery System Composed of Gold Nanoparticles Targeting the Extracellular Matrix for the Treatment of Osteosarcoma	Weill Cornell Medical College	224014-6		$119,808
93.865	Passive phototherapy to improve sleep in teens			$26,637	$526,705
93.865	Pediatric Global Health Subspecialty Fellowship				$236,507
93.865	Pharmacological and phosphoproteomic studies of HIPK4-dependent spermatogenesis				$48,625
93.865	Predicting language processing efficiency in preterm children: Social-environmental and neuro-biological factors				$617,416
93.865	Predicting long-term outcomes in preterm infants using multimodal neuroimaging techniques and environmental factors				$105,002
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 Center	0001110126		$50,778
93.865	Preterm Infant Outcomes Following Changes in Oxygen Saturation Targets in California Neonatal ICUs	Connecticut Children's Medical Center	20-181011-01		$7,051

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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	Prevention of neonatal opioid withdrawal syndrome				$104,743
93.865	Rapid remodeling of the translatome underlying wound healing and regeneration				$533,847
93.865	Ras/MAPK Mutations Effects on the Developing Brain				$45,923
93.865	Ribosomes and Regeneration: Defining the Role of Protein Synthesis in Tissue Development, Homeostasis and Repair.				-$24,838
93.865	Safety of Benzodiazepines and Non-Benzodiazepine Sedative Hypnotics in Pregnancy	Brigham and Women's Hospital	127603		$92,958
93.865	Specialized Translational Control of Stem Cell Differentiation and Embryonic Development				$234,885
93.865	Stanford Women's Reproductive Health Research Career Development Program				$330,675
93.865	Stem cell-derived smooth muscle progenitor cells for vaginal wall prolapse				$190,103
93.865	Targeting the neurobiology of restricted and repetitive behaviors in children with autism using N-acetylcysteine				$220,215
93.865	Testing a Framework of Environmental Adaptation in Children's Learning Strategies				$82,945
93.865	The Impact of Natural Disasters on Child Health	Rand Corporation	SCON-00000521		$291,305
93.865	The Impact of Opioids on Health Outcomes for Hospitalized Infants	Children's Hospital Los Angeles	000014111-A		$72,838
93.865	The role of the endogenous retroviral family, IAP, in placentation.				$73,351
93.865	The Value of Hospital Readiness for the Emergency Care of Injured Children	Oregon Health & Science University	1009131_STANFORD		$80,884
93.865	Theranostics for Pediatric Brain Cancer				$656,894
93.865	Towards Identifying Optimal NICU Admission Criteria for Late Preterm Infants				$76,402
93.865	Trio Analysis of Recurrent Pregnancy Loss Integrated Bioinformatics Genomics Study (TRIOS)			$640,121	$1,632,006
93.865	UCSF Stanford Endometriosis Center for Discovery, Innovation, Training and Community Engagement	University of California, San Francisco	12998sc		$243,008
93.865	Understanding the Short- and Long-Term Impacts of Childhood Exposure to Violence: Evidence from School Shootings			$131,230	$277,582
93.865	Validation of the Regulating Emotions in Parenting Scale (REPS) in a Nationally Representative Sample	University of Georgia Research Foundation, Inc.	SUB00002547		$24,347
93.865	Vector Flow Velocity Imaging of Human Placenta using Angle-resolved Ultrasound and Deep Learning				$131,513
93.865	VIRTUUS Children's Study: Valldating Injury to the Renal Transplant Using Urinary Signatures in Children	Children's Hospital of Philadelphia	3200880522/PO# 20287500		-$21,049
93.866	"Eye-tracking and Multimodal Biomarkers to Enhance Detection of PreclinicalAlzheimer's Disease in Diverse Populations."				$114,701
93.866	226881 AGING (PARENT) - Advancing Geriatric Infrastructure and Networth Growth (AGING) Initiative	University of Massachusetts	OSP2018116 WA01117582		$48,380
93.866	231951 Glycemic Control AA -Glycemic Control and Dementia: The Role of Pharmacotherapy and Vascular Complications	Kaiser Foundation Research Institute	RNG210618-Stanford		$6,136
93.866	247554 LEARNING (R25) AA - AGS/AGING Learning, Educating, And, Researching National INitiative in Geriatrics (LEARNING) Collaborative	American Geriatrics Society Inc,	1R25AG071488-01-SU		$7,156
93.866	A Mentoring Program in Kidney Care for Older Adults				$69,399
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		$33,907
93.866	A new P2Y12R PET radioligand for measuring microglial function in Alzheimer's disease				$273,520
93.866	A Non-Invasive Neuromodulation Device for In-Home Treatment of Overactive Bladder	TheraNova LLC	145080		$23,460
93.866	ADRC RPPR YR13	University of Wisconsin-Madison	0000002227/0000002922		$62,615
93.866	Age-related clonal hemopoiesis and cognitive impairment in chronic kidney disease	University of Colorado	FY22.269.005		$4,783
93.866	Aging and Stem Cell Resilience	Palo Alto Veterans Institute for Research	RAN0047-01		$15,762
93.866	AI-Enhanced Brain PET Imaging for Alzheimer's Disease				$297,948
93.866	Altered ENS Neuroimmune Interactions Disrupt Gastrointestinal Motility in Alzheimers Disease	Palo Alto Veterans Institute for Research	BEC0001-01		$54,139
93.866	Alzheimer Gut Microbiome Project (AGMP) - Duke University U19	Duke University	303001212		$34,272
93.866	Alzheimer's Clinical Trials Consortium (ACTC)	University of Southern California	111180852; SCON-00000172		$3,380
93.866	Alzheimer's Clinical Trials Consortium (ACTC) (U24)	University of Southern California	105761496/SCON-00000156		$150,045
93.866	Alzheimer's Disease Genetic Consortium	University of Pennsylvania	584640; PO# 4868272		$16,980
93.866	Alzheimer's Disease Research Centers	Wake Forest University	1081-33664-11000000915		$7,864
93.866	Alzheimer's Disease Sequencing Project Phenotype Harmonization Consortium	Vanderbilt University Medical Center	VUMC95837		$708,577
93.866	Alzheimer's Gut Microbiome Project	Duke University	A035122		$141
93.866	Asian Cohort for Alzheimer's Disease (ACAD R56)	University of Pennsylvania	580820 PO# 4685220		$26,119
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 / R44 AG071211		-$8,592
93.866	BEET root juice to reverse functional impairment in PAD: The BEET PAD Trial	Northwestern University	60062622 SU		$12,614
93.866	Building a Platform for Precision Anesthesia for the Geriatric Surgical Patient				$422,258
93.866	Cardiovascular and Cerebrovascular Risk Factors for Mobility Limitation in the Jackson Heart Study				$114,778
93.866	CD36-dependent neuroimmune pathway regulates disruption of gut motility in Alzheimers Disease				$231,294
93.866	Cellular senescence in chronic pain and aging				$260,161
93.866	Center for Advancing Socioedemographic and Economic Study of Alzheimers Disease and Related Dementias (CeASES-ADRD)	University of Southern California	139549668- 3		$32,053
93.866	Center on the Economics and Demography of Aging	University of California, Berkeley	00011128 // PO BB01623867		$29,912
93.866	Cerebrovascular Reserve Imaging with Simultaneous PET/MRI Using Arterial Spin Labeling and Deep Learning				$81,352
93.866	Characterizing sleep-wake activity patterns to detect early Alzheimer's disease innormal older individuals				$59,989
93.866	Clinical, Imaging, and Pathological Studies in the Oldest Old: The 90+ Study	University of California, Irvine	2022-1633		$136,938
93.866	COCOA flavanols to improve walking performance in PAD: the COCOA-PAD II Trial	Northwestern University	60059377 SU / R01 AG068458		$10,677

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93.866	Cognitive, urinary, and functional trajectories of older women using pharmacologic treatment strategies for urgency incontinence	University of California, San Francisco	13579sc		$165,650
93.866	Columbia University Science of Behavior Change Resource and Coordinating Center	Columbia University	1(GG015971-02); PO SAPO G16238		$208,177
93.866	Control of Muscle Stem Cells to Enhance Regeneration				$561,903
93.866	Cortical Hemodynamism and Oxygenation During Sleep and Cognition: Window to Cognitive Impairment and Neurodegeneration in Aging				$105,887
93.866	Deciphering the glycan code in human Alzheimer's disease brain	University of Florida	SUB00003801		$317,119
93.866	Defining modifiers and mechanisms of RAN translation				$75,597
93.866	Determining the Role of TCAB1 in Shaping Telomerase Function				$28,771
93.866	Develop an ANS-based Personalized Cognitive Training for Mild Cognitive Impairment			$59,426	$273,569
93.866	Developing a framework to individualize surgical decision-making for older adults with primary hyperparathyroidism				$231,953
93.866	Development of a cost-effective and neurobiologically valid VR assessment tool forearly detection of AD				$61,686
93.866	Development of a Novel PET Tracer for Imaging Microglial Function in Alzheimer's Disease				$44,618
93.866	Dietary Modulation of Neuroinflammation in Age-Related Memory Disorders	Columbia University	GG014813,SAPO G13285		$65,693
93.866	Discovery of protein aggregates during vertebrate aging and neurodegeneration				-$503
93.866	Disease, Disability and Death in an Aging Workforce			$159,094	$386,934
93.866	Disruption of neuronal signaling in Alzheimers disease and rescue by manipulating the innate immune receptor PirB				$46,150
93.866	Early Onset AD Consortium - the LEAD Study (LEADS) - Social Worker Funds	Trustees of Indiana University	9119_SU (SW) // PO0532943		$31,076
93.866	Effects of attention and goal-state lapses on memory in healthy and pathological aging				$758,818
93.866	Elucidating sex-specific risk for Alzheimers disease through state-of-the-art genetics and multi-omics				$140,265
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		$22,083
93.866	Evolutionary Conserved Mechanisms that Control Central Nervous System Development Regeneration and Degeneration				$474,430
93.866	From Molecules to Behavior: Understanding How Aging Impacts Entorhinal-based Navigation				$37,907
93.866	Health and Health Care Utilization Effects of Medical Debt Forgiveness	University of California, Los Angeles	1182 G ZA121		-$91,434
93.866	High Deductible Health Plans and Receipt of Recommended Medical Care	Rand Corporation	SCON-00000502		$10,315
93.866	Hip Fracture Pathology in Chronic Kidney Disease	University of California, San Diego	704928		$10,565
93.866	Hippocampal-dependent memory decline in aging and early Alzheimer's disease				$973,518
93.866	Identification of Brain Circuit Markers for Psychosis in Alzheimer's Disease by Leveraging Big Data and Machine Learning				$215,753
93.866	Identification of intrinsic and extrinsic regulators of TDP43 splicing function				$150,442
93.866	Identifying barriers to optimizing data sharing and accelerate discovery in Alzheimer's disease and related dementia research	Georgia State University	SP00015890-04		$21,697
93.866	Identifying signatures of brain aging through heterochronic blood exchange	University of California, Santa Cruz	A21-0543-S002		$166,238
93.866	Identifying the Genetic Etiology of Neuropathology for Alzheimer Disease and Related Dementias	University of Miami	OS00000574; PO# SPC-002455		$344,261
93.866	Illuminating the APOE Locus with Long-Read Sequencing and Targeted Genomics				$1,157,200
93.866	Imaging the metabolic and phagocytic landscape of microglia in Alzheimer's disease				$145,903
93.866	Improving Medical Decision Making for Older Patients with End Stage Renal Disease	Boston Medical Center	4300630001 PO100238350		$397
93.866	Innate immune signaling at the synapse in development and pathological Alzheimer's disease				$427,881
93.866	Innovating high-resolution novel imaging approaches to elucidate mechanisms of prion-like spreading of neurodegenerative disease				$1,083,212
93.866	Insulin Resistance and Accelerated Cognitive Aging				$666,336
93.866	Interactive Effects of Aging and AD on Brain Networks				$488,553
93.866	INTERmittent pneumatic ComprEssion for Disability rEversal in PAD: the INTERCEDE Trial	Northwestern University	60050890 STAN / R01 AG057693		$4,293
93.866	Interplay between amyloid precursor protein metabolism and ER-mitochondria contact				$253,441
93.866	Investigating whole-body innate immune activation in Alzheimer's disease using PET imaging and immune profiling				$1,307
93.866	Iron as an Imaging Biomarker for Inflammation in AD				$529,795
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		$86,279
93.866	Longevity, Equity, and Aging Research Network (L.E.A.R.N.) Consortium			$2,523	$596,459
93.866	Management of Hypertension among Persons with and without Dementia in Long-Term Care			$176,245	$544,978
93.866	Mapping Molecular and Phenotypic Interactions in Alzheimers Disease			$40,749	$730,433
93.866	Mass spectrometry and multiplexed immunofluorescence imaging of metabolic and proteomic contributors to selective neuronal vulnerability in Alzheimer's disease	Icahn School of Medicine at Mount Sinai	0255-H091-4609		$52,994
93.866	Mechanisms of sleep fragmentation in a mouse model of Alzheimer's disease				$114,316
93.866	Metabolic mechanisms of cognitive decline in aging and AD mediated by inflammatory PGE2 signaling				$282,054
93.866	Methods to Test Biomarkers of Aging as Shared Determinants of Alzheimers Disease and Related Dementias and Physical Disability	University of Maryland, Baltimore	Subaward 21115 PO 1000015249		$8,128
93.866	Microglial lipid droplets in Alzheimer¿s disease				$1,007,185
93.866	Microsimulation Modeling to Compare the Effectiveness and Cost-Effectiveness of Non-drug Interventions to Manage Clinical Symptoms in Racially/Ethnically Diverse Persons with Dementia	Brown University	00002273		$38,100
93.866	Microstructural changes in gray and white matter in aging and AD				$659,363
93.866	MIRIAD - Multiplexed Imaging of Resilience In Alzheimers Disease				$226,493
93.866	Mobility in older hemodialysis patients				$306,498
93.866	Molecular genetics of human age-related hearing loss				$251,572
93.866	Molecular Regulation of Stem Cell Aging	University of California, Los Angeles	1580 G ZG487		$243,423
93.866	Molecular signature of parabiosis			$14,822	$585,515

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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93.866	Multidimensional mapping of vulnerable cell types in humanized Alzheimer's disease mouse models				$130,325
93.866	Multi-omic functional assessment of novel AD variants using high-throughput and single-cell technologies			$1,238,120	$2,350,524
93.866	National Alzheimer's Coordinating Center	University Of Washington	UWSC12994 / BPO58593		$36,614
93.866	Neurofunctional Mechanisms of Changes in Cognition and Motor Function in Aging with HIV and Parkinson's Disease	SRI International	81121		$25,780
93.866	Neuropathology of synapses in AD and ADRD				$496,929
93.866	Next Generation Translational Proteomics for Alzheimers and Related Dementias	University Of Washington	UWSC11818; BPO 48322		$488,144
93.866	NIH/NIA R01AG055469 Efficacy and Mechanisms of Combined Aerobic Exercise and Cognitive Training in MCI	Arizona State University	ASUB00000956		$93,837
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		$34,743
93.866	NIH/NIA U24 AG072701 Network for Emotional Wellbeing and Brain Aging	University Of Rochester	SUB00000240 / GR531893		$112,362
93.866	North American Prodromal Synucleinopathy Consortium for RBD, Stage 2 (NAPS2)	Washington University in St. Louis	WU-23-0062/PO: ST00009752		$213,807
93.866	NOVEL EXOSOME BIOMARKERS OF IRON PATHOLOGY IN AD				$180,727
93.866	Open Drug Discovery Center for Alzheimer's Disease	Emory University	A702741		$194,633
93.866	Origins of Genome Instability in Progeria				$18,457
93.866	Palliative care needs and outcomes for dementia patients				$613,948
93.866	Physician Subspecialization and the Health and Health Care of Older Americans	Harvard School of Public Health	115445-5123453		$46,971
93.866	Population Health Aging Research - Advancing Health Equity and Diversity (PHAR-AHEaD)				$184,474
93.866	Prevalence, Etiology, and Clinical Implications of Low Count Monoclonal B-cell Lymphocytosis (MBL)	Mayo Clinic	STA-244577-05; PO# 68821448		$26,247
93.866	Probing Alzheimer synaptopathy in neurons derived from engineered human iPS cells				$880,641
93.866	Probing relationships between DNA methylation and cellular senescence with highthroughput CRISPR-based epigenetic editing				$7,992
93.866	Project 5 Title: Multimorbidity, as part of Health and Aging in Africa (HAALSI)	Harvard School of Public Health	116360-5109417- Project 5		$33,813
93.866	Proteostasis in Aging and Neurodegenerative Disease	Northwestern University	60057525 STAN		$236,425
93.866	Proteostasis in Aging and Neurodegenerative Disease (Core B)	Northwestern University	60052294 STAN		$23,166
93.866	Proteostasis in the aging brain				$242,731
93.866	Public Insurance Design and Health at Older Ages				$131,253
93.866	Quantitative assessment of early structural and functional changes in aging skeletal muscle				$49,121
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			$70,961	$270,936
93.866	RCT of the Effectiveness of Stepped-Care Sleep Therapy In General Practice (RESTING)				$356,060
93.866	Regional tau deposition and digital assessment of cognition in preclinical AD and MCI				$115,282
93.866	Regulation of amyloid production by focused ultrasound	University of Florida	SUB00003785		$44,004
93.866	Regulation of cholesterol by y-secretase and ApoE: Implications for AD pathogenesis and synaptic function				$784,131
93.866	Regulation of eicosanoid signaling lipids to improve skeletal muscle function and increase healthspan during aging				$592,027
93.866	Regulation of immune cell metabolism in aging and Alzheimer's disease: role of the kynurenine pathway				$1,841
93.866	Relationship between lawful handgun ownership and risk of homicide victimization in the home			$119,793	$462,933
93.866	Reprogramming myeloid cell metabolism to prevent cognitive aging and Alzheimer¿s disease				$599,999
93.866	Reprogramming organismal lifespan through modulation of neuropeptides				$8,444
93.866	Resolving selective vulnerability and disease progression in human Alzheimer's brain via single-cell RNA-seq				$469,248
93.866	Reverse electron transport and tauopathy				$7,871
93.866	Reversing Skeletal Aging by Restoring Functional Skeletal Stem Cell Diversity				$34,794
93.866	Role of beta-adrenergic receptors in modulation of cognition and central and peripheral immune systems in Alzheimer's disease				$245,303
93.866	SCAN: Standardized Centralized Alzheimer's and Related Dementias Neuroimaging	University of California, Berkeley	00010826/U24AG067418		$82,994
93.866	Sequential Multiple Assessment Randomized Trial of Exercise for PAD: SMART Exercise for PAD Trial	Northwestern University	60063415 STANFORD		$1,697
93.866	Socioemotional Functioning in Adulthood and Old Age				$457,217
93.866	Stanford Alzheimer's Disease Research Center			$93,158	$3,716,248
93.866	Stanford Training Program in Aging Research				$260,535
93.866	Statistical and computational methods for integrative analysis of Alzheimer's Disease genetics				$618,746
93.866	Statistical Methods for Kidney Markers as Shared Determinants of Dementia and Physical Disability in Older Adults	University of Maryland, Baltimore	20850Request:2773PO1000013671		$16,203
93.866	T cells in the aging brain				$759,623
93.866	Targeting CD22 to Restore Brain Homeostasis in Alzheimer's Disease			$60,101	$529,594
93.866	Targeting Senescence pathways in Alzheimer's disease				$375,453
93.866	Testing Multi-Level Remote Physical Activity Interventions in a National Sample of Older Women: The WHISH EnCore Trial				$698,903
93.866	Tfh dysfunction in HIV and Aging	University of Miami	OS00000393; PO# SPC-002538		$315,352
93.866	The effect of donor age on the function and therapeutic efficacy of human hepatocyte-like cells				$190,487
93.866	The long-term health effects of the New Deal: An 80 year follow-up of 4 cohorts			$58,256	$676,813
93.866	The Neighborhoods Study: Contextual Disadvantage and Alzheimer's Disease and Related Dementias (ADRD)	University of Wisconsin-Madison	0000001239 / R01 AG070883		$53,123
93.866	The NEIGHBORS (NationwidE analysis of ImmiGrants on Health and neighBORhoods of all AmericanS) Study	Rutgers, The State University of New Jersey	9006 / PO 25050970		$26,702

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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	The Phenotypic Landscape of Cognitive Decline as Revealed by Next-Generation Multiplexed Ion Beam Imaging				$152,126
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		$117,012
93.866	The role of peripheral versus brain myeloid immunity in the cognitive decline of aging and Alzheimers disease				$656,097
93.866	The Stanford Extreme Phenotypes in Alzheimer's Disease (StEP AD) Cohort			$334,612	$483,774
93.866	Toward translation of a novel PET probe for imaging innate immune function in Alzheimer's Disease				$16,967
93.866	Ultralong-term single-molecule imaging of amyloid precursor protein (APP) processing in Alzheimer's disease				$1,201
93.866	Uncoupling Age- Versus Cognitive-Related Cellular Senescence in Alzheimer's Disease				$469,378
93.866	Using Informatics to Evaluate and Predict Cataract Surgery Impact on Alzheimer's Disease and Related Dementias and Mild Cognitive Impairment Outcomes			$89,321	$449,522
93.866	Utilizing naturalistic virtual environments to assess age-related alterations of attention and episodic memory				$49,787
93.866	vmPFC's role in adherence to cognitive training				$38,471
93.867	3D bioprinting of regenerative, corneal cell-laden inks to treat corneal blindness				$17,978
93.867	A Phase 2 Study of the Value of Pre-symptomatic Genetic Risk Assessment for Age-Related Macular Degeneration	University of Utah	10060978-01-SU / PO U000416601		$19,773
93.867	Activity-Dependent Mechanisms of Memory Consolidation			$163,739	$426,291
93.867	Activity-Dependent Tagging of Cerebellar Neurons for Studying Signal Processing and Learning				$12,974
93.867	Afferent and Efferent Visual Systems During Abnormal Vision Development			$61,250	$593,351
93.867	Covid-19: Autonomous AI to mitigate disparities for diabetic retinopathy screening in youth during and after COVID-19	Johns Hopkins University	2005714289		$171,600
93.867	Autophagy and Mechanotransduction in the Trabecular Meshwork	Duke University	303000366		$10,104
93.867	Beyond ganglion cells: Novel foveal avascular zone features in MS with implications for vision loss				$380,418
93.867	Bi-directional neural interface for probing parallel visual pathways			$111,156	$821,346
93.867	Characterization of corneal stromal stem cells encapsulated within bioorthogonally crosslinked collagen gels for delivery to the ocular surface				$6,609
93.867	Computational, anatomical, and molecular principles of system-wide visual encoding				$23,240
93.867	Corneal Scar Repair through SPAACKL: Sutureless, Pro-regenerative Anterior Additive Collagen gel KeratopLasty				$1,165,768
93.867	Descemet Endothelial Thickness Comparison Trial (DETECT)			$420,227	$955,085
93.867	Determining cell-type specificity for a nonclassical MHC class I during an activity-dependent cortical critical period.				$160,908
93.867	Developing Novel Neuroprotective Strategies for EAE/Optic Neuritis				$108,586
93.867	Development and regeneration of retinal ganglion cells in the vertebrate retina				-$15,246
93.867	Development of Face Perception: Cross-sectional and Longitudinal Investigations				$423,959
93.867	Disparity Processing in Human Visual Cortex				$89,934
93.867	Dissecting Neural Circuit Computations in the Peripheral Visual System				$95,531
93.867	Diverse visual processing properties of novel ganglion cell and amacrine cell types in the human retina				$151,337
93.867	Effects of Hyperbilirubunemia on Visuocortical Functioning in High-Risk Infants	Smith-Kettlewell Eye Research Institute	6012201S / HJD6G4D6TJY5		$180,827
93.867	Elucidating Neuron-Intrinsic Molecular Mechanisms of Optic Nerve Regeneration				$401,859
93.867	Endothelial Transmigration in Neovascular Age-related Macular Degeneration				$68,993
93.867	Enhanced Identification of Ocular Phenotypes and Outcomes in Electronic Health Record Data	University of Michigan	SUBK00015736/PO 3007066356		$158,688
93.867	FGF21 as a mediator of RPE mitochondrial dysfunction				$212,624
93.867	Function and circuitry of adaptive inhibition in the retina				$472,960
93.867	Functional-neuroanatomy of high-level visual cortex: a quantitative multimodal approach				$294,986
93.867	Gene Expression Regulatory Pathways and Retinal Ganglion Cell Neuroprotection				$691,827
93.867	Imaging Photoreceptor Function	University of Pennsylvania	579681; PO# 4905210		$19,365
93.867	Improving rigor and reproducibility in adaptive optics ophthalmoscopy			$81,936	$433,565
93.867	In Situ Bioconjugation as a Therapeutic Delivery Modality to Enhance Ocular Wound Healing				-$2,613
93.867	In Vivo Function and Metabolism Evaluation of Glaucomatous RGCs by Two-Photon Scanning Laser Ophthalmology				$24,336
93.867	Increasing the isoplanatic patch in adaptive optics ophthalmoscopy			$86,780	$783,112
93.867	Inflammatory Gene Transcription in the Retina			$71,622	$710,038
93.867	Interaction of Visual and Oculomotor Signals in Cortex				$377,371
93.867	Localization, safety, and efficacy of optic nerve injections				$149,055
93.867	Long-term Suppressive Valacyclovir Treatment for Herpes Zoster Ophthalmicus	New York University	106171		$5,589
93.867	Low Latency Eye-Motion Compensation				$509,451
93.867	Mechanisms of Angiogenesis in ROP			$23,669	$284,091
93.867	Mechanisms regulating the plasticity of postmitotic cells in mammalian retina				$242,152
93.867	Molecular mechanism of Norrin signaling through Frizzled4 and LRP5/6				$34,829
93.867	NAC Attack, a phase-3, multicenter, randomized, placebo-controlled trial in patients with retinitis pigmentosa	Johns Hopkins University	PO # 2005723952		$8,292
93.867	Nanoparticle-Based Tracking of Retinal Ganglion Cell Transplant				$21,328
93.867	Neural coding of interneuron populations in the retina				$246,135
93.867	Neuroprotection by Modulating ER Stress in Glaucoma				$170,581
93.867	Optineurin dysfunction induces neurodegeneration in normal tension glaucoma by a novel molecular mechanism				$764,599
93.867	Optoretinography: All-optical measures of functional activity in the human retina	University Of Washington	UWSC13335 BPO 61344		$462,017
93.867	Pediatric Eye Disease Investigator Group	Jaeb Center for Health Research	PEDIG Site #360		$1,441
93.867	Personalized Predictions for Glaucoma Progression Using Artificial Intelligence for Electronic Health Records				$409,040
93.867	Phosphoinositide signaling in glaucoma: rescue strategies for Lowe syndrome			$17,894	$445,699
93.867	Probing visual computations and electrical stimulation in the central macaque retina for high fidelity vision restoration				$41,017
93.867	Proteomic Biomarkers of Intraocular Infection			$102,764	$453,622
93.867	Quantitative Electrophysiology to Link Neuroplasticity, Brain State, and Behavioral Change in Human Visual Cortex				$43,173

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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	Relating spontaneous activity to electrical stimulation properties of primate retinal ganglion cells				$40,556
93.867	Representation and integration of diverse visual features in circuits and behavior				$98,574
93.867	Retinal Ganglion Cell Replacement in Optic Neuropathies			$594,577	$1,439,666
93.867	Retinal Muller Glial Cells in the initiation of diabetic retinopathy			$34,395	$421,251
93.867	Retinal vessel features as a marker of idiopathic intracranial hypertension treatment response: a secondary analysis of the idiopathic intracranial hypertension treatment trial			$130,792	$148,089
93.867	Robust AI to develop risk models in retinopathy of prematurity using deep learning	Massachusetts General Hospital	237342 / R21 EY031883		$29,148
93.867	RPE Energy Metabolism and Cell Phenotype				-$42,996
93.867	Secondary Analyses of data from the Infant Aphakia Treatment Study: Patching in Children with Unilateral Congenital Cataracts and Poor Visual Acuity	George Mason University	E2058212 / 1R21EY032152-01A1		$29,366
93.867	Stanford K12 Clinician-Scientist Career Development Program				$228,212
93.867	Stanford Vision Research Core				$785,284
93.867	Stanford Vision Training Program				$196,735
93.867	Steroids and Cross-linking for Ulcer Treatment (SCUT II)	University of California, San Francisco	13122sc		$165,998
93.867	Structural and functional tests of ganglion cell damage in glaucoma				$444,432
93.867	The Role of Mechanosensitive Ion Channels in Glaucoma				$26,494
93.867	The role of primary cilia in glaucoma pathogenesis				-$46
93.867	Transcriptional activation for rare disease rescue				$7,347
93.867	Unique physiological properties of novel ganglion cell types in primate retina			$111,399	$318,396
93.867	Vision disorders in adolescents follow concussion -- A planning grant	Ohio State University	60080241		$28,597
93.867	Visual Cortex as a Window to Microstructural and Functional Development of the Human Brain			$105,955	$468,280
93.867	VRC: The Role of Perinuclear cAMP in Retinal Ganglion Cell Neuroprotection and Optic Nerve Regeneration				$184,334
93.879	A Mobile Game for Domain Adaptation and Deep Learning in Autism Healthcare				$750,496
93.879	Advancing Knowledge Discovery for Postoperative Pain Management				$524,348
93.879	Automated data curation to ensure model credibility in the Vascular Model Repository			$78,515	$86,812
93.879	Biomedical Data Science Graduate Training at Stanford				$143
93.879	Biomedical Informatics Training Program at Stanford				$909,213
93.879	Creating an artificial intelligence therapy-to-data feedback loop for child developmental healthcare				$715,592
93.879	Deep Curation via an Integrated Whole-Cell Computational Model			$73,269	$317,489
93.879	From Enrichment to Insights				$4,210
93.879	Image tools for computational cellular barcoding and automated annotation	J. David Gladstone Institutes	SC-00069 / R01 LM013617		$17,887
93.879	Improved metadata authoring to enhance AI/ML readiness of associated datasets				$575,308
93.879	Machine Learning Clinical Order Recommendations for Specialty Consultation Care				$15,108
93.879	Novel Algorithmic Fairness Tools for Reducing Health Disparities in Primary Care			$27,003	$270,298
93.879	Novel machine learning and missing data methods for improving estimates of physical activity, sedentary behavior and sleep using accelerometer data				$387,871
93.879	Pacific Symposium on Biocomputing				$15,159
93.879	Statistical Methods for Modern Evidence Syntheses with Multiple Biases				$271,481
93.879	Toward improved understanding of sex differences in drug response: developing gene and pathway-based informatics methods to examine sex-differential genetic effects				$14,455
93.884	Stanford MSPA Primary Care Training and Enhancement - Physician Assistant Rural Training (PCTE-PAR) Program				$171,826
93.889	Western Regional Alliance for Pediatric Emergency Management (WRAP-em)	University of California, San Francisco	11655sc / U3REP190616-02		$39,864
93.945	Lymphedema (full title tbd)	Lymphatic Education & Research Network	231024		$57,772
93.946	Statewide Perinatal Quality Collaboratives				$200,732
93.989	Global Health Equity Scholars Program.	Yale University	CON-80003658 (GR116387)		$165,158
93.994	CA Maternal Mortality Review	California Department of Public Health	22-10009		$127,365
93.RD	Covid-19: To develop small synthetic chemical molecules as broadly active antiviral for the treatment of viral infections - Advancing a lead broad spectrum antiviral PI-kinase inhibitor to the clinic for enteroviruses and COVID-19			$258,412	$2,471,400
93.RD	3D Multiscale Biomolecular Human Reference Atlas Construction, Visualization and Usage [4 of 5]	Indiana University	9422 // PO0563499		$70,997
93.RD	Covid-19: ABFM - CDC - Stanford Cooperative Agreement: COVID-19	American Board of Family Medicine Inc.	232898		$1,284,265
93.RD	ACC Harmonized Adjuvant Comparison Study			$100,623	$2,621,955
93.RD	Biorepository of human induced pluripotent stem cells for cardiovascular diseases				$970,993
93.RD	Bridge2AI: Salutogenesis Data Generation Project	University Of Washington	UWSC14056		$391,807
93.RD	Building an Interpretable Genotype Translator Using Maps of Cell Architecture	University of California, San Diego	705725		$304,150
93.RD	CEDAR Template testing	Leidos Biomedical Research Inc.	17X074 TO#5 MOD 04		-$284
93.RD	Collaborative Influenza Vaccine Innovation Centers (CIVICs) Component A: Vaccine Center	Icahn School of Medicine at Mount Sinai	0258-A443-4609		$301,083
93.RD	Comparative Modeling of Lung Cancer Prevention, Early Detection and Treatment Interventions	BC Cancer Agency	2023-0534		$227,912
93.RD	eDynamic - STANFORD				$1,173,270
93.RD	Flexible Hybrid Cloud Infrastructure for Seamless Integration and Use of Human Biomolecular Data and Reference Maps	Carnegie Mellon University	1090719-462287		$681,324
93.RD	Highly Accurate Low Cost ctDNA Diagnostics With Magnetic Nanoparticle Enabled Automated Sample Preparation Assays	NVIGEN, Inc.	140396		$39,124
93.RD	MACRA Episode Groups and Resource Use Measures II	Acumen, LLC.	MIDS-19F0004-T0005		$53,341
93.RD	Covid-19: Medical Imaging and Data Resource Center (MIDRC) for Rapid Response to COVID-19 Pandemic	University of Chicago	AWD101462-D / 75N92020D00021		$627,938
93.RD	National Sleep Research Resource (NSRR)	Brigham and Women's Hospital	122255		$7,821
93.RD	Neuropsychological Assessment System for Cancer Patients	Creare Inc	S677 PO 106415		$64
93.RD	NIAID Centers of Excellence for Influenza Research and Response	University of Pennsylvania	53816/02; PO 4867412		$341,845
93.RD	Covid-19: Pathology and Pathogenesis of Coronavirus Infections in Animal Models				$898,896

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93.RD	Pediatric Trials Network	Duke University	48/232379/6941 ANA01/STN99		$7,869
93.RD	POINT-OF-CARE DIAGNOSTICS TOOL FOR PREECLAMPSIA AND ANEMIA IN PREGNANCY				$5,137
93.RD	PROMINENT (CRUK/NIH Grand Challenges)				$392,100
93.RD	Pumps for Kids, Infants, and Neonates (PumpKIN) Clinical Trial	New England Research Institute, Inc.	Task Order #6, Mod 7		$62,495
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		$10,772
93.RD	ReCePI Study	Cerus Corporation	Work Order #1 PO 206124		$333,697
93.RD	Sequelae and immunopathology of Ebola virus infections				-$53,955
93.RD	Stanford Human Cancer Models Initiative Center	Leidos Biomedical Research Inc.	19X015Q		$7,403
93.RD	STRIVE ICC Leadership and Start-up	Vanderbilt University Medical Center	109032		$10,313
93.RD	Targeted Bone Regeneration via Activation of Resident Stem Cells	Medical Science & Computing, LLC	SPO 271718		$114,449
93.RD	The CBER Biologics Effectiveness and Safety (BEST) Initiative: Conduct Surveillance Activities for Safety and Effectiveness of Biologics"	Acumen, LLC.	FDA-20F19003-T0004		$331,410
93.RD	The Women's Health Initiative (WHI)- Regional Centers				$1,216,692
93.RD	Trial Net Screening and DPT-1 Follow Up Studies	University of South Florida	PO 261241; 253349		$95,358
93.RD	Covid-19: Virufy Covid-19 Screening through AI-based Cough Analysis	Virufy	SPO-276978		$15,680
Department of Homeland Security					**$102,406**
97.061	How Organizational Dynamics in a Multi-Actor Environment Shape Terrorist Threats and Counterterrorism Responses	University of Nebraska	44-0108-1001-420		$102,406
Department of Justice					**$44,059**
16.560	Bio-inspired Material-integrated Magnetic Beads for Differential Extraction of Sperm in Forensic Applications				$44,059
Department of State					**$994,241**
19.019	CAFE - Comprehensive Action towards Forced Labor Eradication	Global Fund To End Modern Slavery	G12-001-Stanford-220101		$596,951
19.019	Measuring the Prevalence of Trafficking around the World: Implications for Research, Programming, and Policy	University of Georgia Research Foundation, Inc.	SUB00002413	$34,493	$71,079
19.019	Working Title: Program to End Modern Slavery PRIF Expansion			$57,422	$306,801
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		-$590
19.501	SCHOLAR RESCUE FUND AFGHANISTAN - N. Nezaami (Year 2)	Institute Of International Education	SRFUS04000_SU_8.01.2022		$20,000
Department of the Interior					**$511,609**
15.506	Linking Anaerobic Wastewater Treatment to Non-Potable and Potable Wastewater Reuse	Silicon Valley Clean Water	SPO 163392		$285,759
15.807	Constraints on Stress Heterogeneity From Modeling Induced Seismicity on Rough Faults in Oklahoma				$29,437
15.808	2022-2024 SCEC-USGS Research Collaboration at Stanford University	University of Southern California	SCON-00003734		$84,941
15.808	Collaborative research on earthquakes and lithospheric seismic properities in Saudi Arabia				$13,210
15.808	Stanford-USGS: Micro-Isotopic Analytical Center (SUMAC)				$64,934
15.808	Synthesis of Bering Sea Regional Geologic Framework				$31,814
15.933	Connected through Confinement: An Archaeology of the Gila River Incarceration Site				$1,514
Department of Transportation					**$3,173,213**
20.108	Air Navigation Based on Global Navigation Satellite Systems				$100,648
20.109	ASCENT Project 25 Chemical Kinetics Combustion Experiments				$197,395
20.109	ASCENT Project 59 Jet Noise Modeling to Support Low Noise Supersonic Aircraft				$170,236
20.109	Opensource data collection, Analysis and Mitigation of Aviation Environmental Impacts				$299,284
20.205	Center for Excellence in Project Finance	University of Maryland	116176-Z9815205		$133,856
20.RD	Air Navigation Based on Global Navigation Satellite Systems				$2,256,510
20.RD	The Railroader of the Mid-Century	University of New Mexico	456733-873H		$15,284
Department of Veterans Affairs					**$51,775**
64.RD	Task casual inference efforts conducted by the Center for Policy Evaluation (CPE) at the VA Palo Alto Healthcare System in accordance with Contract 36C24E23D0002.				$51,775
National Aeronautics and Space Administration					**$21,424,338**
43.001	21-ATP21-0081, Modeling the radio/infrared/gamma-ray correlation at sub-galactic scales for the Milky Way and starforming galaxies				$137,389
43.001	A Remarkable Pulsar-powered Filament	Smithsonian Astrophysical Observatory	GO1-22054X		$27,925
43.001	Assessing Paleointensity Variability During the Lunar High Field Epoch (FINESST)				$43,054
43.001	Assessing the habitability of post-impact hydrothermal systems using the Chicxulub crater as a natural laboratory			$62,125	$80,027
43.001	Assessment of Capella Space Radar Constellation for Rapid Repeat, Fine Resolution InSAR Applications				$45,701
43.001	Assessment of ICEYE Radar Constellation for Rapid Repeat, Fine Resolution InSAR Applications				$45,701
43.001	Bridging the gap between carbon cycle models and remote sensing observations	California Institute of Technology	S538120		$25,842
43.001	Building a Legacy Progenitor-Selected Cluster Sample at z>1	Smithsonian Astrophysical Observatory	GO1-22131B		$2,200
43.001	CHiPS1911+4455: A Cooling Flow in a Merging Cluster	Smithsonian Astrophysical Observatory	GO2-23116X		$14,311
43.001	Collaborative Research to Evaluate the Effects of Injection Strategies on Mixing in ARC-Heaters at the AMES Research Center				$73,653
43.001	Completing hard X-ray observations of the iron K reverberation sample of Seyfert galaxies				$16,163
43.001	Consequences of Fields and Flows in the Interior and Exterior of the Sun (COFFIES)			$731,783	$1,389,340
43.001	Consequences of Flows and Fields in the Interior and Exterior of the Sun (COFFIES)			$77,724	$81,251

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43.001	Covid 19: Advancing Focal-Plane TRL for Next Generation CMB Space Missions	University of California, Berkeley	00010967 / P.O. BB01592334		$62,797
43.001	Deep Observations of a New Dynamically Relaxed Galaxy Cluster at High Redshift	Smithsonian Astrophysical Observatory	GO2-23113A		$10,144
43.001	Detecting Harmful Algal Blooms in the Pacific Sector of the Arctic Ocean				$61,346
43.001	Development of a UAV-based integrated ice-penetrating radar system for ice shelf monitoring (FINNEST - Thomas Teisberg)				$38,471
43.001	Development of Far-side Magnetic Flux Measurement Using GONG Data				$83,834
43.001	Development of integrated readout electronics for next generation X-ray CCDs			$8,335	$299,276
43.001	Experimental Constraints for Improving Terrestrial Exoplanet Photochemical Models (ExCITEPM)	University of California, Riverside	S-001525		$87,382
43.001	Extremely Low-noise, High Frame-Rate X-Ray Image Sensors for Strategic Astrophysics Missions	Massachusetts Institute of Technology	s6057, PO #922398		$34,714
43.001	Fermi and the Search for Lost Magnetar Giant Flares	University of Maryland, Baltimore County	NASA0066-02		$27,615
43.001	Frequency-Dependent Helioseismic Analysis on Solar Meridional Flow, Center-to-Limb Effect, and Sunspots				$133,723
43.001	Giant Planet Demographics from an Analysis of the Gaia Astrometric Survey			$37,549	$37,549
43.001	HelioCloud Data Delivery for SDO				$58,361
43.001	Helioseismic and Magnetoacoustic Waves in and above Sunspots: Origin, Up-Channeling, and Reflection				$23,716
43.001	High-Energy Unknown Transients: The Fermi-INTEGRAL Synergistic View				$730
43.001	Identifying the biosynthetic pathway of brGDGT biomarker lipids				$10,560
43.001	Impact-induced Formation of Prebiotic Molecules on Terrestrial Planets				$47,999
43.001	Improving X-ray Polarization Sensitivity and an IXPE Application to the physics of Blazar Jets				$19,991
43.001	Integration of InSAR with Airborne Geophysical Data for the Development of Groundwater Models				$105,482
43.001	Intermediate complexity schemes for modelling the diversity of vegetation drought response				$53,938
43.001	Investing in equity and environmental justice: an urban decision-support tool integrating earth observations, socioeconomic data, and ecosystem service models	University Of Minnesota	P010028102		$32,710
43.001	IXPE sources: a quick-look database and high-level data analysis toolkit	University of Maryland, Baltimore County	NASA0118-02		$20,099
43.001	Joint inversion of seismicity and geodetic observations for imaging volcanic intrusions				$16,142
43.001	Joint radar and model investigations of Greenland basal water conditions				$43,062
43.001	Laboratory measurement of opacities and pressure-induced line broadening parameters at exoplanetary atmospheric conditions				$48,324
43.001	Linking Active Regions and Solar Cycles to Understand How Variable Flows in the Solar Interior Affect Surface Magnetic Field Evolution			$40,098	$121,230
43.001	Linking crater basin winds, dune morphology, and stratigraphy	Texas A&M University	M2200119		$12,728
43.001	Multi-Messenger 3D Modeling of the Interstellar Medium of the Milky Way			$44,417	$142,848
43.001	NASA ACRES: A Climate Resilient Ecosystem Approach to Strengthening US Agriculture	University of Maryland	124245-Z6512205		$10,088
43.001	NASA Food Security and Agriculture Consortium (FSAC)	University of Maryland	54308-Z6059203		$14,754
43.001	NASA Harvest: NASA Food and Agriculture Consortium	University of Maryland	125062-Z6521205		$44,255
43.001	Next-generation event characterization for X-ray imaging observatories			$85,602	$226,592
43.001	NUSTAR TOO OBSERVATIONS OF LUMINOUS BLAZARS				$14,725
43.001	Oceans Across Space and Time	Cornell University	142075-21988		$65,845
43.001	Optimized Cluster Cosmology with the Planck Satellite				$234,487
43.001	Persistent Scatterer InSAR: Maximizing Coverage and Enabling Applications Through User-friendly Data Products				$114,264
43.001	PSR J2030+4415: A Breakthrough Target for Bowshock Studies	Smithsonian Astrophysical Observatory	GO8-19049X		$15,235
43.001	PSR J2215+5135: An IBS Probe of Mass and Evolution				$43,091
43.001	Quantifying and mitigating the role of parametric uncertainty in forecasts of the terrestrial carbon cycle				$48,714
43.001	Quantifying the Rate of Nearby Dual AGN	Smithsonian Astrophysical Observatory	GO1-22096B		$13,075
43.001	QUIESCENT SOLAR GAMMA-RAY EMISSION: PROBING COSMIC RAYS AND SOLAR ENVIRONMENT				$9,474
43.001	Radiation Hard and High Temperature Tolerant Thermal Imagers	Jet Propulsion Laboratory	CREI 1631670		$46,824
43.001	Real World, Real Science: Using NASA Data to Explore Weather and Climate	Gulf of Maine Research Institute	30-NASARS-21 S		$171,822
43.001	Research Coordination Network for Ocean Worlds				$40,784
43.001	Resolving the extreme environments outside supermassive black holes with XRISM measurements of X-ray reflection and reverberation				$14,673
43.001	Scale enrichment of incompressible large eddy simulations				$82,426
43.001	Science Study for Space-based Optical Atomic Clocks and Optical Time Transfer	Jet Propulsion Laboratory	Sub No. 1583357		$1,286
43.001	Self-consistent Modeling of Multi-messenger and Multi-wavelength Galactic Emissions in Support of Past, Current, and Future NASA Missions				$212,737
43.001	Simulating Active Longitudes by Coupling Magnetograms with a Nonlinear MHD Tachocline Model: a Data Assimilation Approach	University Corporation of Atmospheric Research	SUBAWD002075		$44,725
43.001	Simulating pre-solar-storm patterns of magnetic toroids from surface sunspot observations	University Corporation of Atmospheric Research	SUBAWD003043		$55,250
43.001	Solar Storms and Terrestrial Impacts Center (SOLSTICE)	University of Michigan	PO3005977491,SUBK00011258		$29,654
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		$40,740
43.001	Studying the Progenitors of Our Favorite Clusters at z > 1			$52,787	$67,978
43.001	Suprathermal Seeds for Solar Energetic Particles: Two-stage Acceleration from Flares to CME-Shocks	Bay Area Environmental Research Institute	NASA-80NSSC21K1327		$52,155
43.001	Taming the Sharks: Dynamics and Dust in the High-Latitude 3D ISM with GALEX	Space Telescope Science Institute	53143		$26,006

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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43.001	The Airborne InSAR and PolSAR Permafrost Dynamics Observatory	University of Colorado, Boulder	1554878,PO 1000792321		$16,239
43.001	The Effects of Atmospheric Density on Eolian Ripple Formation and Morphology			$52,932	$277,108
43.001	The Gemini Planet Imager Exoplanet Survey: Completion and Analysis			$26,298	$50,789
43.001	The M-dwarf Opportunity: Characterizing Nearby M-dwarf Habitable Zone Planets	Johns Hopkins University Applied Physics Laboratory	169752		$47,100
43.001	The Moving Filament of the Guitar Nebula	Smithsonian Astrophysical Observatory	GO1-22055A		$56,067
43.001	The next stage of X-ray reverberation: Mapping a sample of supermassive black holes				$57,295
43.001	The relationship between the corona and jet in the radio-loud Seyfert galaxy IRAS 17020+4544				$31,937
43.001	The role of magnetic fields in star formation: novel analyses of archival SOFIA data				$41,702
43.001	Toward a Consensus for Multi-Sourced Photospheric Magnetic Field Cross-Calibrations			$30,915	$121,210
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		$93,294
43.001	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		$33,458
43.001	Understanding the Role of Helicity Flux in Solar Eruptions from Active Regions			$84,788	$200,719
43.001	Unraveling the role of plant hydraulic traits in transpiration using microwave radiometry				$45,001
43.001	US contributions towards studies of the Athena WFI instrumental background and transient source populations	Pennsylvania State University	S001536-NASA		$179,212
43.001	Validation and user-friendly product analysis for NISAR time series of deformation, with application to permafrost and soil moisture examples				$55,994
43.001	What Life Wants: Exploring the Natural Selection of Elements	University of Wisconsin-Madison	0000002170		$2,471
43.001	World Enough and Time: Mapping the Martian Adaptive Landscape with a Terran Bacterium	Georgia Institute of Technology	AWD-001061-G1		$48,303
43.001	X-Ray Speed-Reading: Integrated Readout Technology for Fast, Very Low-Noise, Megapixel X-Ray Imaging Detectors			$6,773	$71,903
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/SC11500		$130,837
43.002	Safe Aviation Autonomy with Learning-enabled Components in the Loop: from Formal Assurances to Trusted Recovery Methods			$1,157,242	$1,751,819
43.002	Single Source, Wall-Modeled Large-Eddy Simulation of an Aircraft With Emphasis on High-Lift Configurations				$858,575
43.003	Countermeasure Development against Myocardial Mitochondrial Stress by Space Radiation Exposure	Baylor College of Medicine	NNX16AO69A / 7000001427		$76,712
43.003	Effects of chronic high LET radiation on the human heart	Baylor College of Medicine	7000001223		$524,884
43.003	Identifying Genetic Factors in Radiation Injury with Pooled Single Cell Sequencing	Baylor College of Medicine	7000001729 // P0701		$73,097
43.003	Mechanisms underlying charged particle-induced disruption of CNS function	University of California, Irvine	2015-3277		$55,488
43.003	Using human stem-cell derived vascular, neuronal and cardiac 3D tissues to determine countermeasures for radiation	Baylor College of Medicine	7000001222 / NNX16AO69A		$92,725
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		$50,468
43.008	Fidelity-Adaptive Models for Supersonic Combustion				$56,705
43.009	Cellular Fabrication (C-Fab) Materials for In-Situ Lunar Additive Manufacturing & Outfitting	Branch Technology Inc.	229888		$70,951
43.009	Collaborative Research to Evaluate the Influence of Injection and Mixing on Nozzle Flow Uniformity in Arc-Jets at Ames Research Center				$145,833
43.012	Advancing Computational Methods for Supersonic Retropropulsion				$63,375
43.012	Advancing the State of the Art in the Simulation of Parachute Inflation and Descent Dynamics: Multiscale Modeling, Performance Acceleration, and Validation				$113,060
43.012	Aftshell Radiative Heating During Planetary Entry				$73,648
43.012	Broadband mid-infrared silicon metalenses based on data-driven inverse design for space deployment			$163,934	$377,517
43.012	Closed-Form Collision Avoidance Maneuvers with Passive Safety Considerations				$59,886
43.012	Collaborative Manipulation for Space Exploration and Construction				$3,302
43.012	CUBES-II: Center for the Utilization of Biological Engineering in Space v.II	University of California, Berkeley	00009564/PO#BB01347866		$324,087
43.012	Electrochemical in situ resource utilization of urine-derived nitrogen for sustainable space travel and habitation				$64,600
43.012	Electrochemical membrane reactors for in-situ resource utilization of wastewater in space				$2,643
43.012	High-Fidelity Combustion Modeling for LOX/Methane In-Space Propulsion Systems				$71,621
43.012	High-Fidelity Modeling of High-Energy Density Plasma Systems for Fusion Propulsion				$3,745
43.012	Integrated acoustic technology for boil-off control, mass gauging, and structural health monitoring in cryogenic fuel tanks				$131,802
43.012	Invariant Funnels For Robust Interplanetary Transfer, Flyby, Capture, and Landing				$70,388
43.012	Joint Advanced Propulsion Institute	Georgia Institute of Technology	AWD-002637-G5 // PO-5217407		$126,385
43.012	Kinetic models of the facility effects and beam neutralization for high-power electric propulsion systems				$67,771
43.012	Micro-scale modeling of ablative thermal protection systems during atmospheric entry				$57,362
43.012	Motion Planning in Unknown Environments				$64,640
43.012	Physics-informed Modeling of Multi-nozzle Plume Physics with Quantifiable Uncertainties from Supersonic Retropropulsion Tests				$227,404
43.012	ReachBot: Small Robot for Large Mobile Manipulation Tasks in Martian Cave Environments				$402,805
43.012	Real-time predictive modeling of Hall effect thrusters for thruster performance estimation and optimization				$70,433
43.012	Starling Formation-Flying Optical Experiment (StarFOX)				$75,619
43.012	Towards a robust laser-based velocity and temperature diagnostic for deployment in hypersonic ground-test facilities and high-speed flight				$64,670

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43.012	Versatile Inverted-Hand Robotic Design for Mobile Manipulation in Space Environments				$51,098
43.RD	A definitive test of the dark matter paradigm on small scales	Space Telescope Science Institute	JWST-GO-02046.013-A		$29,282
43.RD	Advanced Design Tools for Electrosail Propulsion Systems	Particle Matters, Inc.	STTR22NS01		$283,838
43.RD	Advanced Telescope for High-ENergy Astrophysics (ATHENA)				$531,274
43.RD	Characterizing and quantifying lagged processes regulating the tropical land carbon sink responses to climatic variability and atmospheric CO2	Jet Propulsion Laboratory	1671875		$93,404
43.RD	Galaxy-halo connection from resolved star formation histories of dwarf galaxies	Space Telescope Science Institute	HST-AR- 17044.001-A		$47,496
43.RD	Interior working group telecon co-chair	Jet Propulsion Laboratory	1655926		$65,941
43.RD	Launch Delay -IRIS	Lockheed Martin Corporation	Sub 8100003073 Line #6	$126,109	$262,228
43.RD	Leveraging Weak Gravitational Lensing - Redshift Space Distortions Cross-correlations	Jet Propulsion Laboratory	1687951		$17,032
43.RD	Lunar Vertex Mission	Johns Hopkins University Applied Physics Laboratory	173019		$11,878
43.RD	Mini Radio Frequency Instrument for Lunar Orbiter	Johns Hopkins University Applied Physics Laboratory	164323 CLIN 1 PROJECT LJH08		$9,940
43.RD	Petal-Type Radio-Frequency	Jet Propulsion Laboratory	1680934		$12,452
43.RD	REASON (Radar for Europa Assessment and Sounding: Ocean to Near Surface) REASON	University of Texas at Austin	UTA16-001083		$123,468
43.RD	Starshade Inner Disk Subsystem (IDS) Optical Shield Engineering Support	Jet Propulsion Laboratory	1681202		$36,714
43.RD	The Fermi Large Area Space Telescope - Phase E 6-year Extension			$389,344	$1,930,574
43.RD	The Solar Dynamics Observatory (SDO) Helioseismic and Magnetic Imager Investigation - Third Extended Mission			$130,306	$4,716,979
43.RD	VERITAS (Venus Emissivity, Radio science, InSAR, Topography And Spectroscopy)	Jet Propulsion Laboratory	1669789		$7,094
National Endowment for the Arts					**$35,000**
45.024	Stanford Live FY22				$35,000
National Endowment for the Humanities					**$113,146**
45.149	The Tousey Project	Board of Trustees of Northern Illinois University	G2B66860-STANFORD		$12,841
45.160	The Church Of Baghdad				$59,719
45.164	Wise Women: A Philosophy Talk Series on Female Philosophers Through the Ages				$36,209
45.313	IMLS Laura Bush 21st Century Librarian Program	West Chester University	WCU IMLS SU 001		$4,377
National Science Foundation					**$81,547,468**
47.041	Adaptive management of water supply infrastructure for persistent anomalies versus climate trends				$60,231
47.041	Assessing Urban Post-Earthquake Community Recovery to Inform Pre-Disaster Planning				$48,335
47.041	CAREER: A Framework for Co-design and Optimization of Programmable Hardware Accelerators and Compilers				$4,102
47.041	CAREER: Accelerating Real-time Hybrid Physical-Numerical Simulations in Natural Hazards Engineering with a Graphics Processing Unit (GPU)-driven Paradigm				$98,839
47.041	CAREER: Data Analytics for Distribution Systems Management and Operations				-$593
47.041	CAREER: Demystifying Deep Machine Learning Models using Convex Optimization for Reliable AI				$5,897
47.041	CAREER: Mixed-bonded IV-VI semiconductors for hybrid heterostructures				$123,364
47.041	CAREER: Multiphysics Mechanics of Magnetic Shape Memory Polymers				$47,195
47.041	CAREER: Quantifying Wind Hazards on Buildings in Urban Environments				$93,894
47.041	CAREER: Quantum Acoustic Information Processing with Phononic Crystal Devices				$109,298
47.041	CAREER: Regulation of stem cell migration by extracellular matrix plasticity				$40,500
47.041	CAREER: Sculpting light in biological tissue: an ultrasound-mediated traveling light source for spatiotemporally precise in vivo gene editing				$69,016
47.041	CAREER: Soft Robotic Fingertips with High-Resolution, Calibrated Shape and Force Sensing for Dexterous Manipulation				$144,849
47.041	CAREER: Structures as Sensors: Elder Activity Level Monitoring through Structural Vibrations				$220,929
47.041	CAREER: UrbanEMOS: An Urban Energy Management Operating System for understanding and co-optimizing building, energy and human systems at multiple scales				$245,950
47.041	CAS: Towards sustainable sunscreens: identifying chemical structures in sunscreens linked to phototoxicity in corals				$270,500
47.041	CDS&E: Physics-driven computational tools for photonic design				$25,850
47.041	Center for Turbulence Research Summer Program				-$27,775
47.041	Collaborative Research: Bottom-up Construction of a Synthetic Neuron and Programmable Neuronal Network				$124,355
47.041	Collaborative Research: Cell-free glycoprotein synthesis technology for point-of-care vaccine biomanufacturing				$5,388
47.041	Collaborative Research: Examination of the Multi-physical Properties of Microgravity-synthesized Graphene Aerogels				$3,617
47.041	Collaborative Research: Frame-Spine System with Force-Limiting Connections for Low-Damage Seismic Resilient Buildings				$90,714
47.041	Collaborative Research: ISS: Assessing the Effect of Microgravity on Growth and Properties of Metal-Organic Framework (MOF) Crystals				$94,815
47.041	Collaborative Research: Mixed-Autonomy Traffic Networks: Routing Games and Learning Human Choice Models				$166,586
47.041	Collaborative Research: Nonlinear Coupling and Relaxation Mechanisms in Micro-Mechanics	University of California, Santa Barbara	KK2257		$38,168
47.041	Collaborative Research: Planning: Track 1: Beyond Recruitment: Engaging Allies to Foster Black Junior Environmental Engineering Faculty Success				$11,820
47.041	Collaborative Research: RAPID: Coronavirus Persistence, Transmission, and Circulation in the Environment				$1,023
47.041	Collaborative Research: RECODE: Directing and Controlling Cardiac Differentiation Through Cellular and Microenvironmental Manipulation and Application of Machine-Learning				$20,359
47.041	Conference: 2023 Workshop on Nanotechnology Infrastructure of the Future				$126

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47.041	CPS: Medium: Secure Smart Machining				$125,980
47.041	Creep in shale across space and time				$46,587
47.041	DMREF/Collaborative Research: Designing Mutable Metamaterials with Photo-Adaptive Meta-Atoms				-$1
47.041	Dynamic Matching Problems with Application to Kidney Allocation	Northwestern University	60059615 STAN		$91,570
47.041	EAGER: Advanced Digital Twin Capabilities for NSF NHERI Wind Tunnel Facilities				$20,021
47.041	EAGER: CRYO: Development of materials and techniques to enable sub-Kelvin cooling via adiabatic decompression of para-nematic materials.				$121,529
47.041	EAGER: Neuromodulation in the second near-infrared window				$139,329
47.041	ECO-CBET: Collaborative Research: Towards a Circular Nitrogen Bioeconomy: Tandem Bio- and Chemocatalysis for Sustainable Nitrogen Recovery and Nitrous Oxide Mitigation				$59,142
47.041	EFRI BRAID Preliminary Proposal: DenPro3D Dendritic Processing of Spike Sequences in Biological and Artificial Brains				$216,344
47.041	EFRI DCheM: Engineering interfaces between plasma, catalysts, and reactor design for natural gas conversion to liquid products	Princeton University	SUB0000425		$41,501
47.041	EFRI DChem: Re-Engineering the Nitrogen Cycle: Distributed Electrochemical Nitrogen Refineries for Ammonia Synthesis and Water Purification				$252,005
47.041	Engineering Fellows Postdoctoral Fellowship Program	American Society for Engineering Education	769-2096		$110,831
47.041	Engineering Fellows Postdoctoral Fellowship Program - Roya Fallah Firoozi	American Society for Engineering Education	2127509		$131,777
47.041	FW-HTF: Collaborative Research: Enhancing Human Capabilities through Virtual Personal Embodied Assistants in Self-Contained Eyeglasses-Based Augmented Reality (AR) Systems				-$158
47.041	Generation of food-based chlorination disinfection byproducts (F-DBPs) during food processing				$13,508
47.041	I-Corps: Developing technology for social-emotional learning for young children				$3,110
47.041	Integrated Modeling and Control of Aftertreatment Systems for Clean, Efficient and High-Performing Gasoline Direct Injection Engines				$51,204
47.041	Laser Frequency Metrology of Vapor Cells	Vapor Cell Technologies, LLC	SPO 193423		$37,526
47.041	Micromechanics of Interactions Between Hard Magnetic Particles and Soft Matrix on Magneto-Mechanical Actuation				$79,457
47.041	Mid-scale RI-1 (M1:DP): National Full-Scale Testing Infrastructure for Community Hardening in Extreme Wind, Surge, and Wave Events (NICHE)	Florida International University	000561/FIU01-0000240921		$171,699
47.041	MID-SCALE RI-1 (M1:IP): IMPLEMENTATION OF A NATIONAL SILICON CARBIDE RESEARCH FABRICATION FACILITY	University of Arkansas	UA2022-294/SPC-001885		$92,364
47.041	National Science Foundation's Alan T. Waterman Award				$224,198
47.041	Natural Hazards Engineering Research Infrastructure: Computational Modeling and Simulation Center	University of California, Berkeley	00010842; BB01598236		$395,415
47.041	NNCI: nano@stanford				$1,405,816
47.041	Norovirus persistence in surface water				$166,157
47.041	NRI: FND: Computational and Interactive Design of Soft Growing Robot Manipulators				$207,086
47.041	NRI: INT: COLLAB: Mesh Of Robots on a Pneumatic Highway (MORPH): An Untethered, Human-Safe, Shape-Morphing Robotic Platform				$150,882
47.041	NSF Engineering Research Center for Re-Inventing America's Urban Water Infrastructure			$86,506	$94,648
47.041	Programmable Surfaces by Scalable Self-assembly of Particles Printed by Two-photon Polymerization				$104,679
47.041	RAISE: TAQS: Engineering high quality, practical qubits in diamond			$40,062	$40,062
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		$17
47.041	Covid-19: RCN: Wastewater Surveillance for SARS-CoV-2 and Emerging Public Health Threats	University of Notre Dame	204597SU		$17,857
47.041	RECODE: Real-time analysis and environmental feedback for directed differentiation of liver organoids				$538,539
47.041	REU Site: Center for Power Optimization of Electro-Thermal Systems (POETS)	University of Illinois at Urbana Champaign	2014-00555-03		$557,894
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		$14,644
47.041	Scalable diamond quantum systems				$273,639
47.041	SCH: Improving patient health and equity through the digital transformation of diabetes care delivery				$70,785
47.041	Scopi				-$796
47.041	SenSE: Artificial Intelligence-enabled Multimodal Stress Sensing for Precision Health				$273,383
47.041	Shock-Tube Studies of High-Temperature Flames Applicable to Next-Generation Energy Systems				$162,535
47.041	Swirling Propulsion in Complex Fluids and Micro-Swimming Rheometry				$122,996
47.041	The Dynamics of Curved Fluid Films Between Complex Interfaces				$24,494
47.041	Understanding the impact of mechanical constraints on the dendrite formation in lithium metal anodes				$101,339
47.049	Active Adaptive Materials Design Inspired by Cell Mechanics	University of Chicago	AWD103106 (SUB00000697)		$35,614
47.049	Additive Combinatorics and Ramsey theory				$83,338
47.049	Asymptotic in Probability: walks and graphs, disordered dynamics, interacting particles				$136,108
47.049	Branching Processes, Random Partial Differential Equations and Applications				$55,264
47.049	CAREER: Chemical Synthesis and Biophysical Study of Noncanonical Membrane Lipids				$12,823
47.049	CAREER: Dielectric screening in structured polymer electrolytes				$85,271
47.049	CAREER: Electrically tuned topological phase transitions in moire heterostructures				$36,672
47.049	CAREER: Electronic and Optical Properties in Generalized Moire Systems from First Principles				$17,159
47.049	CAREER: New statistical approaches for studying evolutionary process: statistical inference, attribution and computation				$86,085
47.049	CAS: Improving the Efficiency of Supported Palladium Catalysts for Methane Complete Combustion Using Monodisperse Nanocrystals				$115,656
47.049	CCI Center in Selective C-H Functionalization	Emory University	A374186		$86,694
47.049	CCI Phase I: Center for Interfacial Ionics	University of Oregon	2016V0D		$60,316
47.049	CCI Phase I: NSF Center for Adapting Flaws into Features	Rice University	PO X03043173 (218233)		$21,774

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47.049	Chiral Quantum Networks	University of California, Santa Barbara	KK1924		-$4
47.049	Coherent Control of Cold Collision by Preparing Molecular Eigenstates Using Stark-Induced Adiabatic Passage				$73,649
47.049	Collaborative Research: Axion Resonant InterAction DetectioN Experiment (ARIADNE) - a renewal proposal				$87,389
47.049	Collaborative Research: Center for Coatings Research				$124,795
47.049	Collaborative Research: DMREF: Developing Damage Resistant Materials for Hydrogen Storage and Large-scale Transport.				$137,462
47.049	Collaborative Research: Enabling multi-scale studies of magnetic reconnection with interpretable data-driven models				$174,175
47.049	Collaborative Research: Fusing massive disparate data and fast surrogate models for probabilistic quantification of uncertain hazards				$17,028
47.049	Collaborative Research: Novel Cavity Haloscopes for Axion Dark Matter at CM-Wavelengths				$134,535
47.049	Collaborative Research: Optical Transitions in Metallic Nanoclusters at High Pressure				$37,180
47.049	Collaborative Research: Scalable Linear Algebra and Neural Network Theory				$41,553
47.049	Collaborative Research: Stanford-Florida program in Support of LIGO on Coatings and Core Optics				$379,286
47.049	Collaborative Research: Statistical Optimization for Barcoding and Decoding Single-Cell Dynamics via CRISPR Gene Editing				$195,991
47.049	Collaborative Research: Transferable, Hierarchical, Expressive, Optimal, Robust, Interpretable Networks				$122,499
47.049	Combinatorics: Thresholds and Hamming Cubes				$14,219
47.049	Conjugated Systems Containing Antiaromatic Cyclobutadienoids: Synthesis and Study of the Multifaceted Effects of Local Antiaromaticity				-$1
47.049	CQIS: Quantum Chaos and Quantum Gravity from Entanglement				$112,980
47.049	Dark Sectors and More with the ATLAS Experiment				$134,770
47.049	Deep Learning for Inverse Problems				$106,483
47.049	Defect Characterization and Control in Metastable GeSn Optoelectronic Alloy Nanostructures				$65,657
47.049	Design Rules for Obtaining White Light from Layered Perovskites and Related Lattices				$82,038
47.049	Diverse Degradable Polymers from Versatile Ring-Opening Metathesis (Co)Polymerization of Electron-Rich Cyclic Olefins				$201,562
47.049	DMREF: Collaborative research: Data driven discovery of synthesis pathways and distinguishing electronic phenomena of 1D van der Waals bonded solids				$175,799
47.049	DMS-EPSRC: Fast martingales, large deviations and randomized gradients for heavy-tailed target distributions				$142,518
47.049	Dynamics of Ions and Molecules in Concentrated Electrolyte and Acid Solutions				$255,541
47.049	EAGER: Superlattice-induced polycrystalline and single-crystalline structures in conjugated polymers				$133,370
47.049	ECLIPSE: Miniaturization of Ultra-High-Power Laser Systems with Plasma Grating Chirped Pulse Amplification				$18,253
47.049	Enabling Quantum Leap: Q-AMASE-i: Quantum Foundry	University of California, Santa Barbara	KK2245		$154,667
47.049	Enhancing helicity-dependent optical interactions in inversion-asymmetric materials				$1,015
47.049	Evolutionary Dynamics and Diversity in High Dimensions				-$5,306
47.049	Exploring Excited-State 1D Dipolar Quantum Matter with Dysprosium Gases				$415,668
47.049	Exploring the properties of quantum many-body scar states in dipolar gases				$408
47.049	Flexible Statistical Modeling				$143,594
47.049	Frequency function method in elliptic PDEs and harmonic analysis				$99,473
47.049	FRG: Collaborative Research: Generative Learning on Unstructured Data with Applications to Nature Language Processing and Hyperlink Prediction				$103,087
47.049	Functional Materials Through Synthesis Informed Design				$601
47.049	Galois Representations and Automorphic Forms				$54,900
47.049	Geometric and Arithmetic Langlands program				$70,182
47.049	Geometric Applications of Microlocal Analysis Conference				$26,623
47.049	Geometry & Statistics				-$7
47.049	GOALI: CAS: Organocatalytic Reactions and Processes for Polymer Chemistry				$167,275
47.049	High Throughput Structure Determination for Low Thermal Noise Coatings				$130,573
47.049	IAS/Park City Mathematics Institute	Institute for Advanced Study	7456-2305-1915835		$37,853
47.049	Imaging correlations and charge order in transition metal dichalcogenide moiré systems				$145,273
47.049	Interfacing Spins with Photons: Quantum Many-Body Physics with Non-Local Interactions				$299,200
47.049	Investigation of Thermodynamic Conditions in an Arc Discharge Plasma	Texas Engineering Experiment Station	M2201408-28-513400-00007		$68,336
47.049	Laplace Eigenfunctions and Unique Continuation				$98,875
47.049	Long Time Behavior for Differential Equations in Random Media				$76,947
47.049	Mathematical Problems in General Relativity				$82,840
47.049	Matrix completion with non-uniform missing patterns, a new measure of conditional dependence, and applications to feature selection				$54,614
47.049	Microlocal Analysis and Applications				$61,988
47.049	Microlocal Analysis and Geometry				$66,253
47.049	Modulating and engineering Luttinger liquid plasmons in low dimensional materials				$132,578
47.049	Moduli Problems in Algebraic Geometry, their Structures and their Applications				$11,279
47.049	Moduli Spaces of Pseudoholomorphic Maps				$71,155
47.049	MREFC: US ATLAS HL-LHC Upgrade Project	Columbia University	42(GG016228-42)		$19,003
47.049	MRI: Development of Layered Quantum Materials Synthesis Facility				$205,814
47.049	MSIP: Innovation to Achieve the Full Science Reach of the BICEP Array Stage 3 CMB Polarization Experiment			$523,688	$2,061,565
47.049	Multivariate histograms and inference with finite sample guarantees				$26,131
47.049	Nanoscale Control over Surface Functionalization by Molecular Layer Deposition				$111,490
47.049	New Algorithms for Markov Decision Processes and Reinforcement Learning				$91,011
47.049	New Invariants of Knots and 3-Manifolds				$104,940
47.049	New Strategies for Electrocatalytic Reactions with Transition-Metal Hydrides				$276,329
47.049	New Techniques And Analyses For Random Sampling				$36,313
47.049	Novel, engineered bio-inks for 3D printing of complex, perfusable structures				$265,829
47.049	NSF-BSF: Investigation of Streaming Instabilities for tailoring the profile of high-energy laser-generated proton beams				$27,447
47.049	NSF-BSF: Theory of quantum materials				$80,260

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47.049	Opening the Gravitational-Wave Band below 30 Hz for LIGO and Cosmic Explorer	Massachusetts Institute of Technology	s5902, PO #829617		$21,426
47.049	Placing spins in semiconductors				$99,819
47.049	Polymer Physics Across Scales: Bridging Atomistic and Coarse-Grained Polymer Models				$53,731
47.049	Properties of approximate inference for complex high-dimensional models				$101,624
47.049	QLCI-CI: Enhanced Sensing and Distribution Using Quantum States Stanford sub-award	University of Colorado, Boulder	1559523 PO#1001397680		$361,142
47.049	QLCI-CI: Hybrid Quantum Architectures and Networks	University of Illinois at Urbana Champaign	100918-19124		$124,903
47.049	Quantum dynamics and spectroscopy of reactive species in heterogeneous environments				$46,739
47.049	Quantum Input-Output Modeling in the Ultra-Fast Domain: Theoretical Foundations and Experimental Validation				$246,954
47.049	Questions and Methods in Probabilistic Combinatorics				$76,104
47.049	QuIC-TAQS: Integrated Lithium Niobate Quantum Photonics Platform	Harvard University	124381- 5119997		$63,026
47.049	Randomized quasi-Monte Carlo sampling for scientific computing				$37,530
47.049	Research in Particle Theory, Cosmology, and Quantum Gravity				$1,097,959
47.049	Ricci Flows and Steady Ricci Solitons				$69,396
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		-$1
47.049	Robust Wasserstein Profile Inference				$5,562
47.049	Rubin Legacy Survey of Space and Time (LSST) Project	Association of Universities for Research in Astronomy	N51908C		$424,958
47.049	Stability in Geometric Variational Problems				$31,729
47.049	Stanford Program in Support of LIGO - Seismic Isolation and Controls				$611,095
47.049	STRONG SPIN-ORBIT COUPLING AND HIGH MOBILITY VIA COMPLEX OXIDE HETEROEPITAXY				$215,054
47.049	Student workshop in symplectic and contact geometry				$26,359
47.049	Superconductor-(Metal)-Insulator Transitions: Understanding the Emergence of Metallic States, A Continuation Proposal				$43,416
47.049	Supplement of Understanding Gravity at the Smallest Scale				$242,036
47.049	Symplectic, conformal symplectic, contact structures and foliations in interaction				$99,425
47.049	The Algebra of Flow Categories				$87,055
47.049	The Multi-Mission Maximum Likelihood framework (3ML): a tool to explore the high-energy Universe in the era of Multi Messenger Astrophysics				$91,770
47.049	The Structure of the Gromov-Witten Invariants				$60,706
47.049	The SuperCDMS SNOLAB Experiment - supplement request	University of California, Berkeley	00008790 PO# BB01304587		$119,047
47.049	Theoretical and Computational Modeling of Supercoiling, Topology, and Active Fluctuations in Chromosomal Organization and Dynamics				$152,147
47.049	Topics in Number Theory				$20,592
47.049	Towards understanding fine-scale microbial diversity				$151,804
47.049	Turbulent structure formation in the magnetic interstellar medium: a multi-tracer approach				$266,519
47.049	Two Higgs are Better than One: Investigating Electroweak Symmetry Breaking at the LHC and Beyond with Real-Time Charged Particle Reconstruction				$51,220
47.049	U.S. ATLAS Operations: Discovery and Measurement at the Energy Frontier	Stony Brook University, State University of New York	93443/1172884/2 M&O		$136,031
47.049	Ultrafast Strong-Field Control of Coherence and Entanglement in Atoms and Molecules				$449,524
47.049	Unraveling the principles of catalytic diversity in the carotenoid oxygenase superfamily	University of California, Irvine	Subaward 2021-1589		$15,999
47.049	Yang-Mills existence, KPZ universality, and related problems				$97,701
47.050	Belmont Forum Collaborative Research: Risk mapping and targeted snail control to support schistosomiasis elimination in Brazil and Cote d'Ivoire under future climate change				$22,568
47.050	CAREER: Crossing over into the geochemical milieu: Using the molecular genomic record to inform the geologic biomarker record				$81,016
47.050	CAREER: Cross-Instrument Synthesis of Antarctic Radar Sounding Observations				$81,769
47.050	CAREER: Microbial activity and chemoautotrophy in the deep sea: who, how, and how much?				$134,167
47.050	CAREER: Retention and Mobility of Beryllium in Soils and Sedimentary Environments				$36,732
47.050	CAREER: Tracking deep-time environmental change through statistical analyses of the sedimentary geochemical record				$163,137
47.050	CEDAR: Investigation of Atmospheric Neutral Density Dynamics Through Meteor Observations				$9,875
47.050	Center for Chemical Currencies of a Microbial Planet (C-CoMP)	Woods Hole Oceanographic Institution	A101552		$88,980
47.050	Characterization of Meteoroids and Meteors Through Simulations and Remote Sensing Using High-Power Large-Aperture Radars"				$346,535
47.050	Colaborative Research: Identifying and harnessing local refuges from oceanographic extremes for coastal marine species and fisheries. Title changed by NSF Program Director: Collaborative Research: Evaluating how abalone populations in the California Current are structured by the interplay of large-scale oceanographic forcing and nearshore variability				$2,631
47.050	Collaborative Research/EAGER: Toward Long-Distance Ocean and Seismic Sensing on Optical Telecommunications Infrastructure				$36,874
47.050	Collaborative Research: Aeronomy: A Simulation and Theoretical Analysis of Meteor Evolution over Scales Ranging from Sub-microseconds to Minutes				$56,060
47.050	Collaborative Research: Changes in hyporheic exchange and nitrous oxide generation due to streambed alteration by macro-roughness elements				$46,553
47.050	Collaborative Research: From rock to regolith to rivers: weathering, grain size, and controls on soil production and fluvial incision				$59,185
47.050	Collaborative Research: From Silicate Melts Properties to the Dynamics and Evolution of an Early Basal Magma Ocean				$4,520
47.050	Collaborative Research: GP-IN: Connected to Earth: Cross-Cultural Knowledge Exchange for Advancing Earth Science Learning				$15,861

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47.050	Collaborative Research: How are Rhyolites Generated? Evaluating Models for the Volcanic-plutonic Connection in the Searchlight Magmatic System, Nevada				$14,094
47.050	Collaborative Research: Hydrologic Disturbance in Tropical Peatlands: Linking Drainage, Soil Moisture, Flammability, and Carbon Fluxes				$60,219
47.050	Collaborative Research: Imaging the Beginning of Time from the South Pole: Completing the BICEP Array Survey				$74,772
47.050	Collaborative Research: Imaging the Beginning of Time from the South Pole: The next Stage of the BICEP Program				$179,013
47.050	Collaborative Research: Improved observation and parameterization of bottom boundary layer turbulence and particle properties for sediment fate and transport modeling			$11,739	$15,915
47.050	Collaborative Research: Investigating Magmatic Differentiation in a Fossil Upper-Crustal Silicic Magma System: Stillwater Range, NV				$47,222
47.050	Collaborative Research: Kelp forest hydrodynamics: observations of drag and cross-shore exchange on the inner shelf				$247,226
47.050	Collaborative Research: Late Cretaceous - early Cenozoic paleolatitude of the Walvis Ridge hotspot: Implications for true polar wander and hotspot geodynamics "				$9,016
47.050	Collaborative Research: Management and implementation of the US GEOTRACES Pacific Meridional Transect				-$3,000
47.050	Collaborative Research: Predicting the global location of heat tolerant corals: Palau patch reefs as a general model			$9,207	$60,876
47.050	Collaborative Research: Quantifying N2 fixation rates of non-cyanobacterial diazotrophs and environmental controls on their activity				$153,471
47.050	Collaborative Research: Quantifying nitrous oxide sources across an oxygen gradient in the northern Benguela upwelling system				$203,708
47.050	Collaborative Research: Testing the reduction of aerobic habitat as a common kill mechanism for major mass extinction events				$65,286
47.050	Collaborative Research: US GEOTRACES GP17-OCE: Mapping nitrous oxide sources and sinks through isotopic measurements in the Pacific Ocean				$102,156
47.050	Collaborative Research: US GEOTRACES PMT: Investigating geochemical tracers of the Pacific nitrogen cycle and budget				$68,120
47.050	Computational modeling of volcanic eruptions and their seismic and infrasound radiation				$48,863
47.050	Computational simulations of volcanic eruptions and infrasound				$12,794
47.050	CoPe RCN: New technology to inform Coastal Science and Management	University of California, Santa Barbara	KK2268		$7,542
47.050	CubeSat Ideas Lab: Collaborative Research: Space Weather Atmospheric Reconfigurable Multiscale Experiment (SWARM-EX) CubeSats				$4,564
47.050	CubeSat Ideas Lab: Collaborative Research: VIrtual Super-resolution Optics with Reconfigurable Swarms (VISORS)				$36,416
47.050	Development and Validation of an In-Situ Particle Tracking Velocimetry System for Ocean Turbulence Measurement				$207,407
47.050	DISES: Pathways and constraints to adaptation on coastal social-environmental systems			$155,618	$468,895
47.050	Earthquake Sequence Simulations with Thermomechanical Coupling and Fault-Zone Fluid Transport				$165,136
47.050	FUSE: Food-water-energy for Urban Sustainable Environments				$3,443
47.050	Geophysics of Iron in the Earth's Core				$107,470
47.050	GP-IMPACT Collaborative: A-STEP: Ambassadors for STEM Training to Enhance Participation.				$454
47.050	Insights into Episodic Caldera Collapse and Magmatic Systems from the 2018 Eruption of Klauea Volcano				$61,126
47.050	INSIGT: Investigating Shear-margin Interactions with Grounding-line Transitions				$9,095
47.050	Investigating the Large-Scale Solar Magnetic Field During the Transition to Solar Cycle 25				$52,856
47.050	IODP Expedition 399 (Building Blocks of Life, Atlantis Massif)) aboard the JOIDES Resolution	Columbia University	102F(GG009393-04)/SAPO G17632		$17,541
47.050	Large-scale CoPe: Reducing Climate Risks with Equitable Nature-based Solutions: Engaging Communities on Reef-Lined Coasts	University of South Florida	2104-1376-00-C	$34,168	$163,259
47.050	Moving from correlation to mechanism: testing the role of temperature and oxygen change in the Great Ordovician Biodiversification Event				$51,052
47.050	NSFGEO-NERC: Collaborative Research: Energy transfer between submesoscale vortices and resonantly-forced inertial motions in the northern Gulf of Mexico				$45,515
47.050	NSF-NERC: Thwaites Interdisciplinary Margin Evolution (TIME): The Role of Shear Margin Dynamics in the Future Evolution of the Thwaites Drainage Basin	University of California, Santa Cruz	A18-0296-S004-P0668401		$107,807
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		$65,738
47.050	OCE-PRF Beyond the light: ecological and evolutionary insights into RuBisCO from the dark ocean				$129,696
47.050	OCE-PRF: Lighting up the ocean: resonant nanophotonic metasurfaces for autonomous in situ measurement of aquatic phycotoxins				$22,585
47.050	Paleolatitude of basal sediments along the Walvis Ridge and implications for hotspot fixity and true polar wander	Columbia University	102E(GG009393-04)/SAPO G14700		$17,998
47.050	Participation of Sonia M. Tikoo-Schantz on IODP Expedition 391	Columbia University	102D(GG009393-04)/POSAPOG14700		$37,006
47.050	Physical and Mechanical Response of the Cementation of Aluminosilicate Seals				$92,136
47.050	Prediction of solar eruptions with machine-learning algorithms combining physical models and observations			$90,626	$135,586
47.050	RCN: Community-based educational infrastructure for numerical simulation in the Earth Sciences: a reactive transport use case	Colorado School of Mines	401654-5801		$21,851
47.050	REU Site: Stanford SURGE- Sustainability Undergraduate Research in Geoscience and Engineering				$97,648
47.050	SCEC5 Research Collaboration at Stanford University	University of Southern California	91270823 / PO 10617840		$85,786
47.050	Scientific Findings across Multiple Environments: Replication, Robustness, and Equity in Genetic Association Studies				$49,416
47.050	Seafloor Fiber Optic Array in Monterey Bay (SEAFOAM)			$368,726	$406,375
47.050	Towards a process-based understanding of different eruptive regimes at persistently degassing volcanoes				$98,628
47.050	Transdisciplinary Training Collaboratory: Building Common Ground			$63,689	$302,498
47.050	Wavy turbulent flow over a coral reef: vertical structure and fluxes				$87,885
47.070	AF: Medium: Algorithmic Market Design				$11,948
47.070	AF: Medium: Collaborative Research: Exploiting Opportunities in Pseudorandomness				$77,441

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47.070	AF: Small: Building a rich and rigorous theory of decision tree learning				$120,213
47.070	AF: Small: Matching in Dynamic Environments				$114,767
47.070	AF: Small: Robust and Secure Learning				$167,433
47.070	AF:Medium:Collaborative Research:The Quest for Statistically Optimal Algorithms				$78,985
47.070	AF:SMALL:Geometry of Polynomials and Algorithm Design				$89
47.070	BIGDATA: F: Computationally efficient algorithms for large scale crossed random effects models				$185,891
47.070	CAREER: A Unified Compiler for Sparse Array Operations and Relational Algebra				$153,470
47.070	CAREER: Accelerating Machine Learning with Low Dimensional Structure				$43,700
47.070	CAREER: Advancing Accessible Making for People with Visual Impairments via Tactile Shape Displays				$77,731
47.070	CAREER: Discrete Convexity in Algorithm Design				$134,494
47.070	CAREER: Extracting principles of neural computation from large scale neural recordings through neural network theory and high dimensional statistics				$109,998
47.070	CAREER: Frontiers of Unconditional Derandomization				$22,570
47.070	CAREER: High Integrity Navigation for Autonomous Vehicles				$106,363
47.070	CAREER: Machine Learning with Behavioral and Social Data				$149,962
47.070	CAREER: Modeling and Inference for Large Scale Spatio-Temporal Data				$254,689
47.070	CAREER: New Fundamentals in Coding Theory				$112,356
47.070	CAREER: Optimal Estimators Using Sum-of-Squares Proof Systems				$133,486
47.070	CAREER: Safe and Influencing Interactions for Human-Robot Systems				$18,185
47.070	CAREER: Scalable Assurance via Verifiable Hardware-Software Contracts				$88,366
47.070	CAREER: Scarlet: Learned Protocols and Functional Architectures for Low-Latency Internet Video				$145,130
47.070	CAREER: Socially-Aware Language Technologies To Support People in Supporting Others for Better Online Communities				$3,197
47.070	CAREER: Theory of Fast Graph Optimization				$71,334
47.070	CAREER: Toward a Comprehensive Generalization Theory for Deep Learning				$191,779
47.070	CAREER: Understanding visual learning with self-supervised neural network models				$91,696
47.070	CCRI: ENS: Activity-Centric Interactive Environments for Embodied AI				$778,957
47.070	CCRI: Research Infrastructure: Planning-M: Multi-Modal Infrastructure for Enabling Social AI Research				$16,432
47.070	CHS: Medium: Collaborative Research: Charting a Research Agenda in Artificial Intelligence - Mediated Communication				$14,462
47.070	CHS: SMALL: Blending the Virtual & the Physical: Understanding and Designing Crowd-Based Open Innovation Systems for Physical Products				$3,392
47.070	CHS: Small: Learning and Leveraging Conventions in Human-Robot Interaction				$13,128
47.070	CIF: Small: Collaborative Research: Generative Adversarial Networks: From Art to Science				$56,143
47.070	CIF: Small: Foundations of Decentralized Data Science: Optimizing Utility, Privacy and Communication Efficiency				$293,043
47.070	CIF: Small: Learning and estimation with rough non-convex objectives: Fundamental limits and efficient algorithms				$180,856
47.070	CIFellow 2020: Incorporating User Experiences to Improve Automated Detection of Toxic Content Online	Computing Research Association	CIF2020-SU-28		$129,485
47.070	CNS Core: Large: Autonomy and Privacy with Open Federated Virtual Assistants				$332,269
47.070	CNS Core: Small: Online learning of cross-layer systems for robust and high-performance Internet video transmission				-$1,343
47.070	Collaborative Research: AF: Medium: Continuous Concrete Complexity				$233,069
47.070	Collaborative Research: AF: Medium: Foundations of Structured Optimization				$101,009
47.070	Collaborative Research: AF: Medium: Modern Combinatorial Optimization: Incentives, Uncertainty, and Smoothed Analysis				$185,280
47.070	Collaborative Research: AF: Small: Hardware-Aware Matrix Computations for Deep Learning Applications				$59,783
47.070	Collaborative Research: CCRI: Grand: Virtual Experience Research Accelerator (VERA)				$31,242
47.070	Collaborative Research: CIF: Medium: An Information-Theoretic Foundation for Adaptive Bidding in First-Price Auctions				$213,540
47.070	Collaborative Research: CIF: Medium: MoDL: Toward a Mathematical Foundation of Deep Reinforcement Learning				$90,235
47.070	Collaborative Research: CNS Core: Medium: A Stateful Switch Architecture for In-Network Compute				$17,713
47.070	Collaborative Research: CNS Core: Small: Algorithms and Models for Asking Questions of Modern Network Traffic.				$37,940
47.070	Collaborative Research: CPS: Medium: Closing the Teleoperation Gap: Integrating Scene and Network Understanding for Dexterous Control of Remote Robots				$199,201
47.070	Collaborative Research: CPS: Small: Risk-Aware Planning and Control for Safety-Critical Human-CPS				$3,405
47.070	Collaborative Research: Differentiable and Expressive Simulators for Designing AI-enabled Robots				$77,745
47.070	Collaborative Research: FMitF: Track I: End-user Programming for CAD Systems via Language Design and Synthesis				$130,216
47.070	Collaborative Research: Framework: Improving the understanding and representation of atmospheric gravity waves using high-resolution observations and machine learning				$202,956
47.070	Collaborative Research: Framework: Software: CINES: A Scalable Cyberinfrastructure for Sustained Innovation in Network Engineering and Science				$152,471
47.070	Collaborative Research: HCC: Medium: Big Data on the Dairy Farm: Relational Transformations across Agricultural Occupations and Organizations with the Rise of Digital Technologies				$36,494
47.070	Collaborative Research: HCC: Small: Computational Design and Application of Wearable Haptic Knits				$51,949
47.070	Collaborative Research: Learning by Touch: Preparing Blind Students to Participate in the Data Science Revolution				$142,141
47.070	Collaborative Research: Multifidelity Uncertainty Quantification Through Model Ensembles and Repositories				$120,641
47.070	Collaborative Research: NRI: Robot-Assisted Feeding: Towards Efficient, Safe, and Personalized Caregiving Robots				$19,170
47.070	Collaborative Research: PPoSS: LARGE: A Full-Stack Architecture for Sparse Computation				$260,760
47.070	Collaborative Research: RI: Medium: Learning Compositional Implicit Representations for 3D Scene Understanding				$13,070

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47.070	Collaborative Research: RI: Medium: MoDL: Mathematical and Conceptual Understanding of Large Language Models				$123,239
47.070	Collaborative Research: RINGS: Collaborative Inference and Learning Between Edge Swarms and the Cloud	University of Texas at Austin	UTAUS-SUB00000487		$65,381
47.070	Collaborative Research: SaTC: Core: Large: Building Rapid-Response Frameworks to Support Multi-Stakeholder Collaborations for Mitigating Online Disinformation				$73,274
47.070	Collaborative Research: SaTC: CORE: Medium: Systematic Detection Of and Defenses Against Next-Generation Microarchitectural Attacks				$69,357
47.070	Collaborative Research: SCH: Fair Federated Representation Learning for Breast Cancer Risk Scoring				$6,694
47.070	Collaborative Research: SHF: Small: Leveraging Satisfiability Modulo Theories for Design Synthesis and Optimization of Emerging Computing Technologies				$44,149
47.070	Collaborative Research: Visual Tactile Neural Fields for Active Digital Twin Generation				$36,038
47.070	Computer and Information Science and Engineering Graduate Fellowships (CSGrad4US) (Krista Opsahl-Ong)				$46,000
47.070	Computing Innovation Fellows 2020 Project	Computing Research Association	CIF2020-SU-03		$97,645
47.070	Computing Innovation Fellows 2021 Project	Computing Research Association	2021CIF-Stanford-48		$126,664
47.070	Computing Innovation Fellows 2021 Project: Combating the Spread of Disinformation on Encrypted Messaging Apps	Computing Research Association	2021CIF-Stanford-16		$145,663
47.070	CPS: Medium: Collaborative Research: Building Information, Inhabitant, Interaction and Intelligent Integrated Modeling (BI5M)				$55,972
47.070	CPS: Medium: Sufficient Statistics for Learning Multi-Agent Interactions				$134,924
47.070	CPS: Small: Collaborative Research: Information Design and Price Mechanisms in Platforms for Cyber¿Physical Systems with Learning Agents				$25,525
47.070	CPS: Small: Collaborative Research: Models and System-Level Coordination Algorithms for Power-in-the-Loop Autonomous Mobility-on-Demand Systems				$62,069
47.070	CRII: RI: Active Learning of Preferences for Human-Aware Autonomy				$23,348
47.070	Doctoral Consortium at the 2020 International Symposium on Experimental Robotics (ISER 2020)				$7,000
47.070	EAGER: Dryad BRIDGE: Building Repository Interconnections with Dryad Guidance and Extensions	Metadata Game Changers	SPO #228508		$8,621
47.070	Elements: AMR-H: Adaptive multi-resolution high-order solver for multiphase compressible flows on heterogeneous platforms				$246,846
47.070	Enabling data accountability and governance in machine learning.				$166,009
47.070	Expeditions: Coherent Ising Machines for Optimization, Machine Learning and Neuromorphic Computing			$787,353	$1,829,229
47.070	Expeditions: Collaborative Research: Global Pervasive Computational Epidemiology				$169,366
47.070	Expeditions: Collaborative Research: Understanding the World Through Code				$183,268
47.070	Expeditions: Mind in Vitro - Computing with Living Neurons	University of Illinois at Urbana Champaign	108555-18953		$102,774
47.070	FMitF: Collaborative Research: Track I: Finding and Eliminating Bugs in Operating Systems				$2,936
47.070	FMitF: Track II: Scaling Formal Hardware Security Verification with CheckMate from Research to Practice				$24,047
47.070	III: Small: A System for Rapid Audiovisual Analysis of Large-Scale Video Collections				-$1,818
47.070	III: Small: Learning From Diverse Populations: A Complexity-Theoretic Perspective				$226,549
47.070	NSF Student Travel Grant for 2022 Theoretical Computer Science (TCS) Women Meeting at Symposium on Theory of Computing (STOC)				$4,841
47.070	NSF-BSF: AF: Small: Advancing Coding Theory Through the Lens of Pseudorandomness				$37,241
47.070	NSF-BSF: AF: Small: Algorithmic Game Theory: Equilibria and Beyond				$300,665
47.070	NSF-BSF: AF: Small: Algorithms for Graph-Based Codes				$157,941
47.070	NSF-BSF: AF: Small: Mechanisms for Auctions and Markets - The Interplay of Incentives and Optimization				$133,790
47.070	NSF-BSF: SHF: Small: Certifiable verification of large neural networks				$21,536
47.070	NSF-BSF: SHF: Small: Efficient, Automatic, and Trustworthy Smart Contract Verification				$157,192
47.070	NSF-BSF: SHF: Small: Neural Network Verification: Abstraction, Compositional Verification and Standardization				$153,421
47.070	OAC Core: Small: Enabling High-fidelity Turbulent Reacting Flows Simulations through Advanced Algorithms and High-order Methods for Extreme-scale Computing				$95,375
47.070	Planning for the Leadership-Class Computing Facility	University of Texas at Austin	UTA20-001116		$2,283
47.070	RI: Medium: Collaborative Research: Object-Centric Inference of Actionable Information from Visual Data				$3,967
47.070	RI: Small: New tools for studying structural and inductive bias in NLP models				$100,167
47.070	RI: Small: Robustness and Confidence in Machine-Learned Systems				$57,088
47.070	RI: Small: Using and Gathering Data for Efficient Batch Reinforcement Learning				$233,403
47.070	RTML: Large: Collaborative: Harmonizing Predictive Algorithms and Mixed-Signal/Precision Circuits via Computation-Data Access Exchange and Adaptive Dataflows				$2,764
47.070	RTML: Large: Continuous Adaptation for Decision Streams				$87,406
47.070	S2I2: Institute for Research and Innovation in Software for High Energy Physics (IRIS-HEP)	Princeton University	SUB0000280		$187,364
47.070	SaTC: CORE: Frontier: Collaborative: End-to-end Trustworthiness of Machine-Learning Systems				$342,814
47.070	SCH:INT: A gamified mobile system for real-time mental health data modeling and personalized autism care across sociocultural settings				$372,030
47.070	SI2-SSI Collaborative Research: The SimCardio open source multi-physics cardiac modeling package				$25,175
47.070	SII-Center: SpectrumX - An NSF Spectrum Innovation Center	University of Notre Dame	204303SU		$21,492
47.070	Spokes: MEDIUM: WEST: Breaking down barriers for reproducible neuroimaging data analyses				-$55
47.070	The Stanford Data Science Collaboratory				$26,520
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			$57,860	$500,045
47.074	An experimental facility to test the impacts of multiple physical stressors on physiology, ecology and genomics of marine species				$12,429

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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47.074	BIO: Determining the molecular mechanisms underlying the size-scaling of biosynthesis				$195,607
47.074	BIORETS: INterSPecies Interactions Research Experience (INSPIRE)				$71,705
47.074	BIOROBOOST travel support for US-based researchers to workshops to develop standards in synthetic biology				$83,005
47.074	BoCP-Implementation: Eco-evolutionary dynamics of rewilding: Real-time genetic monitoring of large-mammal community reassembly	Princeton University	SUB0000642		$264,064
47.074	CAREER: Dissecting the Mechanism of Replication Initiation in Vertebrates via Single Molecule Imaging				$104,438
47.074	CAREER: Elucidating Large-Scale Spatial Patterns of Ecosystem Traits with Data Assimilation				$32,186
47.074	CAREER: From Ecology to Neurobiology: spatial cognition in rainforest frogs				$291,521
47.074	CAREER: Investigating Chromatin Dynamics Underlying Activity-Induced Neuronal Transcription Using CRISPR Technologies				$96,220
47.074	CAREER: When do mycorrhizal fungi influence plant community dynamics?				$303,497
47.074	Center for Cellular Construction	University of California, San Francisco	9907sc		$547,097
47.074	Collaborative Proposal: MRA: Macroecology of microorganisms: Scaling fungal biodiversity from soil cores to the North American continent				$328
47.074	Collaborative Research: Biomechanical mechanisms conferring wound resilience in single-celled organisms				$135,150
47.074	Collaborative Research: Climate effects on Mn oxidation states in soils and Mn/SOM interactions				$126,120
47.074	Collaborative research: defining the scope and consequences of ectomycorrhizal fungal control on forest organic matter decomposition				$8,664
47.074	Collaborative Research: Do defenses against herbivores and pathogens drive the commonness and rarity of tropical trees at local and regional scales?				$171,817
47.074	Collaborative Research: From Molecules to Communities: How Levels of Selection Integrate to Tame Selfish Elements				$291,933
47.074	Collaborative Research: Structural and functional connectivity of squid chromatophores				$173,684
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				$144,643
47.074	Connecting cell fate and epigenome drift through physical models of chromatin structure and dynamics	University of California, Irvine	2020-1358		$375,260
47.074	Cytokinesis without an actomyosin ring: studies in Chlamydomonas				$35,310
47.074	Determining the function of sterol lipids in the bacterial domain				$129,118
47.074	Dimensions: Collaborative Research: Assembly and function of nectar microbial communities				$156,190
47.074	EDGE CT: Developing transgenic and lineage tracing tools in planarians			$87,051	$155,811
47.074	EDGE: Developing techniques for linking genotype to phenotype in amphibians				$39,668
47.074	FMRG: Genetically-targeted chemical assembly (GTCA) of functional structures in living cells, tissues, and animals				$845,341
47.074	Hemichordate neural organization: generating neural system diversity from conserved molecular patterning				$19,116
47.074	How land use change transforms the landscape of vector-borne disease			$139,465	$205,144
47.074	Impact of Matrix Viscoelasticity on Induced Pluripotent Stem Cell Morphogenesis				$427,733
47.074	Integrated Circuit Cracking (ICC) with Linked Tools for Diverse Systems			$46,489	$781,220
47.074	Leveraging Microfluidics for High-Throughput in Vitro Investigations of Transcriptional Regulation				$192,794
47.074	MIM: Systematic Dissection of Complex Synthetic Gut Bacterial Communities			$114,337	$1,113,423
47.074	Molecular mechanisms that boost systemic immunity in plants				$278,596
47.074	MTM 1: The sandy beach microbiome: physical, chemical and biological controls on diversity and function				$132,664
47.074	NeuroNex: Enabling Identification and Impact of Synaptic Weight in Functional Networks	University of Texas at Austin	UTA20-000889		$184,658
47.074	NSF2026: EAGER: Material morphogenesis using biohybrid vesicles as building blocks				$26,880
47.074	NSF-BSF: Natural selection on the social interactions that mediate collective behavior: ecological pressures and genomic architecture				$133,941
47.074	Organization and Dynamics in Photosynthetic Reaction Centers and Model Membrane Architectures				$169,979
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			$3,125	$5,393
47.074	RCN-UBE Incubator: Diversifying and Integrating Marine Education at Stations along a a latitudinal gradient			$2,336	-$4,059
47.074	RoL: Regulation of cell envelope homeostasis in the alpha-proteobacterium Sinorhizobium meliloti				$507,041
47.074	Scaling from cell physiology to community stability in a natural gut microbiome	Carnegie Institution of Washington aka Carnegie Institution for Science	05-10995-02		$21,792
47.074	THE ROLE OF NON-CODING RNA IN THE MODULATION OF ANTHER & POLLEN DEVELOPMENT IN GRASSES	Donald Danforth Plant Science Center	23908-S		$109,153
47.074	Unraveling biofilm matrix composition, architecture, and function				$281,285
47.074	Using sedaDNA from California Holocene and Anthropocene lake sediments to determine drivers of the "Insect Apocalypse"				$152,023
47.075	Affective Virality on Social Media: The Role of Culture and Ideal Affect				$79,134
47.075	ANES WEB: American National Election Studies 2018-2021 Supplement			$245,000	$560,469
47.075	Asylum Seeker and Refugee Integration in Europe				$99,565
47.075	Auction Design for Complex Centralized Markets				$29,728
47.075	CAREER: Computational work design: How algorithms and crowdsourcing are changing organizational design and worker experience				$149,864
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		$69,962
47.075	CAREER: Family Behavior, Health, and Government Policy: Research and Training	National Bureau of Economic Research	36409.00.00.00.7700		$6,176
47.075	CAREER: Frictional Financial Markets, Crises and Policies	National Bureau of Economic Research	36422.00.00.00.7700		$13,216
47.075	CAREER: Macroeconomic Implications of Microeconomic Heterogeneity	National Bureau of Economic Research	36398.00.00.00.7700		$44,007

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

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	CAREER: Understanding the Drivers and Consequences of Personal Adaptation Behavior to Environmental Extremes				$68,322
47.075	Central Banks in Uncharted Waters: Navigating a World with Large Reserves				$170,784
47.075	CHN2-S: Measuring adaptive responses that strengthen governance of marine resourses along the Baja California Peninsula	Duke University	333-2698		$7,871
47.075	Collaborative Research: DASS: Developer Implementation of Privacy in Software Systems				$96,554
47.075	Collaborative Research: Deliberation online: how online foci shape conversation in a polarized era				$8,628
47.075	COLLABORATIVE RESEARCH: HIGH-PERFORMANCE COMPUTATIONAL STANDARDS FOR REDISTRICTING				$23,550
47.075	Collaborative Research: Linguistic Production, Perception, and Identity in the Career Mobility of Black Faculty in Linguistics and the Language Sciences				$55,465
47.075	Collaborative Research: NCS-FR: Beyond the ventral stream: Reverse engineering the neurocomputational basis of physical scene understanding in the primate brain				$293,191
47.075	Collaborative Research: Origins of Serial Sovereign Default				$57,064
47.075	Collaborative Research: SOS-DCI / HNDS-R: Advancing Semantic Network Analysis to Better Understand How Evaluative Exchanges Shape Scientific Arguments				$29,981
47.075	Covid-19: Collaborative Research: The Intergenerational Effects of COVID-19				$4,850
47.075	Collaborative research: Time transect of ancient genomes of Indigenous North Americans				$17,587
47.075	Collaborative Research: Time-Sharing Experiments for the Social Sciences (TESS): Proposal for Renewed Support, 2020-2023				$50,574
47.075	Collaborative Research: Transparency and Misspecification in Structural Estimation				$35,611
47.075	Computer-intensive inference with applications to social sciences				$15,362
47.075	Consumer Innovation Survey Development			$107,660	$193,765
47.075	Cross-cultural trust and resource sharing; The Role of Ideal Affect				$3,900
47.075	Developing an Ethics and Society Review for Research				$83,602
47.075	DMUU: Climate and Energy Decision Making	Carnegie Mellon University	1122280-421711		$3,395
47.075	Doctoral Dissertation Research: "Conflicts of Coexistence: Social Protest, Consensus, and Multicultural Democracy in Peru"				$7,752
47.075	Doctoral Dissertation Research: Anexando Masculinidades?: An Ethnography of Drug Rehabilitation Centers along the US-Mexico Borderlands - Zaith Lopez				$23,832
47.075	Doctoral Dissertation Research: Evidentiary Practices for Establishing Psychological Trauma in Asylum Claims				-$2
47.075	Doctoral Dissertation Research: Experiences of Youth at the Intersection of the Child Welfare and Juvenile Justice Systems.				$12,159
47.075	Doctoral Dissertation Research: Plurality and Managed Integration Strategies in Urban Contexts				$1,490
47.075	Emotion as information: Young children's use of others' emotional expressions to guide their inference and exploration				$77,416
47.075	GDP-B: A New Well-being Metric in the Era of the Digital Economy				$57,390
47.075	Genealogical ancestors, admixture, and population history				$89,465
47.075	Identifying the Optimal Methods for Controlling Contamination Bias in Prospective Research on Child Maltreatment	Pennsylvania State University	S002840-NSF		$129,009
47.075	Immigration Law as Development Policy: Mexican Guestworkers and the H-2A Visa Program				$148,895
47.075	Influencing Conflict-Related Emotional Dynamics			$90,103	$90,103
47.075	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		$23,012
47.075	Intracranial EEG and Direct Cortical Stimulation Study of Stimulus-Driven and Cognitively-Modulated Emotional Processing in the Human Brain				$34,163
47.075	Learning systems that enable healthcare workers to perfect safety-critical hospital work				$445,350
47.075	Mental Conditioning and Health: A Cultural and Neurophysiological Study				$20,893
47.075	NSF CAREER: The Effects of Public Policy on Families with Children: New Evidence from Multiple Large-Scale Data Sets				$103,275
47.075	NSF CAREER: Within City, Across Seasons or Across Borders: The Economics of Labor Movements				$84,430
47.075	RAPID: Coupled Contagion, Behavior-Change, and the Dynamics of Pro- and Anti-Social Behavior During the COVID-19 Pandemic				$35,556
47.075	REU Site: Language, Cognition and Computation				$116,413
47.075	REU Site: Talking College: Increasing African-American English Speakers in the Linguistic Sciences through Research on Language and Social Mobility				$75,205
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				-$905
47.075	SBE-UKRI: Understanding imprecise space and time in narratives through qualitative representations, reasoning, and visualisation				$62,298
47.075	SCISIPBIO: Can consultation create a fairer scientific peer-review process?				$306,497
47.075	Social Response to Environmental Variation				$18,905
47.075	Stanford Institute for Theoretical Economics Summer Workshop				$118,712
47.075	Strategic Information Disclosure				$57,387
47.075	The 2024 American National Election Studies	University of Michigan	SUBK00016711/PO3007222037		$311,504
47.075	The Cultural Life of Communism in Kerala				$3,540
47.075	Theoretical and Empirical Investigations of the Dynamics of Homophily and its Impact on Students' Achievement, Decisions, and Well-Being				$87,715
47.075	When Rebels Lose Trust: The Divergent Effects of Conflict on Ethnic Voting in Myanmar				$34,675
47.076	AI Institute for Transforming Education for Children with Speech and Language Processing Challenges	State University of New York at Buffalo	R1340096		$62,430
47.076	Building STEM Skills by Integrating Data Literacy and Text Analytics in English Language Arts				$87,637
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				$228,757
47.076	Collaborative Research: AGEP TRANSFORMATION ALLIANCE: RESEARCH EXCHANGE				$33,302
47.076	Collaborative Research: NSF INCLUDES Alliance: STEM Core Expansion	Saddleback College	SC-SUB-G1300		$116,292
47.076	Collaborative Research: Scaling the Early Research Scholars Program				$84,973
47.076	Collaborative Research: Supporting Rural Paraprofessional Educators and their Students with Computer Science Professional Learning and Expansively Framed Curriculum				$57,563

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

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
47.076	Effects of Combined Attention and Academic Interventions for Kindergarten Children with Significant Difficulties in Mathematics	Vanderbilt University	OSA00000037 / PO #: P23004624		$7,448
47.076	Facilitating Teacher Learning with Video Clips of Instruction in Science	Florida State University	R000002770		$16,788
47.076	Facilitating Teacher Learning with Video Clips of Instruction in Science	Rand Corporation	SCON-00000573		$33,147
47.076	GRFP: Graduate Research Fellowship Project				$20,024,699
47.076	NCS-FO: Integrated neurocognitive process models of individual differences in children's math problem solving strategies, learning and development			$32,014	$132,198
47.076	NRT: NeuroTech - Bringing Technology to Neuroscience				$379,133
47.076	Partnerships to support improvement in middle school mathematics	University of California, Riverside	S-001181		$5,830
47.076	Promoting Math in Young Children: Leveraging pediatric clinics to reach underrepresented children in rural communities			$130,892	$381,224
47.076	RCN-UBE: San Francisco Bay Research Coordination Network for Student Opportunities in Avian Research to enhance STEM education and assess human impacts on avian biodiversity			$18,700	$35,988
47.078	CAREER: Taking process-based models to the field to understand the possibility and implication of an internal shear band forming in ice flowing over rough topography				$68,053
47.078	Collaborative Research: Investigating four decades of Ross Ice Shelf subsurface change with historical and modern radar sounding data				$33,052
47.078	Collaborative Research: Understanding the massive phytoplankton blooms over the Australian-Antarctic Ridge				$73,343
47.078	Doctoral Dissertation Research: Determining the functional relationship between simultaneous co-limitating light and nutrient conditions on phytoplankton growth				$18,063
47.078	Doctoral Dissertation Research: Dissolved organic nitrogen uptake by harmful algal blooms in the Chukchi Sea				$13,554
47.078	EAGER: Community-Driven Ice Penetrating Radar Systems for Observing Complex Ice-Sheet Thermal Structure and Flow				$31,047
47.078	Priorities for future US-led physical oceanography fieldwork in the sub-polar Southern Ocean				$5,001
47.078	The Tale of Three Systems: Fate of Primary Production in the Chukchi Sea				$387,128
47.079	IRES Track I: US-CERN Summer Program on ATLAS Experiment of LHC at CERN for the California State University System	California State University, Fresno Foundation	SC360452-19-01 / PO #57699		$7,559
47.083	A multi-scale open knowledge network for precision medicine	University of California, San Francisco	12431sc		$399
47.083	Center for Dark Energy Biosphere Investigations (C-DEBI)	University of Southern California	66468074/PO# 10392717		$2,206
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				-$577
47.083	GCR: Collaborative Research: The Convergent Impact of Marine Viruses,Minerals, and Microscale Physics on Phytoplankton Carbon Sequestration				$1,221
47.083	NSF Convergence Accelerator - Track C: Quantum Networks to Connect Quantum Technology (QuanNeCQT)	University of Maryland	111309-Z3811202		$12,233
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		$28,331
47.084	A National Network for Critical Technology Assessment: A First-Year Pilot	Carnegie Mellon University	1123649-463108		$94,551
47.084	FuSe-TG: The Future of Semiconductor Technologies for Computing through Device-Architecture-Application Co-Design				$2,255
47.084	Green manufacturing of recyclable high-performance composites				$43,127
47.084	I-Corps: Sustainable Biostimulants and Fertilizers				$9,420
47.084	NSF Convergence Accelerator Track E: Digital Reefs: A Globally Coordinated, Universally Accessible Digital Twin Network for the Coral Reef Blue Economy	Woods Hole Oceanographic Institution	A101603 / 83073400		$83,131
47.084	NSF Convergence Accelerator Track H: Appropriate Rehabilitation Technology via Passive Tactile Stimulation				$403,460
47.084	Soof Solutions: Giving voice to the speechless				$50,000
47.RD	Does Equalizing School Funding Lead to More Equal Outcomes?	American Educational Research Association	256959		$27,500
47.RD	Early Childhood Opportunity, PreK to Grade 3	American Educational Research Association	256661		$27,500
Social Security Administration					**$2,232**
96.007	NB21-15: Paid Family Leave and Family Health Shocks	National Bureau of Economic Research	51460.03:NB21-15-Stanford		$2,232
United States Environmental Protection Agency					**$365,509**
66.034	Energy Modeling Forum Research Program on Energy and Integrated Assessment Modeling				$132,537
66.509	Advancing Sanitation Justice				$34,621
66.509	Evaluating the Effectiveness of Reducing Wildfire Smoke Exposure and Health Risks in Low-Income Hard-to-Reach Communities in California			$46,102	$147,372
66.516	Electro-Assisted Wastewater Nutrient Recovery				$50,979

The accompanying notes are an integral part of this schedule of expenditures of federal awards

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

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					**$4,611,115**
Department of Education					**$1,521,733**
84.015A	National Resource Centers (NRC) Program				$884,364
84.015B	Foreign Language and Area Studies Fellowship (FLAS) Program				$637,369
Department of Health and Human Services					**$2,410,967**
93.084	Prevention Policy Modeling Lab			$964,937	$1,816,776
93.421	Covid-19: Policy Modeling and Forecasting for Public Health Decision Making (2022)	Council of State and Territorial Epidemiologists	PO# 7723	$232,976	$304,238
93.U01	Constructing Support for California Tribe Efforts on Suicide Prevention			$84,243	$289,953
Department of State					**$286,507**
19.703	ALEP Extension--Graduate Diploma Program			$242,509	$286,507
Institute of Museum and Library Services					**-$9,389**
45.301	Stanford University Archaeology Collections Inventory Project (Conservation)				-$9,389
Library of Congress					**$104,225**
42.010	Teaching with Primary Sources (2021)				$104,225
National Archives & Records Administration					**$119,134**
89.003	Martin Luther King, Jr., Papers Project				$119,134
National Endowment for the Humanities					**$177,938**
45.161	The Papers of Civil Rights Leader Martin Luther King, Jr. (1929-1968)				$173,464
45.169	Transnational Japanese Diaspora: Preserving the Brazilian Nikkei Literary and Cultural Heritage				$4,474

The accompanying notes are an integral part of this schedule of expenditures of federal awards

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

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					**$66,845,929**
Department of Education					**$11,410,035**
84.007	SEOG: Federal Supplemental Educational Opportunity Grant				$647,248
84.033	FWS: Federal Work Study				$2,109,104
84.033	Pell Grant Program				$8,514,119
84.033	TEACH: Teacher Education Assistance for College and Higher Education				$139,564
Department of Education (Loans and Loan Programs)					**$55,421,252**
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 9/1/2022				$8,560,901
84.268	Department of Education - Federal Direct Student Loan Program - PLUS Loans - Graduate and Parent - New Loans Issued				$28,114,603
84.268	Department of Education - Federal Direct Student Loan Program - Subsidized Stafford Loans - New Loans Issued				$724,242
84.268	Department of Education - Federal Direct Student Loan Program - Unsubsidized Stafford Loans - New Loans Issued				$18,021,506
Department of Health and Human Services (Loans and Loan Programs)					**$14,642**
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 9/1/2022				$14,642
Grand Total				**$93,929,938**	**$1,026,235,169**

The accompanying notes are an integral part of this schedule of expenditures of federal awards

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 8/31/2023

Federal Grantor/Assistance Listing Number	Federal Program Name	Outstanding Loan Balance as of 08/31/2022
Department of Education		
84.038	Federal Perkins Loan Program - Outstanding Balance	**$7,065,172**
Department of Health and Human Services		
93.342	Loans for Disadvantaged Students - Outstanding Balance	**$15,557**
Total		**7,080,729**

The accompanying notes are an integral part of this schedule of expenditures of federal awards

Stanford University
Notes to the Schedule of Expenditures of Federal Awards
Year Ended August 31, 2023

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, 2023, 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 was funded by 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, 2023.

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, 2023, 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, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024.

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 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 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, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024

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, 2023. 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, 2023.

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, 2023. 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 Salter 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 6, 2024

III. Findings

Stanford University
Schedule of Findings and Questioned Costs
August 31, 2023

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
93.084	Prevention Policy Modeling Lab

Dollar threshold used to distinguish between Type A and Type B programs:	$3,078,706
Auditee qualified as low-risk auditee?	Yes

Stanford University
Schedule of Findings and Questioned Costs
August 31, 2023

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 and Status
August 31, 2023

There are no findings from prior years that require an update in this report.