

Harvard University

**Report on Federal Awards in Accordance with the
Uniform Guidance**

June 30, 2021

EIN #04-2103580

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Part I

**Financial Statements and
Schedule of Expenditures of Federal Awards**



Report of Independent Auditors

To the Joint Committee on Inspection of the Governing Boards of Harvard University

Report on the Consolidated Financial Statements

We have audited the accompanying consolidated financial statements of Harvard University and its subsidiaries (the "University"), which comprise the consolidated balance sheet as of June 30, 2021, and the related consolidated statements of changes in net assets with general operating account detail, changes in net assets of the endowment and of cash flows for the year then ended, and the related notes to the financial statements.

Management's Responsibility 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; this includes 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.

Auditors' Responsibility

Our responsibility is to express an opinion on the consolidated financial statements based on our audit. We conducted our audit 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. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the University's preparation and fair presentation of the consolidated financial statements 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 the University's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.



Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Harvard University and its subsidiaries as of June 30, 2021, and the changes in their net assets and their cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

We previously audited the consolidated balance sheet as of June 30, 2020, and the consolidated statements of changes in net assets with general operating account detail, changes in net assets of the endowment and of cash flows for the year then ended (not presented herein), and in our report dated October 22, 2020, we expressed an unmodified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying summarized financial information as of June 30, 2020 and for the year then ended is consistent, in all material respects, with the audited consolidated financial statements from which it has been derived.

Other 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 June 30, 2021 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. The information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves, and other additional procedures, in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the consolidated financial statements taken as a whole.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated October 13, 2021 on our consideration of the University'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 June 30, 2021. 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 the University's internal control over financial reporting and compliance.

Princeton Avenue Cooper LLP

Boston, Massachusetts
October 13, 2021

BALANCE SHEETS

with summarized financial information as of June 30, 2020

In thousands of dollars	June 30	
	2021	2020
ASSETS:		
Cash and cash equivalents	\$ 224,042	\$ 176,615
Receivables, net (Note 4)	322,482	262,731
Prepayments and deferred charges	315,172	304,920
Operating leases—right of use assets (Note 18)	689,962	754,699
Notes receivables, net (Note 5)	377,596	372,234
Pledges receivables, net (Note 6)	2,335,958	2,403,175
Fixed assets, net (Note 7)	8,463,008	8,435,255
Interests in trusts held by others (Note 3)	515,757	427,359
Securities pledged to counterparties, at fair value (Note 3)	290,388	214,010
Investment portfolio, at fair value (Note 3)	61,141,750	48,111,441
TOTAL ASSETS	\$ 74,676,115	\$ 61,462,439
LIABILITIES:		
Accounts payable	\$ 488,896	\$ 321,666
Deferred revenue and other liabilities	1,716,026	1,580,178
Operating lease liabilities (Note 18)	702,872	767,599
Other liabilities associated with the investment portfolio (Notes 3 and 10)	756,237	878,018
Liabilities due under split interest agreements (Note 9)	1,019,357	819,584
Bonds and notes payable (Note 10)	5,503,199	5,664,679
Accrued retirement obligations (Note 11)	1,078,647	1,216,251
Government loan advances (Note 5)	35,807	44,748
TOTAL LIABILITIES	11,301,041	11,292,723
NET ASSETS	63,375,074	50,169,716
TOTAL LIABILITIES AND NET ASSETS	\$ 74,676,115	\$ 61,462,439

	Without donor restrictions	With donor restrictions	June 30	
			2021	2020
NET ASSETS:				
General Operating Account (GOA) (Note 8)	\$ 6,588,391	\$ 2,847,600	\$ 9,435,991	\$ 7,677,143
Endowment (Note 8)	9,423,055	43,742,698	53,165,753	41,894,380
Split interest agreements (Note 9)		773,330	773,330	598,193
TOTAL NET ASSETS	\$ 16,011,446	\$ 47,363,628	\$ 63,375,074	\$ 50,169,716

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

STATEMENTS OF CHANGES IN NET ASSETS WITH GENERAL OPERATING ACCOUNT DETAIL

with summarized financial information for the year ended June 30, 2020

			For the year ended June 30	
<i>In thousands of dollars</i>	Without Donor Restrictions	With Donor Restrictions	2021	2020
OPERATING REVENUE:				
Net student income <i>(Notes 2 and 12)</i>	\$ 888,284		\$ 888,284	\$ 1,070,156
Sponsored support <i>(Note 13)</i>				
Federal government – direct costs	442,268		442,268	436,552
Federal government – indirect costs	182,750		182,750	179,678
Non-federal sponsors – direct costs	71,314	\$ 188,239	259,553	260,739
Non-federal sponsors – indirect costs	21,573	20,543	42,116	40,552
Total sponsored support	717,905	208,782	926,687	917,521
Gifts for current use <i>(Note 14)</i>				
	142,710	398,249	540,959	477,564
Investment income:				
Endowment returns made available for operations <i>(Note 8)</i>	378,998	1,660,526	2,039,524	1,998,756
GOA returns made available for operations	143,788		143,788	176,174
Other investment income	10,751	5,166	15,917	33,305
Total investment income	533,537	1,665,692	2,199,229	2,208,235
Other revenue <i>(Note 15)</i>				
	693,915		693,915	699,354
Net assets released from restriction	2,138,218	(2,138,218)	0	0
TOTAL OPERATING REVENUE	5,114,569	134,505	5,249,074	5,372,830
OPERATING EXPENSES:				
Salaries and wages	2,076,665		2,076,665	2,131,511
Employee benefits <i>(Note 11)</i>	578,126		578,126	620,752
Services purchased	644,699		644,699	670,485
Depreciation <i>(Note 7)</i>	410,229		410,229	376,855
Space and occupancy	316,916		316,916	364,163
Supplies and equipment	210,697		210,697	243,870
Interest <i>(Note 10)</i>	183,455		183,455	180,727
Scholarships and other student awards <i>(Note 12)</i>	160,744		160,744	163,618
Other expenses <i>(Note 16)</i>	384,825		384,825	630,897
TOTAL OPERATING EXPENSES	4,966,356	0	4,966,356	5,382,878
NET OPERATING SURPLUS/(DEFICIT)	148,213	134,505	282,718	(10,048)
NON-OPERATING ACTIVITIES:				
Income from GOA investments	2,504		2,504	8,808
GOA realized and change in unrealized appreciation, net <i>(Note 3)</i>	1,529,850		1,529,850	281,613
GOA returns made available for operations	(143,787)		(143,787)	(176,174)
Change in pledge balances <i>(Note 6)</i>		(12,362)	(12,362)	(171,440)
Change in interests in trusts held by others		765	765	657
Gifts for facilities and loan funds <i>(Note 14)</i>		135,488	135,488	51,448
Change in retirement obligations <i>(Note 11)</i>	105,987		105,987	(81,927)
Other changes	(162,718)		(162,718)	(12,670)
Transfers between GOA and endowment <i>(Note 8)</i>	1,540	(2,156)	(616)	1,543
Transfers between GOA and split interest agreements <i>(Note 9)</i>		21,019	21,019	11,916
Non-operating net assets released from restrictions	184,495	(184,495)	0	0
TOTAL NON-OPERATING ACTIVITIES	1,517,871	(41,741)	1,476,130	(86,226)
GENERAL OPERATING ACCOUNT NET CHANGE DURING THE YEAR	1,666,084	92,764	1,758,848	(96,274)
Endowment net change during the year	2,048,245	9,223,128	11,271,373	964,680
Split interest agreements net change during the year <i>(Note 9)</i>		175,137	175,137	24,824
NET CHANGE DURING THE YEAR	3,714,329	9,491,029	13,205,358	893,230
Net assets, beginning of year	12,297,117	37,872,599	50,169,716	49,276,486
NET ASSETS, END OF YEAR	\$ 16,011,446	\$ 47,363,628	\$ 63,375,074	\$ 50,169,716

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

STATEMENTS OF CHANGES IN NET ASSETS OF THE ENDOWMENT

with summarized financial information for the year ended June 30, 2020

In thousands of dollars	Without Donor Restrictions	With Donor Restrictions	For the year ended June 30	
			2021	2020
Investment return (Note 3):				
Income from general investments	\$ 3,284	\$ 14,639	\$ 17,923	\$ 74,305
Realized and change in unrealized appreciation, net	2,344,997	10,469,783	12,814,780	2,602,126
Total investment return	2,348,281	10,484,422	12,832,703	2,676,431
Endowment returns made available for operations	(378,998)	(1,660,526)	(2,039,524)	(1,998,756)
Net investment return	1,969,283	8,823,896	10,793,179	677,675
Gifts for endowment (Note 14)	49,076	415,943	465,019	469,203
Transfers between endowment and the GOA (Note 8)	(1,540)	2,156	616	(1,543)
Capitalization of split interest agreements (Note 9)		16,830	16,830	12,136
Change in pledge balances (Note 6)		(54,262)	(54,262)	(191,451)
Change in interests in trusts held by others (Note 8)		87,633	87,633	6,331
Other changes	(5,216)	(32,426)	(37,642)	(7,671)
Net assets released from restrictions	36,642	(36,642)	0	0
NET CHANGE DURING THE YEAR	2,048,245	9,223,128	11,271,373	964,680
Net assets of the endowment, beginning of year	7,374,810	34,519,570	41,894,380	40,929,700
NET ASSETS OF THE ENDOWMENT, END OF YEAR	\$ 9,423,055	\$ 43,742,698	\$ 53,165,753	\$ 41,894,380

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

STATEMENTS OF CASH FLOWS

with summarized financial information for the year ended June 30, 2020

In thousands of dollars	For the year ended June 30	
	2021	2020
CASH FLOWS FROM OPERATING ACTIVITIES:		
Change in net assets	\$ 13,205,358	\$ 893,230
Adjustments to reconcile change in net assets to net cash (used in) operating activities:		
Depreciation	410,229	376,855
Amortization of premium and discount related to bonds and notes payable	(38,512)	(28,489)
Realized and change in unrealized appreciation, net	(14,741,458)	(2,940,852)
Change in fair value of interest rate exchange agreements	(12,928)	16,832
Change in interests in trusts held by others	(88,398)	(6,988)
Change in liabilities due under split interest agreements	226,092	(14,147)
Gifts of donated securities	(111,634)	(114,118)
Proceeds from the sales of gifts of unrestricted securities	22,290	18,886
Gifts for restricted purposes	(527,463)	(335,376)
Cost of issuance of debt	362	(4,213)
Loss on disposal of assets	39,033	181,349
Change in accrued retirement obligations	(137,604)	95,707
Non-cash operating lease costs	64,737	25,759
Changes in operating assets and liabilities:		
Receivables, net	(59,751)	33,590
Prepayments and deferred charges	(10,252)	(38,201)
Pledges receivable, net	67,217	362,652
Accounts payable	155,865	(37,995)
Deferred revenue and other liabilities	135,848	77,367
Operating lease liability	(64,727)	(27,070)
NET CASH USED IN OPERATING ACTIVITIES	(1,465,696)	(1,465,222)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Loans made to students, faculty, and staff	(50,412)	(49,990)
Payments received on student, faculty, and staff loans	55,893	52,515
Change in other notes receivable	(10,843)	(1,136)
Proceeds from the sales and maturities of investments	17,206,874	14,837,933
Purchase of investments	(15,952,533)	(13,911,250)
Change associated with repurchase agreements	427,855	296,726
Additions to fixed assets	(472,027)	(764,415)
NET CASH PROVIDED BY INVESTING ACTIVITIES	1,204,807	460,383
CASH FLOWS FROM FINANCING ACTIVITIES:		
Change in overdrafts included in accounts payable	6,377	4,194
Change in split interest liability from new contributions, income and payments to annuitants	(26,319)	(26,013)
Proceeds from issuance of debt		602,131
Debt repayments	(123,330)	(118,099)
Proceeds from the sales of gifts of restricted securities	89,344	95,232
Gifts for restricted purposes	527,463	335,376
Affiliated entity contributions and distributions, net		56
Change in government loan advances	(8,941)	(21,985)
NET CASH PROVIDED BY FINANCING ACTIVITIES	464,594	870,892
NET CHANGE IN CASH	203,705	(133,947)
Cash, beginning of year	1,360,598	1,494,545
CASH, END OF YEAR	\$ 1,564,303	\$ 1,360,598
Cash and cash equivalents (per <i>Balance Sheets</i>)	\$ 224,042	\$ 176,615
Cash and cash equivalents held in investments (<i>Note 3</i>)	1,340,261	1,183,983
TOTAL CASH AND CASH EQUIVALENTS	\$ 1,564,303	\$ 1,360,598
Supplemental disclosure of cash flow information:		
Accounts payable related to fixed asset additions	\$ 40,225	\$ 35,237
Cash paid for interest	\$ 223,715	\$ 212,831
Non-cash proceeds from issuance of debt		\$ 450,000
Use of non-cash proceeds to refinance debt		\$ (450,000)

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

1. UNIVERSITY ORGANIZATION

Harvard University (the “University”) is a private, not-for-profit institution of higher education with approximately 5,200 undergraduate and 13,400 graduate students in fiscal year 2021, as compared to 6,700 undergraduate and 13,600 graduate students in fiscal year 2020. Established in 1636, the University includes the Faculty of Arts and Sciences, the John A. Paulson School of Engineering and Applied Sciences, the Division of Continuing Education, ten graduate and professional Schools, the Radcliffe Institute for Advanced Study, a variety of research museums and institutes, and an extensive library system to support the teaching and research activities of the Harvard community.

The President and Fellows of Harvard College (the “Corporation”), a governing board of the University, has oversight responsibility for all of the University’s financial affairs. The Corporation delegates substantial authority to the Schools and departments for the management of their resources and operations.

The University includes Harvard Management Company (HMC), a wholly owned subsidiary founded in 1974 to manage the University’s investment assets. HMC is governed by a Board of Directors that is appointed by the Corporation.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of presentation

The accompanying consolidated financial statements have been prepared on the accrual basis of accounting and include the accounts of the University and affiliated organizations controlled by the University. Significant inter-affiliate accounts and transactions have been eliminated.

Funds transferred to the University on behalf of specific beneficiaries (agency funds) are recorded as assets and liabilities in the *Balance Sheets* and are not included in the *Statement of Changes in Net Assets with General Operating Account Detail*.

The financial statements include certain prior year summarized comparative information in total, not by net asset classification. This information is not presented in sufficient detail to conform to generally accepted accounting principles (GAAP). Accordingly, such information should be read in conjunction with the University’s financial statements for the year ended June 30, 2020, from which the summarized information is derived. Certain prior year amounts have been reclassified to conform to current year presentation.

Net asset classifications

For the purposes of financial reporting, the University classifies resources into two net asset categories pursuant to any donor-imposed restrictions and applicable law. Accordingly, the net assets of the University are classified in the accompanying financial statements in the categories that follow:

WITHOUT DONOR RESTRICTIONS — Net assets not subject to donor-imposed restrictions. Funds invested in fixed assets and unrestricted endowment funds comprise 85% of the University’s net assets without donor-imposed restrictions as of June 30, 2021. In addition, this category includes gifts and endowment income balances where the donor restriction has been met, University-designated loan funds, and other current funds.

WITH DONOR RESTRICTIONS — Net assets subject to legal or donor-imposed restrictions that will be satisfied either by actions of the University, the passage of time, or both. These net assets include net assets subject to donor-imposed restrictions that are invested to provide a perpetual source of income to the University. Generally, donors of these assets require the University to maintain and invest the original contribution in perpetuity, but permit the use of some or all investment returns for general or specific purposes. The appreciation on these perpetual contributions must be reported as net assets with donor restrictions until appropriated for spending in accordance with Massachusetts law. Also included in this category are gifts donated for a particular purpose and amounts subject to time restrictions such as funds pledged for future payment.

Revenues from sources other than contributions are generally reported as increases in net assets without donor restrictions. Expenses are reported as decreases in net assets without donor restrictions. Gains and losses

on investments are reported as increases or decreases in net assets without donor restrictions, unless their use is restricted by donor stipulations or by law. Investment returns earned by restricted donor funds are initially classified as net assets with donor restrictions and then reclassified to net assets without donor restrictions when expenses are appropriated or incurred for their intended purpose. Expirations of donor restrictions on net assets are reported as reclassifications from net assets with donor restrictions to net assets without donor restrictions and appear as “Net assets released from restrictions” and “Non-operating net assets released from restrictions” in the *Statements of Changes in Net Assets*.

Liquidity and availability

As part of the University’s liquidity management, it has a policy to structure its financial assets to be available as its general expenditures, liabilities and other obligations come due. A significant portion of the University’s annual expenditures are funded by operating revenues in the current year including student income, sponsored support, endowment returns made available for operations, gifts for current use and other revenues.

The University’s financial assets available within one year of the balance sheet date for general expenditure, such as operating expenses, scheduled principal payments on debt, and capital construction costs not financed with debt, are as follows (in thousands):

	June 30,	
	2021	2020
FINANCIAL ASSETS		
Cash and cash equivalents	\$ 224,042	\$ 176,615
Receivables, net	322,482	262,731
Pledge receivables due in one year	347,284	340,017
Cash, cash equivalents and short-term investments held separately by General Operating Account (GOA) ¹	1,539,736	1,559,440
Endowment and GOA returns made available for operations in the following year	2,308,724	2,184,082
TOTAL FINANCIAL ASSETS AVAILABLE WITHIN ONE YEAR	\$ 4,742,268	\$ 4,522,885
LIQUIDITY RESOURCES		
Credit facility, undrawn balance	1,500,000	1,500,000
Tax-exempt commercial paper, undrawn balance	1,000,000	1,000,000
Taxable commercial paper, undrawn balance	2,000,000	2,000,000
TOTAL FINANCIAL ASSETS AND RESOURCES AVAILABLE WITHIN ONE YEAR	\$ 9,242,268	\$ 9,022,885

¹ The University has a policy of maintaining liquidity outside of the General Investment Account (GIA) through a combination of cash, cash equivalents and short-term investments, as referenced on page 8 in the Financial Overview.

Endowment and GOA returns liquidated from investments and made available for operations over the course of the fiscal year are distributed to University department and program budgets to spend, subject to donor restrictions where applicable.

While the University has no intention of doing so, there are additional investments held by the University and the endowment that could be liquidated in the event of an unexpected disruption. While a portion of the endowment is subject to donor restrictions, there is \$9.4 billion and \$7.4 billion in endowment funds without donor restrictions at June 30, 2021 and 2020, respectively and \$4.8 billion and \$3.5 billion of General Operating Account investments (GOA) at June 30, 2021 and 2020, respectively, that could be accessed with the approval of the Corporation and subject to the redemption provisions described in Note 3.

Revenue recognition

Revenue is recognized when control of promised goods or services is transferred to customers, in an amount that reflects the consideration the University expects to be entitled to in exchange for those goods or services.

Student income is derived from degree programs as well as executive and continuing education programs and includes tuition, fees, and board and lodging. Student income is recognized ratably over the academic period of the course or program offered based on time elapsed, and scholarships awarded to students reduce the amount of revenue recognized. The University’s individual schools have various billing and academic cycles and the majority of our programs are completed within the fiscal year. Student income received in advance of services to be rendered is recorded as deferred revenue which totaled \$226.0 million and \$208.3 million, respectively, at June 30, 2021 and 2020, which are primarily recognized in the subsequent fiscal year.

Total student income of \$888.3 million and \$1.1 billion was recorded during the years ended June 30, 2021 and 2020, respectively. Student tuition, fees, board and lodging at published rates is summarized as follows for the years ended June 30, 2021 and 2020 (in thousands of dollars):

	2021	2020
Undergraduate program	\$ 278,412	\$ 347,292
Graduate and professional degree programs	581,259	613,614
Continuing education and executive programs	395,076	425,867
Board and lodging	69,496	164,372

Scholarships applied to student charges were \$435,959 and \$480,989 for the years ended June 30, 2021 and 2020, respectively.

Unconditional contributions including pledges are recognized immediately and classified as either net assets with donor restrictions or net assets without donor restrictions. Conditional contributions for which cash is received are accounted for as a liability within deferred revenue.

Sponsored support of \$926.7 million includes support from governmental and private sources. Certain sponsored arrangements are considered exchange arrangements, and revenue under these agreements is recognized based on the University's fulfillment of the contract, which is typically based on costs incurred or the achievement of milestones. Other sponsored support is considered contribution revenue, which is recognized when any donor-imposed conditions have been met, if applicable. Sponsored conditional contributions received, where the barrier to entitlement is not yet overcome, are recorded as deferred revenues of \$68.2 million and \$51.2 million as of June 30, 2021 and 2020, respectively. As of June 30, 2021, the University also had \$1.6 billion awarded but not yet expended contributions related to sponsored programs where the condition had not yet been met. This is subject to federal appropriations. Funding received in advance of recognition is recorded as deferred revenue.

Other revenue of \$693.9 million includes several revenue streams considered exchange contracts with customers totaling \$605.3 million for fiscal year 2021. These revenues are recognized at the point in time goods or services are provided. Deferred revenues related to other income of \$102.1 million and \$107.6 million were recorded as of June 30, 2021 and 2020, which are primarily recognized in the subsequent fiscal year.

Measure of operations

Revenues earned, expenses incurred, and returns made available for operations for the purpose of teaching, conducting research, and the other programs and services of the University are the components of "Net operating surplus" in the *Statement of Changes in Net Assets with General Operating Account Detail*. The University's non-operating activity within the *Statement of Changes in Net Assets with General Operating Account Detail* includes contributions to the University's building construction and renovation funds, investment returns (net of amounts made available for operations), change in pledge balances, long-term benefit plan obligation funding changes, and other infrequent transactions.

Collections

The University's vast array of museums and libraries contains priceless works of art, historical treasures, literary works, and artifacts. These collections are protected and preserved for public exhibition, education, research, and the furtherance of public service. They are neither disposed of for financial gain nor encumbered in any manner. Accordingly, such collections are not recorded for financial statement purposes. Proceeds on deaccessioned collections are used to fund new collections or the direct care of existing collections. Direct care is defined as general care for the preservation of a collection.

Insurance programs

The University, together with the Harvard-affiliated teaching hospitals, has formed a captive insurance company, Controlled Risk Insurance Company (CRICO), to provide limited professional liability, general liability, and medical malpractice insurance for its shareholders. The University self-insures a portion of its professional liability and general liability programs and maintains a reserve for incurred claims, including those related to Harvard Medical School activities not occurring in the affiliated teaching hospitals. CRICO provided malpractice coverage applies with no deductible for medical professionals practicing within Harvard's University Health Services department, the School of Dental Medicine, and the T.H. Chan School of Public Health. The University also maintains reserves for the self-insured portion of claims related to automobile liability, property damage, and workers' compensation; these programs are supplemented with commercial excess insurance above the University's self-insured retention. In addition, the University is self-insured for unemployment,

the primary retiree health plan, and all health and dental plans for active employees. The University's claims liabilities are recognized as incurred, including claims that have been incurred but not reported, and are included in operating expenses.

Tax

The University is a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code.

On December 22, 2017, the Tax Cuts and Jobs Act (the "Act") was enacted. The Act impacts the University in several ways, including the addition of excise taxes on executive compensation and net investment income, as well as new rules for calculating unrelated business taxable income. The University records an estimate for related tax expense based on currently available regulatory guidance of the Act, and continues to evaluate the impact of the Act on current and future tax positions.

Use of estimates

The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect reported amounts and disclosures. Actual results could differ from those estimates.

New accounting pronouncements

Effective July 1, 2020, the University adopted ASU 2019-03, *Not-for-Profit Entities (Topic 958): Updating the Definition of Collections*. The accounting pronouncement updates the definition of "collections" to align with the definition used by the American Alliance of Museums. The change in the definition requires proceeds from sales of collections to be used for acquisition of additional collections or direct care of existing collections. The University adopted ASU 2019-03 prospectively. The guidance did not have a significant impact on the University's consolidated financial statements.

Effective July 1, 2019, the University adopted ASU 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. The amendment requires the bifurcation of net benefit cost where the service cost component continues to be presented with other employee costs in operating income (or capitalized in assets) and the other components (such as interest, expected return on plan

assets, and amortization of actuarially determined amounts) are required to be presented as a nonoperating change in net assets without restrictions. The effects of adopting this amendment resulted in the inclusion of all net periodic benefits costs, other than services costs, in "Change in retirement obligations", reported in nonoperating activities in the *Statement of Changes in Net Assets with General Operating Account Detail*.

Effective July 1, 2019, the University adopted ASU 2016-02, *Leases*, which requires a lessee to recognize a right of use asset and a lease liability, initially measured at the present value of the lease payments, in its balance sheet. The guidance also expands the required quantitative and qualitative disclosures surrounding leases. The effects of adopting this guidance resulted in the inclusion of the present value of operating lease payments in the *Balance Sheets* as "Operating leases—right of use assets" of \$780.5 million and "Operating leases liabilities" of \$794.7 million upon adoption. The University elected the package of practical expedients to not reassess: (1) whether any expired or existing contracts are or contain leases, (2) lease classification for any expired or existing leases and (3) initial direct costs for any expired or existing leases. The University elected the short-term lease exemption policy as well as the practical expedient that allows lessees to treat the lease and non-lease components as a single lease component. In addition, the University elected to use hindsight to reassess lease terms or impairment at the adoption date. The effects of adopting this amendment are addressed in *Note 18*.

Effective July 1, 2019, the University adopted ASU 2016-18, *Restricted Cash (Topic 230): Statement of Cash Flows*. The amendments in the update require that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents are now included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The effects of adopting this amendment resulted in all cash and cash equivalents, including those held in the endowment, to be included in cash and cash equivalents presented in the *Statements of Cash Flows*.

Effective July 1, 2019, the University adopted ASU 2016-15, *Classification of Certain Cash Receipts and Cash Payments (Topic 230): Statement of Cash Flows*. ASU 2016-15 clarifies how certain cash receipts and cash payments in the statement of cash flows are presented. The University adopted ASU 2016-15 retrospectively. The guidance did not have a significant impact on the University's consolidated financial statements.

Effective July 1, 2019, the University adopted ASU 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities*, which addresses certain aspects of recognition, measurement, presentation and disclosure of financial instruments. This guidance allows an entity to choose, investment-by-investment, to report an equity investment that neither has a readily determinable fair value, nor qualifies for the practical expedient for fair value estimation using net asset value (NAV), at its cost minus impairment (if any), plus or minus changes resulting from observable price changes in orderly transactions for the identical or similar investment of the same issue. Impairment of such

investments must be assessed qualitatively at each reporting period. Entities must disclose their financial assets and liabilities by measurement category and form of asset either on the face of the statement of financial position or in the accompanying notes. This guidance did not have a significant impact on the University's consolidated financial statements.

In August 2018, FASB issued ASU No. 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract*. This guidance aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software or software licenses. The amendment is effective for fiscal year 2022 and the University is evaluating the impact of the new guidance on the consolidated financial statements.

3. INVESTMENTS

Investments are presented at fair value in accordance with GAAP and under the guidelines prescribed by the HMC investment valuation policy, which is reviewed and approved by the HMC Board of Directors on an annual basis.

The majority of the University's investments are managed by HMC in the GIA, a pooled investment account that consists primarily of endowment assets. Certain other investments such as cash, short-term investments, split interest agreements and other assets, are managed separately from the GIA.

The University's investment holdings as of June 30, 2021 and 2020 are summarized in the following table (in thousands of dollars):

	2021	2020
Investment portfolio assets		
Pooled general investment account assets	\$ 58,566,261	\$ 45,681,215
Other investments	2,575,489	2,430,226
Investment portfolio, at fair value	61,141,750	48,111,441
Securities pledged to counterparties, at fair value	290,388	214,010
TOTAL INVESTMENT ASSETS	61,432,138	48,325,451
Pooled general investment account liabilities	724,924	833,777
Interest rate exchange agreement	31,313	44,241
TOTAL OTHER LIABILITIES ASSOCIATED WITH THE INVESTMENT PORTFOLIO	756,237	878,018
TOTAL INVESTMENTS, NET	\$ 60,675,901	\$ 47,447,433

As of June 30, 2021 and 2020, University net investments were comprised of the following components (in thousands of dollars):

	2021	2020
POOLED GENERAL INVESTMENT ACCOUNT		
Endowment ¹	\$ 51,279,803	\$ 39,982,475
General operating account	4,777,430	3,486,092
Split interest agreements	1,021,209	803,490
Other internally designated funds	1,053,283	789,391
TOTAL POOLED GENERAL INVESTMENT ACCOUNT NET ASSETS	\$ 58,131,725	\$ 45,061,448
OTHER INVESTMENTS OUTSIDE THE GENERAL INVESTMENT ACCOUNT		
General operating and other investments ²	1,772,698	1,771,698
Split interest agreements	771,478	614,287
TOTAL OTHER INVESTMENTS OUTSIDE THE GENERAL INVESTMENT ACCOUNT	\$ 2,544,176	\$ 2,385,985
TOTAL INVESTMENTS, NET	\$ 60,675,901	\$ 47,447,433

¹ Includes only the portion of the endowment invested in the GIA and excludes pledges, interests in trusts held by others, other non-GIA investments, and GIA interest and dividends net of all internal and external management fees and expenses.

² Consists primarily of repurchase agreements, US government securities, money markets, and fixed income funds, net of unsettled trades, totaling \$1,563,715 and \$1,582,042 as of June 30, 2021 and 2020, respectively.

Investment return

A summary of the University's total return on investments for fiscal years 2021 and 2020 is presented below (in thousands of dollars):

	2021	2020
Return on pooled general investment account:		
Realized and change in unrealized appreciation, net	\$ 14,522,886	\$ 2,931,018
Interest, dividend, fees, and expenses, net	20,216	83,852
Total return on pooled general investment account ¹	14,543,102	3,014,870
Return on other investments:		
Realized and change in unrealized appreciation, net	218,572	9,834
Interest, dividend, fees, and expenses, net	26,093	45,685
Total return on other investments	\$ 244,665	\$ 55,519
Realized and change in unrealized appreciation/(depreciation) on interest rate exchange agreement, net	9,272	(19,070)
TOTAL RETURN ON INVESTMENTS²	\$ 14,797,039	\$ 3,051,319

¹ Net of internal and all external management fees and expenses.

² Total return on investments is comprised of returns on the endowment, GOA, Split Interest Agreements and other.

Fair value hierarchy

The University's investments have been categorized based upon the fair value hierarchy in accordance with ASC 820, which prioritizes the inputs to valuation techniques used to measure fair value of investment assets and liabilities into three levels:

LEVEL 1 Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

LEVEL 2 Quoted prices in markets that are not considered to be active or financial instruments for which all significant inputs are observable, either directly or indirectly;

LEVEL 3 Prices or valuations that require inputs that are significant to the fair value measurement, unobservable and/or require the University to develop its own assumptions.

Investments in externally managed funds where the University utilizes net asset values (as reported by external managers) as a practical expedient for fair value measurements are excluded from the fair value hierarchy.

The level of an asset or liability within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. The University endeavors to utilize all relevant and available information in measuring fair value.

The following is a summary of the levels within the fair value hierarchy for those investment assets and liabilities subject to fair value measurement as of June 30, 2021 and summarized as of June 30, 2020 (in thousands of dollars):

	2021				2020	
	Level 1	Level 2	Level 3	NAV as Practical Expedient	Total	Total
ASSETS:						
Cash and cash equivalents ¹	\$ 1,340,261				\$ 1,340,261	\$ 1,183,983
Repurchase agreements		\$ 50,063			50,063	477,918
Domestic equity	2,354,507			\$ 1,956,807	4,311,314	3,615,658
Foreign equity	183,240			1,971,680	2,154,920	1,867,503
Global equity				2,351,562	2,351,562	1,542,236
Domestic fixed income	1,256,155	10,003		1,133,259	2,399,417	2,712,900
Foreign fixed income	1,920				1,920	20,729
Emerging market equity and debt	32,465			4,529,686	4,562,151	3,256,427
High yield	2,051		\$ 273,571		275,622	267,728
Hedge funds				18,030,872	18,030,872	15,515,652
Private equity			1,891,116	18,796,946	20,688,062	11,047,118
Natural resources	14,300			449,978	464,278	1,329,924
Real estate			23,859	2,883,237	2,907,096	3,209,643
Inflation-indexed bonds	1,156,229				1,156,229	935,440
Due from brokers	3,981	5,305	4,625		13,911	30,293
Other investments		35,532			35,532	6,712
INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING	\$ 6,345,109	\$ 100,903	\$ 2,193,171	\$ 52,104,027	\$ 60,743,210	\$ 47,019,864
Other investment assets not subject to fair value ²					688,928	1,305,587
TOTAL INVESTMENT ASSETS³					\$ 61,432,138	\$ 48,325,451
Interests in trusts held by others ⁴			515,757		515,757	427,359
NON-INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING			\$ 515,757		\$ 515,757	\$ 427,359
TOTAL ASSETS					\$ 61,947,895	\$ 48,752,810
LIABILITIES:						
Due to brokers ⁵		\$ 131,941			\$ 131,941	\$ 132,065
Other liabilities subject to fair value			\$ 148,728		148,728	246,410
INVESTMENT LIABILITIES SUBJECT TO FAIR VALUE LEVELING	\$ 0	\$ 131,941	\$ 148,728		\$ 280,669	\$ 378,475
Other investment liabilities not subject to fair value ⁶					475,568	499,543
TOTAL INVESTMENT LIABILITIES					\$ 756,237	\$ 878,018
Liabilities due under split interest agreements ⁴		1,019,357			1,019,357	819,584
NON-INVESTMENT LIABILITIES SUBJECT TO FAIR VALUE LEVELING		\$ 1,019,357			\$ 1,019,357	\$ 819,584
TOTAL LIABILITIES					\$ 1,775,594	\$ 1,697,602

¹ This excludes money markets held in "Cash and cash equivalents" on the Balance Sheets of \$65.0 million as of June 30, 2021 and 2020, respectively, which are Level 1 investments.

² As of June 30, 2021, other assets not subject to fair value consists primarily of receivables for transactions that settled subsequent to the balance sheet date of \$612,801. As of June 30, 2020, other assets not subject to fair value consists primarily of receivables for transactions that settled subsequent to the balance sheet date of \$1,189,950, before eliminating inter-company balances, and consolidated assets of \$146,365.

³ As of June 30, 2021 and 2020, total investment assets, net equal \$60,675,901 and \$47,447,433, respectively.

⁴ Amounts excluded from investments and included separately on the University's Balance Sheets.

⁵ Includes fair value of an interest rate exchange agreement on the University's debt portfolio of \$31,313 and \$44,241 as of June 30, 2021 and 2020, respectively.

⁶ As of June 30, 2021 and 2020, other liabilities not subject to fair value include consolidated liabilities of \$11,925 and \$167,795, respectively.

The following is a rollforward of Level 3 investments for the year ended June 30, 2021 and the condensed June 30, 2020 rollforward of Level 3 investments (in thousands of dollars).

	Beginning balance as of July 1, 2020	Net realized gains/ (losses)	Net change in unrealized appreciation/ (depreciation) ¹	Purchases/ contributions	Sales/ distributions	Transfers into Level 3	Transfers out of Level 3	Ending balance as of June 30, 2021
INVESTMENT ASSETS:								
High yield	\$ 264,452	\$ 2,142	\$ 7,806	\$ 84,723	\$ (85,552)			\$ 273,571
Private equity	477,858	(528)	388,813	400,340	(66,815)	\$ 740,943	\$ (49,495)	1,891,116
Natural resources	1,291,911	(5,756)	(317,207)	27,009	(570,840)		(425,117)	0
Real estate	24,627		(5,768)	5,000				23,859
Due from brokers	4,629		(4)					4,625
Other investments	6,712						(6,712)	0
INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING								
	\$ 2,070,189	\$ (4,142)	\$ 73,640	\$ 517,072	\$ (723,207)	\$ 740,943	\$ (481,324)	\$ 2,193,171
Interests in trusts held by others	427,359		90,076		(1,464)		(214)	\$ 515,757
NON-INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING								
	\$ 427,359		\$ 90,076		\$ (1,464)		\$ (214)	\$ 515,757
TOTAL ASSETS SUBJECT TO FAIR VALUE LEVELING	\$ 2,497,548	\$ (4,142)	\$ 163,716	\$ 517,072	\$ (724,671)	\$ 740,943	\$ (481,538)	\$ 2,708,928
INVESTMENT LIABILITIES:								
Other liabilities subject to fair value	\$ 246,410			\$ (134,980)	\$ 37,298			\$ 148,728
TOTAL LIABILITIES SUBJECT TO FAIR VALUE LEVELING	\$ 246,410	\$ 0	\$ 0	\$ (134,980)	\$ 37,298			\$ 148,728
NET ASSETS SUBJECT TO FAIR VALUE LEVELING	\$ 2,251,138	\$ (4,142)	\$ 163,716	\$ 652,052	\$ (761,969)	\$ 740,943	\$ (481,538)	\$ 2,560,200

¹ Total change in unrealized appreciation/(depreciation) relating to Level 3 investment assets and investment liabilities still held by the University at June 30, 2021 is \$206,133 and is reflected in "Realized and change in unrealized appreciation, net" in the Statements of Changes in Net Assets.

	Beginning balance as of July 1, 2019	Net realized gains/ (losses)	Net change in unrealized appreciation/ (depreciation) ¹	Purchases/ contributions	Sales/ distributions	Transfers into Level 3	Transfers out of Level 3	Ending balance as of June 30, 2020
PRIOR YEAR NET ASSETS SUBJECT TO FAIR VALUE LEVELING	\$ 2,594,348	\$ 87,592	\$ (198,967)	\$ 1,000,889	\$ (1,232,724)	\$ 0	\$ 0	\$ 2,251,138

¹ Total change in unrealized appreciation/(depreciation) relating to Level 3 investment assets and investment liabilities still held by the University at June 30, 2020 is \$(233,329) and is reflected in "Realized and change in unrealized appreciation, net" in the Statements of Changes in Net Assets.

At June 30, 2021, certain private equity investments were valued using a secondary sale price and were transferred into Level 3. In October 2020, the University sold a portion of its direct natural resource portfolio to a third-party and transferred a portion to an external investment manager. As of June 30, 2021, the fair value of these investments are measured at NAV as reported by the external investment manager.

Investment strategy and risk

The University utilizes a number of wholly owned subsidiary entities to support its investment activities. The consolidated financial statements include all assets, liabilities, income, and expenses associated with these entities and intercompany accounts and transactions have been eliminated during consolidation.

The University's investment strategy incorporates a diversified asset allocation approach and maintains, within defined limits, exposure to the movements of the global public and private equity, fixed income, real estate, and commodities markets. Exposure to these markets is achieved through direct investments in individual securities, investments in special purpose vehicles and/or through investments in vehicles advised by external managers.

Investments in global markets involve a multitude of risks such as price, interest rate, market, sovereign, currency, liquidity and credit risks, amongst many others. The University manages exposure to these risks through established policies and procedures related to its ongoing investment diligence and operational due

diligence programs. The University also considers manager concentration risk. As of June 30, 2021, 18% of the GIA NAV was invested across 5 diversified fund managers. The University anticipates that the value and composition of its investments may, from time to time, fluctuate substantially in response to any or all of the risks described herein.

Cash and cash equivalents

Cash and cash equivalents are recorded at cost, which approximates fair value, and includes cash in bank accounts, institutional money market funds and other temporary investments held for working capital purposes with original maturities of three months or less. Cash and cash equivalents do not include cash balances held as collateral by the University. Cash and cash equivalents designated for investment purposes are included in the “Investment portfolio, at fair value” in the *Balance Sheets*.

Repurchase agreements

The University *Balance Sheets* display the assets generated by repurchase transactions. The University enters into these transactions under agreements containing master netting arrangements. The University requires the fair value of the collateral exchanged under these agreements to be equal to or in excess of the total amount of the agreement, including interest where applicable. At June 30, 2021 and 2020 the University had gross asset repurchase agreements of \$0.1 billion and \$0.5 billion which were fully collateralized. The University does not offset repurchase agreements that are subject to master netting arrangements or similar arrangements on the University’s *Balance Sheets*.

Dividend and interest income

Dividend income is recognized net of applicable withholding taxes on the ex-dividend date. Non-cash dividends are recorded at the fair value of the securities received. Interest income and expense is recorded net of applicable withholding taxes, on an accrual basis. The University amortizes bond premiums and accretes bond discounts using the effective yield method and when cash collection is expected.

Traded securities

Instruments listed or traded on a securities exchange are valued at the last quoted price on the primary exchange where the security is traded. Where there is no readily available closing price on the valuation date, long positions are valued at the bid price and short positions are valued at the ask price. Restrictions that are attached to a security are factored into the valuation of that security, reflective of the

estimated impact of those restrictions. Investments in non-exchange traded debt and equity instruments are primarily valued using inputs provided by independent pricing services or by broker/dealers who actively make markets in these securities.

Derivatives

The University uses a variety of financial instruments with off-balance sheet risk involving contractual or optional commitments for future settlement, which are exchange traded or executed over the counter (OTC). These instruments are used to (1) manage exposure to certain asset classes and/or various market risks, (2) arbitrage mispricings of related securities and (3) to manage the interest, cost and risk associated with its outstanding and/or future debt. These instruments are classified as due to/from brokers and may include option, swap, credit default, interest rate, and forward contracts. These types of instruments are primarily valued using industry standard models with independent market inputs, or by broker quotes. Inputs such as prices, spreads, curves, and/or broker quotes are evaluated for source reliability and consistency with industry standards. Counterparty marks obtained and utilized to determine daily collateral requirements are also used to corroborate input reasonability. The University considers current market conditions including interest rate and credit risks in its evaluation of inputs, pricing methodologies, and models utilized to determine fair values.

In connection with its investments in derivatives, the University maintains master netting agreements and collateral agreements with its counterparties. These agreements provide the University the right, in the event of default by the counterparty (such as bankruptcy or a failure to pay or perform), 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. Collateral, generally in the form of debt obligations issued by the US Treasury, is exchanged on a daily basis as required by fluctuations in the market.

Specific credit limits are established for counterparties based on their individual credit ratings. Credit limits are monitored daily by the University and are adjusted according to policy, as necessary. Some of the financial instruments entered into by the University contain credit-risk-related contingency features that allow the parties to the agreement to demand immediate payment for outstanding contracts and/or collateral.

The following table presents information about the University's derivatives by primary risk exposure for the years ended June 30, 2021 and 2020 (in thousands of dollars):

	As of June 30, 2021			For the year ended June 30, 2021	As of June 30, 2020			For the year ended June 30, 2020
	Average Quarterly Notional	Gross derivative assets	Gross derivative liabilities	Net profit/ (loss) ⁴	Average Quarterly Notional	Gross derivative assets	Gross derivative liabilities	Net profit/ (loss) ⁴
Primary risk exposure								
Equity instruments	\$ 5,904,280	\$ 88,221	\$ 179,670	\$ (726,954)	\$ 3,443,938	\$ 59,867	\$ 122,097	\$ 92,208
Fixed income instruments ¹	117,000		31,313	9,272	117,000		44,241	(19,070)
Currency instruments	7,951	5,966	5,963	3,163	21,020	10	14	(150)
Credit instruments	4,747	4,729		(49)	4,723	4,703		21
SUBTOTAL		\$ 98,916	\$ 216,946	\$ (714,568)		\$ 64,580	\$ 166,352	\$ 73,009
TOTAL COUNTERPARTY NETTING²		(85,005)	(85,005)			(34,984)	(34,984)	
NET AMOUNTS INCLUDED IN THE BALANCE SHEETS³		13,911	131,941			29,596	131,368	
Collateral								
Cash collateral received/posted		5,467						
Securities collateral received/posted ⁵		3,183	250,592			23,586	189,564	
TOTAL SECURITIES COLLATERAL RECEIVED/POSTED⁵		8,650	250,592			23,586	189,564	
NET AMOUNT		5,261	(118,651)			6,010	(58,196)	
NET AMOUNT IN ACCORDANCE WITH ASC 210⁶		\$ 5,261	\$ 0			\$ 6,010	\$ 0	

¹ For the year ended June 30, 2021 and 2020 the balance represents an interest rate exchange swap on the University's debt portfolio.

² GAAP permits the netting of derivative assets and liabilities and the related cash collateral received and paid when a legally enforceable master netting agreement exists between the University and a derivative counterparty.

³ Included within the "Investment portfolio, at fair value" and "Other liabilities associated with the investment portfolio" line items of the Balance Sheets.

⁴ Included within "Realized and change in unrealized appreciation, net" within the Statements of Changes in Net Assets.

⁵ Includes securities posted to meet initial margin requirements on exchange traded futures.

⁶ Excludes any over-collateralized amounts in accordance with ASC 210.

External advisors

Investments managed by external advisors include investments in private equity, real estate, natural resources, hedge funds, and other externally managed funds. The University generally utilizes the capital account balance provided by the external advisor as a practical expedient to fair value. To evaluate the adequacy of these fair value measurements, the University has assessed factors including, but not limited to, the external advisor's adherence to fair value principles in calculating the capital account balance, the existence of transactions at NAV at the measurement date and the existence or absence of

certain restrictions at the measurement date. In addition, the University evaluates these external advisors through ongoing due diligence and operational oversight, which includes an analysis of an advisor's use of and adherence to fair value principles.

The University, as an investor, has commitments to make periodic contributions in future periods to the investments managed by external advisors. The amounts of these expected disbursements as of June 30, 2021 and 2020 are disclosed below (in thousands of dollars):

	As of June 30, 2021			As of June 30, 2020		
	Fair value ¹	Remaining unfunded commitments	Estimated remaining life ²	Fair value ¹	Remaining unfunded commitments	Estimated remaining life ²
Private equity funds	\$ 16,240,336	\$ 7,688,416	4 – 10	\$ 9,017,706	\$ 6,813,583	4 – 10
Real estate funds	2,881,483	1,856,495	4 – 10	3,154,066	1,734,565	4 – 10
Other externally managed funds ³	3,654,807	2,921,156	2 – 8	3,386,081	2,221,023	2 – 8
TOTAL	\$ 22,776,626	\$ 12,466,067		\$ 15,557,853	\$ 10,769,171	

¹ Represents the fair value of the funded portion of investments with remaining unfunded commitments.

² The estimated remaining lives of these funds, expressed in years, are forward-looking projections based on the University's estimates and could vary significantly depending on the investment decisions of external managers, changes in the University's investment portfolio, and other circumstances.

³ Investments in externally managed funds primarily include exposures to hedge funds and natural resources.

Investments in externally managed funds generally have limited redemption options for investors and, subsequent to final closing, may or may not permit subscriptions by new or existing investors. These entities may also have the ability to impose gates, lockups and other restrictions on an investor's ability to readily redeem out of their investment interest in the fund.

Direct investments

Direct investments are primarily valued using a combination of independent appraisals and/or one or more industry standard valuation techniques (e.g., income approach, market approach, or cost approach). The income approach is primarily based on the investment's anticipated future income using one of two principal methods: the discounted cash flow method or the capitalization method. Inputs and estimates developed and utilized with these techniques may be subjective, unobservable, and require judgment regarding significant matters such as estimating the amount and timing of future cash flows, forward pricing assumptions and the selection of discount and capitalization rates that appropriately reflect market and credit risks.

The market approach derives investment value through comparison to recent and relevant market transactions with similar investment characteristics. The cost approach is utilized when the cost of the investment is determined to be the best representation of fair value. This method is typically used for newly purchased or undeveloped assets. When applicable, the University examines market data and collaborates closely with independent appraisers to arrive at the best estimation of fair value for each respective asset. The HMC Board of Directors discusses the valuation process and results with HMC management, and makes determinations on significant matters impacting valuation that may arise from time to time.

The following table presents the ranges of significant unobservable inputs used to value the University's Level 3 assets. While the inputs described below represent the range of inputs utilized as of the measurement date, these inputs may change over time, which may have a material effect on the valuation of these types of investments in the future.

Significant unobservable input by asset class ¹	As of June 30, 2021			As of June 30, 2020		
	Level 3 investments subject to fair value (in thousands of dollars) ²	Range of inputs utilized in valuation model ³	Weighted average of inputs utilized in valuation model	Level 3 investments subject to fair value (in thousands of dollars) ²	Range of inputs utilized in valuation model ³	Weighted average of inputs utilized in valuation model
Natural resources:	\$ 0			\$ 469,811		
Income approach discount rate					6.0% – 16.0%	10.8%
Price per planted hectare					\$1,073 – \$156,351	\$36,646
Price per gross hectare					\$168 – \$57,530	\$10,393
Discount for lack of marketability					2.0% – 20.0%	16.7%
High yield:	239,573			264,027		
Income approach discount rate		6.0% – 16.1%	7.7%		6.8% – 15.8%	8.6%
Collateral coverage recovery rate		100%	100%		100%	100%
EBITDA multiple		7.5x – 19.0x	8.8x		9.0x – 19.5x	13.3x
Real estate:	17,391			22,868		
Income approach discount rate		14.5%	14.5%		14.5%	14.5%
Income approach growth rate		3.0%	3.0%		3.0%	3.0%
Discount for lack of marketability		15.0%	15.0%		15.0%	15.0%
Private equity:	207,033			150,294		
Income approach discount rate		6.0% – 15.0%	14.3%		6.0% – 15.0%	14.0%
EBITDA multiple		9.0x	9.0x		8.7x	8.7x
Cost multiple		2.5x	2.5x			
Other liabilities subject to fair value	(148,728)			(246,410)		
Loan to value					5.0% – 43.5%	16.8%
Market interest rate		2.5% – 2.8%	2.6%		3.5% – 6.5%	3.9%
NET AMOUNT	\$ 315,269			\$ 660,590		

¹ The fair value of investments may be determined using multiple valuation techniques.

² Included within Level 3 investments is \$2,244,931 and \$1,590,548 as of June 30, 2021 and 2020, respectively, which were valued using other inputs including, but not limited to, single source broker quotations, third party pricing and recent transactions.

³ The range of inputs encompasses a variety of investment types within each asset class.

4. RECEIVABLES

The major components of receivables, net of reserves for doubtful accounts of \$13.7 million and \$13.9 million as of June 30, 2021 and 2020, respectively, were as follows (in thousands of dollars):

	2021	2020
Executive education	\$ 73,400	\$ 50,155
Federal sponsored support	57,321	61,939
Publications	55,058	48,085
Leases	32,731	0
Tuition and fees	20,774	22,108
Non-federal sponsored support	11,536	9,950
Gift receipts	7,985	9,263
Other	63,677	61,231
TOTAL RECEIVABLES, NET	\$ 322,482	\$ 262,731

5. NOTES RECEIVABLE

Notes receivable are recorded initially at face value plus accrued interest, which approximates fair value. Notes receivable, and related allowance for doubtful accounts, were as follows (in thousands of dollars):

	2021			2020		
	Receivable	Allowance	Net	Receivable	Allowance	Net
Student loans:						
Government revolving	\$ 31,933	\$ 832	\$ 31,101	\$ 39,382	\$ 999	\$ 38,383
Institutional	77,306	2,237	75,069	83,000	2,284	80,716
Total student loans	109,239	3,069	106,170	122,382	3,283	119,099
Faculty and staff loans	252,090	179	251,911	244,642	179	244,463
Other loans	57,615	38,100	19,515	39,257	30,585	8,672
TOTAL	\$ 418,944	\$ 41,348	\$ 377,596	\$ 406,281	\$ 34,047	\$ 372,234

Government revolving loans are funded principally with federal advances to the University under the Perkins Loan, the Health Professions Student Loan (HPSL) and Loans for Disadvantaged Students in Health Professions (LDS) Programs. These advances totaled \$35.8 million and \$44.7 million as of June 30, 2021 and 2020, respectively, and are classified as liabilities in the *Balance Sheets*. During fiscal year 2018, the Perkins Loan Program ended and as a result the University began making required repayments to the government. In fiscal year 2021 the University made the requested \$8.8 million repayment. Interest earned on the revolving and institutional loan programs is reinvested to support additional loans. The repayment and interest rate terms of the institutional loans vary considerably.

Faculty and staff notes receivable primarily consists of mortgage and educational loans. Mortgages include shared appreciation loans, loans that bear interest at the applicable federal rate and interest-free loans. In addition,

certain mortgages that bear interest at the current market rate or applicable federal rate may be subsidized for an initial period. The educational loans are primarily zero-interest loans.

The University assesses the adequacy of the allowance for doubtful accounts by evaluating the loan portfolio, including such factors as 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, the value of any collateral, and, where applicable, the existence of any guarantees or indemnifications. In addition to these factors, the University reviews the aging of the loans receivable and the default rate in comparison to prior years. The allowance is adjusted based on these reviews. The University considers the allowance at June 30, 2021 and 2020 to be reasonable and adequate to absorb potential credit losses inherent in the loan portfolio.

6. PLEDGES RECEIVABLE

Unconditional promises to donate to the University in the future are initially recorded at fair value (pledge net of discount) and subsequently amortized over the expected payment period, net of an allowance for uncollectible pledges. The University's indicative 1- to 5-year taxable unsecured borrowing rate is used to discount pledges receivable at the end of the fiscal year they are received. Discounts of \$76.3 million and \$100.2 million for the years ended June 30, 2021 and 2020, respectively, were calculated using rates ranging from 0.77% to 3.10%.

Pledges receivable included in the financial statements as of June 30, 2021 and 2020 are expected to be realized as follows (in thousands of dollars):

	2021	2020
Within one year	\$ 660,300	\$ 651,310
Between one and five years	1,673,468	1,646,632
More than five years	257,232	353,091
Less: discount and allowance for uncollectible pledges	(255,042)	(247,858)
TOTAL PLEDGES RECEIVABLE, NET	\$ 2,335,958	\$ 2,403,175

Pledges receivable as of June 30, 2021 and 2020 have been designated for the following purposes (in thousands of dollars):

	2021	2020
General Operating Account balances:		
Gifts for current use	\$ 533,952	\$ 624,440
Non-federal sponsored awards	184,113	193,641
Construction and life income	352,802	265,741
Total General Operating Account balances	1,070,867	1,083,822
Endowment	1,265,091	1,319,353
TOTAL PLEDGES RECEIVABLE, NET	\$ 2,335,958	\$ 2,403,175

Because of uncertainties with regard to realizability and valuation, bequest intentions and other conditional promises are only recognized as assets if and when the specified conditions are met. Non-bequest conditional pledges totaled \$115.1 million and \$56.7 million as of June 30, 2021 and 2020, respectively.

7. FIXED ASSETS

Fixed assets are reported at cost or, if a gift, at fair value as of the date of the gift, net of accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets.

The major categories of fixed assets as of June 30, 2021 and 2020 are summarized as follows (in thousands of dollars):

	2021	2020	Estimated useful life (in years)
Research facilities	\$ 3,364,398	\$ 2,494,333	*
Classroom and office facilities	2,395,225	2,401,659	35
Housing facilities	2,408,385	2,264,147	35
Other facilities	460,640	455,847	35
Service facilities	1,065,126	804,215	35
Libraries	534,930	509,095	35
Museums and assembly facilities	987,906	979,825	35
Athletic facilities	259,254	246,291	35
Land	1,024,697	1,042,977	N/A
Construction in progress	401,316	1,401,333	N/A
Equipment	1,429,723	1,367,264	**
SUBTOTAL AT COST	14,331,600	13,966,986	
Less: accumulated depreciation	(5,868,592)	(5,531,731)	
FIXED ASSETS, NET	\$ 8,463,008	\$ 8,435,255	

* Estimated useful lives of components range from 10 to 45 years.

** Estimated useful lives of equipment range from 3 to 10 years.

Certain University facilities are subject to restrictions as to use, structural modifications, and ownership transfer. Included in the fixed asset balances are restricted facilities with a net book value of \$280.7 million and \$304.6 million as of June 30, 2021 and 2020, respectively.

The costs of research facilities are separated into the shell, roof, finishes, fixed equipment, and services. These components are separately depreciated.

Equipment includes general and scientific equipment, computers, software, furniture, and vehicles.

The University has asset retirement obligations of \$200.1 million and \$200.7 million, which are included in “Deferred revenue and other liabilities” in the *Balance Sheets* as of June 30, 2021 and 2020, respectively.

Right-of-use assets from finance leases of \$59.0 million and \$67.0 million are included in “Fixed assets” in the *Balance Sheets* as of June 30, 2021 and 2020, respectively. Lease liabilities from finance leases of \$96.8 million and \$104.9 million are included in “Deferred revenue and other liabilities” in the *Balance Sheets* as of June 30, 2021 and 2020, respectively.

8. ENDOWMENT AND GENERAL OPERATING ACCOUNT NET ASSETS

The University’s net assets consisted of the following as of June 30, 2021 and 2020 (in thousands of dollars):

	2021			2020		
	Without donor restrictions	With donor restrictions	Total	Without donor restrictions	With donor restrictions	Total
NATURE OF SPECIFIC NET ASSETS						
Perpetual endowment funds		\$ 8,562,120	\$ 8,562,120		\$ 8,178,308	\$ 8,178,308
Endowment funds and appreciation subject to distribution policy and appropriation		33,434,803	33,434,803		24,628,858	24,628,858
Endowment funds without restriction, board designated and subject to distribution policy	\$ 9,423,055		9,423,055	\$ 7,374,810		7,374,810
Pledge balances		1,265,091	1,265,091		1,319,353	1,319,353
Interests in trusts held by others		480,684	480,684		393,051	393,051
TOTAL ENDOWMENT	9,423,055	43,742,698	53,165,753	7,374,810	34,519,570	41,894,380
Operating	6,588,391		6,588,391	4,922,307		4,922,307
Unexpended contributions and endowment distributions		2,747,969	2,747,969		2,655,577	2,655,577
Student loan funds		99,631	99,631		99,259	99,259
TOTAL GENERAL OPERATING ACCOUNT	6,588,391	2,847,600	9,435,991	4,922,307	2,754,836	7,677,143
Split interest agreements (<i>Note 9</i>)		773,330	773,330		598,193	598,193
TOTAL NET ASSETS	\$ 16,011,446	\$ 47,363,628	\$ 63,375,074	\$ 12,297,117	\$ 37,872,599	\$ 50,169,716

Endowment

The University’s endowment consists of 14,172 separate funds established over many years for a wide variety of purposes. Endowment fund balances are classified and reported in accordance with donor specifications and state law. The endowment includes both donor-restricted endowment funds and funds functioning as endowment which are not subject to donor-imposed restrictions, however decisions to spend their principal require the approval of the Corporation and therefore are classified as Board-designated endowment funds. The majority of the endowment is invested in the GIA (*Note 3*).

The University is also the beneficiary of certain irrevocable trusts held and administered by others. The estimated fair values of trust assets, which include the present values of expected future cash flows from outside trusts and the

fair value of the underlying assets of perpetual trusts, are recognized as assets and increases in net assets when the required trust documentation is provided to the University.

The fair values of these trusts are provided by the external trustees and are adjusted annually by the University. These are included as Level 3 investments in the fair value hierarchy table in *Note 3*.

The University’s endowment distribution policies are designed to preserve the value of the endowment in real terms (after inflation) and generate a predictable stream of available income. Each fall, the Corporation approves the endowment distribution for the following fiscal year. Distribution from an underwater endowment fund (a fund below its historic dollar value) could continue in limited and defined circumstances under the University’s endowment

distribution policy. To the extent that the fair value of a donor restricted endowment fund falls below its historic dollar value it would be reported as a reduction of net assets with donor restrictions.

At June 30, 2021 and 2020, funds in a deficit position were reported in net assets with donor restrictions and are comprised as follows (in thousands):

	2021	2020
Fair value of underwater endowment funds	\$ 23,401	\$ 20,355
Historic dollar value	24,253	22,605
TOTAL DEFICIT OF UNDERWATER ENDOWMENT FUNDS	\$ (852)	\$ (2,250)

The endowment distribution is based in part on presumptive guidance from a formula that is intended to provide budgetary stability by smoothing the impact of annual investment gains and losses. The formula's inputs reflect expectations about long-term returns and inflation rates. For fiscal year 2021, the endowment distribution approved by the Corporation (prior to decapitalizations) was equal to 5.2% of the fair value of the endowment invested in the GIA as of the beginning of the fiscal year. The total

endowment distribution made available for operations was \$2.0 billion in fiscal year 2021 and 2020.

Each year the Corporation also approves certain decapitalizations from the endowment to support strategic, mission-critical activities or objectives that are typically one-time or time-limited and therefore, are excluded from net operating surplus. These decapitalizations totaled \$32.8 million and \$35.7 million in fiscal year 2021 and 2020, respectively. These additional decapitalizations, in combination with the endowment distribution, resulted in an aggregate payout rate of 5.2% in fiscal year 2021 and 2020.

General operating account

The GOA consists of the general or current funds of the University as well as the assets and liabilities related to student and faculty loans and facilities. The GOA accepts, manages, and pays interest on deposits made by University departments; invests surplus working capital; makes loans; and arranges external financing for major capital projects. It is used to manage, control, and execute all University financial transactions, except for those related to investment activities conducted by HMC.

9. SPLIT INTEREST AGREEMENTS

Under split interest agreements, donors enter into trust or other arrangements with the University in which the University receives benefits that are shared with other beneficiaries and institutions. Split interest agreement (SIA) investment assets are invested primarily in the GIA and publicly-traded securities, a small segment is managed by an external advisor, and all are recorded in the "Investment portfolio, at fair value" in the University's *Balance Sheets*. Additional disclosures are included in *Note 3*. Associated liabilities are recorded at the present value of estimated future payments due to beneficiaries and other institutions.

These liabilities are calculated using the University's current taxable unsecured borrowing rate of 1.0% and 0.8% as of June 30, 2021 and 2020, respectively. All split interest agreement net assets and the respective activity are reported within net assets with donor restrictions. Upon termination of a split interest agreement, the net assets are transferred to the GOA or endowment accordingly.

The changes in split interest agreement net assets for fiscal years 2021 and 2020 were as follows (in thousands of dollars):

	2021	2020
Investment return:		
Investment income	\$ 9,961	\$ 13,101
Realized and change in unrealized appreciation, net	402,937	37,420
Total investment return	412,898	50,521
Gifts (<i>Note 14</i>) ¹	10,761	9,709
Payments to annuitants	(71,358)	(66,351)
Transfers to endowment	(16,830)	(12,136)
Transfers between SIA and the GOA	(21,019)	(11,916)
Change in liabilities and other adjustments	(139,315)	54,997
NET CHANGE DURING THE YEAR	175,137	24,824
Total split interest agreement net assets, beginning of year	598,193	573,369
TOTAL SPLIT INTEREST AGREEMENT NET ASSETS, END OF YEAR	\$ 773,330	\$ 598,193

¹ Shown at net present value. The undiscounted value of these gifts was \$35,078 and \$27,237 for the years ended June 30, 2021 and 2020, respectively.

Split interest agreement net assets as of June 30, 2021 and 2020 consisted of the following (in thousands of dollars):

	2021	2020
Split interest agreement investments (Note 3)		
Charitable remainder trusts	\$ 1,170,553	\$ 936,417
Charitable lead trusts	116,254	94,401
Charitable gift annuities	342,917	255,696
Pooled income funds	162,963	131,263
Total split interest agreement investments ¹	1,792,687	1,417,777
Liabilities due under split interest agreements:		
Amounts due to beneficiaries	(930,260)	(751,217)
Amounts due to other institutions	(89,097)	(68,367)
Total liabilities due under split interest agreements	(1,019,357)	(819,584)
TOTAL SPLIT INTEREST AGREEMENT NET ASSETS, END OF YEAR	\$ 773,330	\$ 598,193

¹ For the year ended June 30, 2021, \$1,021,209 of SIA investments are held in the pooled general investment account and \$771,478 of SIA investments are held in the other investments outside the general investment account. For the year ended June 30, 2020, \$803,490 of SIA investments are held in the pooled general investment account and \$614,287 of SIA investments are held in the other investments outside the general investment account. Refer to Note 3.

10. BONDS AND NOTES PAYABLE

Bonds and notes payable as of June 30, 2021 and 2020 were as follows (in thousands of dollars):

	Fiscal year of issue	Fiscal year of final maturity ¹	Effective rate ²	Outstanding principal	
				2021 ³	2020 ³
TAX-EXEMPT BONDS:					
Variable-rate demand bonds:					
Series R – daily	2000-2006	2032	0.03%	\$ 131,200	\$ 131,200
Series Y – weekly	2000	2036	0.06%	117,905	117,905
Total variable-rate bonds			0.04%	249,105	249,105
Fixed-rate bonds:					
Series 2010A	2010	2022	4.9%	49,590	49,590
Series 2010B	2011	2024	4.9%		97,740
Series 2016A	2017	2041	4.0%	1,487,675	1,513,780
Series 2020A	2020	2031	4.0%	346,680	346,680
Total fixed-rate bonds			4.0%	1,883,945	2,007,790
TOTAL TAX-EXEMPT BONDS			3.6%	2,133,050	2,256,895
TAXABLE BONDS					
Fixed-rate bonds:					
Series 2008A	2008	2039	5.6%	243,000	243,000
Series 2008D	2009	2039	6.5%	500,000	500,000
Series 2010C	2011	2041	4.9%	300,000	300,000
Series 2013A	2013	2038	3.4%	402,000	402,000
Series 2016B	2017	2057	3.3%	1,000,000	1,000,000
Series 2020B	2020	2051	2.5%	500,000	500,000
Total fixed-rate bonds			4.1%	2,945,000	2,945,000
TOTAL TAXABLE BONDS			4.1%	2,945,000	2,945,000
Notes payable	Various	Various	Various	88,355	87,841
Unamortized original issuance premium/discount, net				355,467	395,046
Unamortized bond issuance costs				(18,673)	(20,103)
TOTAL BONDS AND NOTES PAYABLE			3.9%	\$ 5,503,199	\$ 5,664,679

¹ The weighted average maturity of the portfolio on June 30, 2021 was 18.3 years.

² For fixed-rate bonds the effective rate is calculated as: coupon rate x (par value / book value*). For variable rate bonds the effective rate is the average rate of the past one year. Effective rates are exclusive of the Series Y interest rate exchange agreement, which would increase the overall portfolio rate by 0.07% (3.95% vs. 3.88%). *Book value = par value + unamortized original issuance premium - unamortized original issuance discount, underwriter's discount, and cost of issuance.

³ Par only—balances exclude original issuance premiums/discounts.

Interest expense related to bonds and notes payable, net of amortization and accretion, was \$180.6 million and \$179.5 million for fiscal 2021 and 2020, respectively. The interest expense in the *Statement of Changes in Net Assets with General Operating Account Detail* includes additional components related to capital leases. Excluding unamortized discounts and premiums, unamortized underwriter's discount and unamortized cost of issuance, scheduled principal payments are (in thousands of dollars):

Fiscal year	Principal payments
2022	\$ 96,904
2023	42,060
2024	92,253
2025	41,441
2026	100,967
Thereafter	4,792,780
TOTAL PRINCIPAL PAYMENTS	\$ 5,166,405

Bonds and notes payable decreased from \$5.7 billion to \$5.5 billion, primarily due to maturing fixed rate bonds and fixed rate bonds paid down at their call date.

The University is rated Aaa by Moody's Investors Service and AAA by Standard & Poor's Global Ratings. The Moody's Investors Service rating was re-affirmed in February 2021 and the Standard & Poor's rating was re-affirmed in March 2021.

The University has one unsecured, revolving credit facility with a syndicate of banks totaling \$1.5 billion, which expires in March 2024. The facility was renewed in March of 2021. There was no outstanding drawn balance on the credit facility at June 30, 2021.

11. EMPLOYEE BENEFITS

The University offers current employees a choice of health plans, a dental plan, short-term and long-term disability plans, life insurance, tuition assistance, and a variety of other benefits such as subsidized passes for public transportation and for Harvard athletic facilities. In addition, the University has retirement plans covering substantially all employees.

The University uses a measurement date of June 30 for its pension and postretirement health plans.

The University has taxable commercial paper available totaling \$2 billion. There was no outstanding drawn balance on the taxable commercial paper line at June 30, 2021.

The University has tax-exempt commercial paper available totaling \$1 billion. There was no outstanding drawn balance on the tax-exempt commercial paper line at June 30, 2021.

As of June 30, 2021, the University had \$249.1 million of variable rate demand bonds outstanding with either a daily or weekly interest rate reset. In the event that the University receives notice of any optional tender on its variable rate demand 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 general obligation to purchase the bonds tendered with cash on hand.

Interest rate exchange agreements

In fiscal 2021, the University had in place one interest rate exchange agreement, used to manage the interest cost and risk associated with a portion of its outstanding variable rate debt.

The fair value of the interest rate exchange agreement was \$(31.3) million and \$(44.2) million as of June 30, 2021 and 2020, respectively, and is recorded in "Other liabilities associated with the investment portfolio" on the University's *Balance Sheets*.

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 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 \$207.8 million as of June 30, 2021 and \$163.6 million as of June 30, 2020; the assets are included in "Prepayments and deferred charges" and the liabilities are included in "Deferred revenue and other liabilities" on the University's *Balance Sheets*.

Pension benefits

All eligible faculty members and staff are covered by retirement programs that include a defined benefit component, a defined contribution component, or a combination of the two.

In accordance with the Employee Retirement Income Security Act (ERISA) requirements, the University has established a trust to hold plan assets for its defined benefit pension plans. The fair value of the trust's assets was \$1.1 billion and \$959.4 million as of June 30, 2021 and 2020, respectively. During fiscal years 2021 and 2020, the University made cash contributions to the defined benefit pension plan of \$61.2 million and \$53.5 million, respectively. The University recorded expenses for its defined contribution plans of \$153.4 million for fiscal year 2021 and 2020.

Postretirement health benefits

The University provides postretirement health coverage and life insurance to substantially all of its employees. As of June 30, 2021, the University had internally designated and invested \$1.0 billion in the GIA to fund the postretirement health benefit accrued liability of \$1.0 billion. As of June 30, 2020, the University had internally designated and invested \$779.8 million to fund the postretirement health benefit accrued liability of \$955.6 million.

The following table sets forth the pension and postretirement plans' funded status that is reported in the *Balance Sheets* as of June 30, 2021 and 2020 (in thousands of dollars):

	Pension benefits		Postretirement health benefits	
	2021	2020	2021	2020
Change in projected benefit obligation:				
Projected benefit obligation, beginning of year	\$ 1,220,094	\$ 1,129,397	\$ 955,571	\$ 854,639
Service cost	12,950	11,926	32,961	31,880
Interest cost	36,673	40,625	32,728	31,529
Plan participants' contributions			8,361	6,999
Plan change			0	(10,339)
Gross benefits paid	(103,677)	(45,090)	(25,125)	(24,256)
Actuarial (gain)/loss	(26,555)	42,471	(4,101)	65,119
Special termination benefits ¹	460	40,765		
PROJECTED BENEFIT OBLIGATION, END OF YEAR²	1,139,945	1,220,094	1,000,395	955,571
Change in plan assets:				
Fair value of plan assets, beginning of year	959,414	863,492		
Actual return on plan assets	144,732	87,479		
Employer contributions	61,224	53,533	16,765	17,257
Plan participants' contributions			8,361	6,999
Gross benefits paid	(103,677)	(45,090)	(25,126)	(24,256)
FAIR VALUE OF PLAN ASSETS, END OF YEAR	1,061,693	959,414	0	0
UNFUNDED STATUS³	\$ (78,252)	\$ (260,680)	\$ (1,000,395)	\$ (955,571)

¹ Represents costs associated with a voluntary early retirement program offered to plan participants.

² Measurement of the University's pension obligation including assumed salary increases (required by GAAP).

³ These amounts totaling \$1,078,647 as of June 30, 2021 and \$1,216,251 as of June 30, 2020 are included in the "Accrued Retirement Obligations" line in the Balance Sheets.

The accumulated pension benefit obligation (ABO) is a measurement of the University's pension benefit obligation, based on past and present compensation levels and does not include assumed salary increases. The ABO was \$1.0 billion at June 30, 2021 and 2020. The funded status disclosed

above has been prepared in accordance with pension accounting rules. When measured on an IRS funding basis, which informs the University's required cash contribution amount, the plan was overfunded at January 1, 2021.

Net periodic benefit cost

Components of net periodic benefit cost and other amounts recognized in the *Statements of Changes in Net Assets with General Operating Account Detail* are summarized as follows for the years ended June 30, 2021 and 2020 (in thousands of dollars):

	Pension benefits		Postretirement health benefits	
	2021	2020	2021	2020
Components of net periodic benefit cost:				
Operating				
Service cost	\$ 12,950	\$ 11,926	\$ 32,961	\$ 31,880
Special termination benefits	460	40,765		
Total operating activity	13,410	52,691	32,961	31,880
Non-operating				
Interest cost	36,673	40,625	32,728	31,529
Expected return on plan assets	(47,300)	(44,856)		
Amortization of:				
Actuarial loss/(gain)	16,230	15,682	(5,116)	(11,189)
Prior service cost/(credit)	288	288	(7,929)	(7,126)
Total non-operating activity ¹	5,891	11,739	19,683	13,214
Total net periodic benefit cost	19,301	64,430	52,644	45,094
Other amounts recognized in non-operating activity in unrestricted net assets:				
Current year net actuarial loss/(gain)	(123,987)	(151)	(4,101)	65,119
Current year net prior service cost			0	(10,339)
Amortization of:				
Prior service (cost)/credit	(288)	(288)	7,929	7,126
Actuarial (loss)/gain	(16,230)	(15,682)	5,116	11,189
Total other amounts recognized in non-operating activity ¹	(140,505)	(16,121)	8,944	73,095
TOTAL RECOGNIZED IN STATEMENTS OF CHANGES IN NET ASSETS WITH GENERAL OPERATING ACCOUNT DETAIL	\$ (121,204)	\$ 48,309	\$ 61,588	\$ 118,189

¹ These amounts totaling (\$105,987) in fiscal year 2021 and \$81,927 in fiscal year 2020 include gains and losses and other changes in the actuarially determined benefit obligations arising in the current period but that have not yet been reflected within net periodic benefit cost/(income) and are included in the "Change in Retirement Obligations" line in the Statements of Changes in Net Assets with General Operating Account Detail.

Cumulative amounts recognized as non-operating changes in net assets without donor restrictions are summarized as follows for the years ended June 30, 2021 and 2020 (in thousands of dollars):

	Pension benefits		Postretirement health benefits	
	2021	2020	2021	2020
Net actuarial loss/(gain)	\$ 40,596	\$ 180,814	\$ (167,932)	\$ (168,947)
Prior service cost/(credit)	607	894	(41,670)	(49,599)
CUMULATIVE AMOUNTS RECOGNIZED IN UNRESTRICTED NET ASSETS	\$ 41,203	\$ 181,708	\$ (209,602)	\$ (218,546)

The estimated net actuarial loss and prior service cost for the defined benefit plan that will be amortized from net assets without donor restrictions into net periodic benefit (income)/cost in fiscal year 2022 are \$7.2 million and \$0.3 million, respectively. The estimated net actuarial gain

and estimated prior service credit for the postretirement health benefit that will be amortized from net assets without donor restrictions into net periodic benefit (income)/cost in fiscal year 2022 are (\$4.6) million and (\$7.9) million, respectively.

Other assumptions and health care cost trend rates used in determining the year end obligation as well as the net periodic benefit (income)/cost of the pension and postretirement health plans are summarized as follows for fiscal years 2021 and 2020:

	Pension benefits		Postretirement health benefits	
	2021	2020	2021	2020
Weighted-average assumptions used to determine benefit obligation as of June 30:				
Discount rate	3.15%	3.15%	3.20%	3.35%
Compensation increase trend:				
Average rate	3.50%	3.50%	3.50%	3.50%
Cash balance (or similar formula) interest crediting rate	5.25%	5.25%	N/A	N/A
Pension increases for in-payment benefits increase trend:				
Average rate	0.25%	N/A	N/A	N/A
Initial rate	N/A	0.00%	N/A	N/A
Ultimate rate	N/A	0.25%	N/A	N/A
Year of ultimate	N/A	2025	N/A	N/A
Health care cost trend rate:				
Current rate	N/A	N/A	6.50%	6.50%
Ultimate rate	N/A	N/A	4.75%	4.75%
Year of ultimate	N/A	N/A	2025	2025
Weighted-average assumptions used to determine net periodic benefit (income)/cost:				
Discount rate	3.15%	3.65%	3.35%	3.60%
Expected long-term rate of return on plan assets	5.50%	5.50%	N/A	N/A
Compensation increase trend:				
Average rate	3.50%	3.50%	3.50%	3.50%
Initial rate	0.00%	N/A	N/A	N/A
Ultimate rate	0.25%	N/A	N/A	N/A
Year of ultimate	2025	N/A	N/A	N/A
Pension increases for in-payment benefits increase trend:				
Average rate	0.00%	0.15%	N/A	N/A
Health care cost trend rate:				
Initial rate	N/A	N/A	6.50%	5.00%
Ultimate rate	N/A	N/A	4.75%	4.75%
Year of ultimate	N/A	N/A	2025	2023

As an indicator of sensitivity, a one percentage point change in assumed health care cost trend rate would affect 2021 as shown in the following table (in thousands of dollars):

	1% point increase	1% point decrease
Effect on 2021 postretirement health benefits service and interest cost	\$ 13,947	\$ (15,316)
Effect on postretirement health benefits obligation as of June 30, 2021	191,261	(149,959)

The expected return on pension plan assets is determined by utilizing an independent advisor's capital markets model, which takes into account the expected real return, before inflation, for each of the pension portfolio's asset classes, as well as the correlation of any one asset class to every other asset class. This model calculates the real returns and correlations and derives an expected real return for the

entire portfolio, given the percentage weighting allocated to each asset class. After calculating the expected real return, an assessment is made to accommodate the expected inflation rate for the forthcoming period. The final expected return on assets is the aggregate of the expected real return plus the expected inflation rate.

Plan assets

The actual asset allocation of the investment portfolio for the pension plan at June 30, 2021 and 2020, along with target allocations for June 30, 2022, is as follows:

	2022 Target	June 30, 2021	June 30, 2020
Asset allocation by category for pension plan:			
Fixed income securities	70-80%	77.0%	59.0%
Equity securities	15-30	19.8	36.2
Cash	1-5	3.2	1.5
Hedge funds	0	0.0	3.3
TOTAL OF ASSET ALLOCATION CATEGORIES		100.0%	100.0%

The University's investment strategy for the pension portfolio is to manage the assets across a broad and diversified range of investment categories, both domestic and international. The objective is to achieve a risk-adjusted return that is in line with the long-term obligations that the University has to the pension plan beneficiaries. During fiscal year 2021, the University increased its allocation to fixed income securities to manage the interest rate volatility associated with its pension obligations. The

University expects to keep this strategy in future years. The investment program is also managed to comply with all ERISA regulations.

The following is a summary of the levels within the fair value hierarchy for the pension plan assets subject to fair value measurement as of June 30, 2021 and 2020 (in thousands of dollars):

	2021					2020
	Level 1	Level 2	Level 3	NAV as practical expedient	Total	Total
PLAN ASSETS:						
Cash and short-term investments	\$ 57,999				\$ 57,999	\$ 25,541
Domestic equity	104,391				104,391	182,940
Foreign equity	31,792			\$ 43,730	75,522	99,918
Domestic fixed income	208,742	\$ 198,379		339,858	746,979	542,181
Foreign fixed income		8,479			8,479	16,213
Emerging market equity and debt	22,895				22,895	57,584
Hedge funds				321	321	30,700
Private equity				1,799	1,799	2,184
Due from brokers					0	67
High yield				41,215	41,215	0
PLAN ASSETS SUBJECT TO FAIR VALUE LEVELING	\$ 425,819	\$ 206,858	\$ 0	\$ 426,923	\$ 1,059,600	\$ 957,328
Other assets not subject to fair value					2,126	2,086
TOTAL PLAN ASSETS					\$ 1,061,726	\$ 959,414
PLAN LIABILITIES:						
Due to brokers	(33)				(33)	
PLAN LIABILITIES SUBJECT TO FAIR VALUE LEVELING	\$ (33)	\$ 0	\$ 0	\$ 0	\$ (33)	\$ 0
Other liabilities not subject to fair value						
TOTAL PLAN LIABILITIES					\$ (33)	\$ 0

Expected future benefit payments

Employer contributions of \$20.0 million are expected for fiscal year 2022 to fund the pension benefit plan.

The following table summarizes expected benefit payments and subsidies for pension and other postretirement health benefits for the University (in thousands of dollars):

Fiscal year	Expected benefit payments	
	Pension	Postretirement health
2022	\$ 78,669	\$ 25,926
2023	62,790	28,164
2024	64,342	29,905
2025	65,800	31,516
2026	67,129	33,409
Thereafter	349,262	199,047

12. STUDENT FINANCIAL AID

Financial aid granted to students in fiscal 2021 and 2020 is summarized as follows (in thousands of dollars):

	2021	2020
Scholarships and other student awards:		
Scholarships applied to student income ¹	\$ 435,959	\$ 480,989
Scholarships and other student awards paid directly to students	160,744	163,618
Total scholarships and other student awards	596,703	644,607
Student employment	84,273	81,922
Student loans	13,064	14,765
Agency financial aid ²	21,279	19,839
TOTAL STUDENT FINANCIAL AID	\$ 715,319	\$ 761,133

¹ Includes \$164,232 and \$202,221 in fiscal 2021 and 2020, respectively, of undergraduate scholarships applied to student income.

² Represents aid from sponsors for which the University acts as an agent for the recipient.

13. SPONSORED SUPPORT

Total expenditures funded by US government sponsors or by institutions that subcontract federally sponsored projects to the University were \$625.0 million and \$616.2 million in fiscal year 2021 and 2020, respectively. The University's principal source of federally sponsored funds is the Department of Health and Human Services. The University also has many non-federal sources of sponsored awards and grants, including corporations, foundations, state and local governments, foreign governments, and research institutes.

Sponsored grants and contracts normally provide for the recovery of direct and indirect costs. Recovery of related indirect costs is generally recorded at fixed or predetermined rates negotiated with the federal government and other sponsors. Predetermined federal indirect cost rates have been established for the University Area, the Medical School (including the School of Dental Medicine), and the T.H. Chan School of Public Health through fiscal year 2024. Funds received for federally sponsored activity are subject to audit.

14. GIFTS

Gifts are classified as net assets with or without restrictions in accordance with donor specifications.

Additionally, gifts are categorized by purpose as "Current use", "Non-federal sponsored grants", "Endowment funds", "Split interest agreements", or "Loan funds and facilities".

Gifts received for the year ended June 30, 2021 are summarized as follows (in thousands of dollars):

	2021	
	Gifts received	Donor redesignations/ other changes
Current use	\$ 545,756	\$ (4,797)
Non-federal sponsored grants	211,571	(2,789)
Endowment funds	462,991	2,028
Split interest agreements ¹	10,761	
Loan funds and facilities	133,211	2,277
TOTAL GIFTS	\$ 1,364,290	\$ (3,281)
		\$ 1,361,009

¹ Shown at net present value. The undiscounted value of these gifts was \$35,078 for the year ended June 30, 2021.

Gifts received for the year ended June 30, 2020 are summarized as follows (in thousands of dollars):

		2020	
	Gifts received	Donor redesignations/ other changes	Total
Current use	\$ 483,673	\$ (6,109)	\$ 477,564
Non-federal sponsored grants	206,394	(3,767)	202,627
Endowment funds	463,743	5,460	469,203
Split interest agreements ¹	9,709		9,709
Loan funds and facilities	51,241	207	51,448
TOTAL GIFTS	\$ 1,214,760	\$ (4,209)	\$ 1,210,551

¹ Shown at net present value. The undiscounted value of these gifts was \$27,237 for the year ended June 30, 2020.

15. OTHER REVENUE

The major components of other revenue for the years ended June 30, 2021 and 2020 were as follows (in thousands of dollars):

	2021	2020
Publications and royalties from copyrights	\$ 253,113	\$ 239,002
Royalties from the commercialization of intellectual property ¹	107,164	61,947
Services income	96,443	114,410
Rental and parking ²	87,646	125,573
Health and clinic fees	61,461	68,813
Sales income	23,703	28,460
Interest income	7,079	9,364
Other student income	3,582	4,215
Other	53,724	47,570
TOTAL OTHER REVENUE	\$ 693,915	\$ 699,354

¹ Excludes distribution to external parties.

² The University is the lessor of space and facilities under operating leases, the income from which is included in rental and parking.

16. OTHER EXPENSES

The major components of other expenses for the years ended June 30, 2021 and 2020 were as follows (in thousands of dollars):

	2021	2020
Subcontract expenses under sponsored projects	\$ 161,910	\$ 152,916
Advertising	40,444	38,022
Publishing	39,316	45,164
Taxes and fees	35,294	31,597
Fixed asset impairments	20,804	182,435
Insurance	15,749	17,176
Postage	13,265	14,765
Telephone	10,968	12,783
Travel	1,965	71,080
Other	45,110	64,959
TOTAL OTHER EXPENSES	\$ 384,825	\$ 630,897

17. FUNCTIONAL AND NATURAL CLASSIFICATION OF OPERATING EXPENSES

Operating expenses are allocated functionally on a direct basis. Operations and maintenance expenses are allocated based on square footage.

Operating expenses by functional classification for the years ended June 30, 2021 and 2020 were as follows (in thousands of dollars):

	2021				Total
	Instruction and academic support	Research ¹	Student services and support	Institutional support and auxiliary	
Salaries and wages	\$ 1,111,716	\$ 306,555	\$ 140,842	\$ 517,552	\$ 2,076,665
Employee benefits	305,452	76,866	52,679	143,129	578,126
Services purchased	354,294	91,675	45,082	153,648	644,699
Depreciation	47,187	147,189	16,487	199,366	410,229
Space and occupancy	82,442	56,063	27,742	150,669	316,916
Supplies and equipment	68,242	55,497	34,903	52,055	210,697
Interest	17,840	31,203	12,653	121,759	183,455
Scholarships and other student awards			160,744		160,744
Other expense and overhead allocations	(39,494)	400,693	15,301	8,325	384,825
TOTAL EXPENSES	\$ 1,947,679	\$ 1,165,741	\$ 506,433	\$ 1,346,503	\$ 4,966,356

¹ The methodology used to allocate expenses for financial statement purposes is different than methodologies used for other purposes, such as governmental surveys.

	2020				Total
	Instruction and academic support	Research ¹	Student services and support	Institutional support and auxiliary	
Salaries and wages	\$ 1,090,715	\$ 304,443	\$ 148,043	\$ 588,310	\$ 2,131,511
Employee benefits	287,492	76,702	52,259	204,299	620,752
Services purchased	350,815	86,969	56,722	175,979	670,485
Depreciation	46,454	117,990	17,351	195,060	376,855
Space and occupancy	103,658	59,117	30,645	170,743	364,163
Supplies and equipment	82,003	49,274	39,975	72,618	243,870
Interest	16,908	30,380	12,503	120,936	180,727
Scholarships and other student awards			163,618		163,618
Other expense and overhead allocations	21,252	399,932	25,281	184,432	630,897
TOTAL EXPENSES	\$ 1,999,297	\$ 1,124,807	\$ 546,397	\$ 1,712,377	\$ 5,382,878

¹ The methodology used to allocate expenses for financial statement purposes is different than methodologies used for other purposes, such as governmental surveys.

18. COMMITMENTS AND CONTINGENCIES

Lease commitments

The University is the lessee of equipment and space under operating (rental) and finance leases. The University determines whether a contract is a lease at inception. Identified leases are subsequently measured, classified, and recognized at lease commencement. The University categorizes leases with contractual terms longer than twelve months as either operating or finance. The University's leases generally have terms that range from one to five years for equipment and one to twenty years for property, with certain leases inclusive of renewal options

if they are considered to be reasonably assured at lease commencement. Right of use assets and lease liabilities for operating leases are included in "Operating leases — right of use assets" and "Operating lease liabilities", respectively, in the *Balance Sheets*. Finance lease right of use assets and lease liabilities are included in "Fixed assets" and "Deferred revenue and other liabilities", respectively, in the *Balance Sheets*. Lease assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease.

Operating and finance lease right of use assets and associated lease liabilities are recognized based on the present value of future minimum lease payments to be made over the expected lease term, using the collateralized incremental borrowing rate at the commencement date in determining the present value of future payments. Rent expense related to operating leases, including short-term leases and variable lease payments, was \$95.4 million and \$93.9 million in fiscal year 2021 and 2020, respectively.

Maturity analysis of the annual undiscounted cash flows reconciled to the carrying value of the operating and finance lease liabilities (in thousands of dollars):

	Operating	Finance
2022	\$ 83,819	\$ 13,594
2023	80,491	13,655
2024	71,463	11,271
2025	64,936	11,660
2026	62,073	21,749
Thereafter	499,558	107,020
TOTAL LEASE PAYMENTS	862,340	178,949
Less: Imputed Interest	(159,468)	(82,126)
PRESENT VALUE OF LEASE LIABILITIES	\$ 702,872	\$ 96,823

Weighted-average remaining lease term and discount rate for operating and finance leases were as follows:

	June 30, 2021
Weighted Average Remaining Lease Term	
Operating Leases	15.7 YEARS
Finance Leases	14.7 YEARS
Weighted Average Discount Rate	
Operating Leases	2.4%
Finance Leases	2.4%

The University leases properties to customers under agreements that are classified as operating or sales-type leases. Property leased to others in operating lease arrangements are included in “Fixed assets” in the *Balance Sheets*. Revenue is recognized to the extent that amounts are determined to be collectible.

Fixed asset-related commitments

The University has various commitments for capital projects involving construction and renovation of certain facilities, real estate acquisitions, and equipment purchases, for which the outstanding commitments as of June 30, 2021 totaled approximately \$197.0 million.

Environmental remediation

The University is subject to laws and regulations concerning environmental remediation and has established reserves for potential obligations that management considers to be probable and for which reasonable estimates can be made. These estimates may change substantially depending on new information regarding the nature and extent of contamination, appropriate remediation technologies, and regulatory approvals. Costs of future environmental remediation have been discounted to their net present value. Management is not aware of any existing conditions that it believes are likely to have a material adverse effect on the University’s financial position, changes in net assets, or cash flows.

General

The University is a defendant in various legal actions arising from the normal course of its operations. While it is not possible to predict accurately or determine the eventual outcome of such actions, management believes that the outcome of these proceedings will not have a material adverse effect on the University’s financial position, changes in net assets, or cash flows.

The University has evaluated subsequent events through October 13, 2021, the date the financial statements were issued. The University has concluded that no material events have occurred that are not accounted for in the accompanying financial statements or disclosed in the accompanying notes.

Schedule of Expenditures of Federal Awards

Harvard University
Schedule of Expenditures of Federal Awards
Year Ended June 30, 2021

Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
Research and Development Cluster (R&D)					
Direct Awards					
Agency for International Development					
Advancing Economic Diversification in Ethiopia	98.001	72066319CA00005		928,058	-
COVID-19 Economic Response and Long-Term Growth in Jordan	98.001	72027820CA00002		684,252	-
Raskin Welfare Reform: Transition to Electronic Distribution	98.001	7200AA19FA00002		460,692	217,766
Total for CFDA 98.001				2,073,002	217,766
Total for Agency for International Development Direct Awards R&D Cluster				2,073,002	217,766
Department of Agriculture					
Adaptive forest management options for white ash influenced by the invasive emerald ash borer	10.310	2021-68008-34102		27,089	-
Toward a comprehensive understanding of the economic and ecological impacts of land protection	10.310	2021-67023-34491		9,761	-
Total for CFDA 10.310				36,850	-
Transects across New England landscapes: Investigating historical disturbances, vegetation dynamics, and functional changes in forest ecosystems	10.664	17-JV-11242306-038		4,923	-
Total for CFDA 10.664				4,923	-
Past and future land use / land cover change within watersheds of the upper Great Lakes	10.RD	19-CR-11242313-123		23,961	-
Total for CFDA 10.RD				23,961	-
Total for Department of Agriculture Direct Awards R&D Cluster				65,734	-
Department of Commerce					
CO2-Air Quality Urban Synthesis and Analysis (11.431	NA20OAR4310303		46,848	-
Data assimilation to leverage diverse datasets for improved CO2 and CH4 flux estimation and future observing system design	11.431	NA19OAR4310173		65,733	-
Long-term trends of tropospheric ozone constrained by global observation networks and GEOS-Chem	11.431	NA19OAR4310176		23,755	-
Maritime Continent as a barrier to the MJO propagation: an analysis of the sensitivity of convection to column moisture	11.431	NA17OAR4310260		193,640	-
Total for CFDA 11.431				329,975	-
Total for Department of Commerce Direct Awards R&D Cluster				329,975	-
Department of Defense					
A high speed, high resolution camera for analyzing ultra-fast motions in natural and synthetic model systems	12.300	N00014-20-1-2829		154,720	-
Adaptive Choice Set Construction for Complex Decision Making	12.300	N00014-19-1-2025		144,047	-
Analysis of high dimensional Gibbs samplers and Bayesian modeling of climate data	12.300	N00014-18-1-2730		109,980	-
Artificial Cellular Metabolism	12.300	N00014-20-1-2679		229,031	-
Bio-Electrical Energy from Seafloor Methane Sources	12.300	N00014-19-1-2244		38,094	-
Biophysikokinetic effect of NIR on cochlear oxidative stress and TTS	12.300	N00014-16-1-2966		17,902	-
Chemistry of Seawater Electrolysis and Byproduct Management for Underwater Breathing	12.300	N00014-19-1-2385		237,982	-
DNA-based technologies for reading and writing large-scale molecular patterns with nanoscale-precision	12.300	N00014-18-1-2549		247,281	-
Elements of Causal Learning: Basic Concepts, Theory, Methods, Algorithms and Applications	12.300	N00014-17-1-2131		(1,905)	(1,905)
Embedded Deep Learning and Advanced Computation	12.300	FA8750-18-1-0112		67,462	-
Ethical Decision Making Through Social Choice and Machine Learning	12.300	N00014-20-1-2488		85,436	-
Fluidic Powered Soft Fabric-Based Actuators for Wearable Robotic Applications	12.300	N00014-17-1-2121		119,056	-
High-Tc Superconductivity at Oxide-Chalcogenide Interfaces	12.300	N00014-18-1-2691		167,707	-
High-Throughput Growth of Interface Superconductors	12.300	N00014-19-1-2622		101,927	-
Many-Body Quantum Dynamics with Microscope Control- A New Research Frontier	12.300	N00014-18-1-2863		468,811	-
MicroRNA-mediated genomic stability and NIH1L susceptibility	12.300	N00014-17-1-2647		1,806	-
Nanostructured Surfaces for Integrated Optoelectronics, Plasmonics, and Quantum Optics	12.300	N00014-16-1-2825		395,517	-
Next-Generation Materials for Oxygen Generation, Transport, and Storage in the Undersea Environment	12.300	N00014-20-1-2418		1,206,041	423,809
Oxygen Generation and Extraction from Seawater	12.300	N00014-18-1-2650		68,022	-
Porous Metal-Organic Liquids as a New Platform for Investigation Gas-Liquid Interactions	12.300	N00014-19-1-2148		274,944	-
Practical and Scalable Quantum Simulators for Chemistry and Materials	12.300	N00014-16-1-2008		232,054	-
Programmable Architected Materials	12.300	N00014-16-1-2823		469,066	-
Quantum Engineered van der Waals Heterostructures for Topological Electronic Structures toward Novel Device Applications	12.300	N00014-18-1-2877		372,754	-
Quantum Information Processing With Phonons	12.300	N00014-20-1-2425		263,204	-
Quantum Opto-Mechanics with Atoms and Nanostructured Diamond: QOMAND	12.300	N00014-15-1-2761		896,508	735,511
Quantum Sensing and Metrology: Novel Methods and Applications	12.300	N00014-15-1-2846		(44,612)	-
Real-time Distributed Coordination of Multi-agent Systems under Limited Communication	12.300	N00014-19-1-2217		231,878	-
Self-Organized Collective Systems using Implicit Coordination: Closing the perception gap between theory and implementation for 3D underwater robot swarms	12.300	N00014-20-1-2320		185,298	-
Soft Robotic Instructional Kits for Education and STEM Outreach	12.300	N00014-19-1-2386		42,247	-
Solid-State Nuclear Magnetic Resonance Spectroscopy for Research on Advanced Catalysts, Sorbents, and Magnetic Materials	12.300	N00014-21-1-2359		384,978	-
Structured Reinforcement Learning in the Human Brain	12.300	N00014-17-1-2984		44,267	-
Synthetic Bioelectrical Materials for Sensing, Pattern Formation, and Computation	12.300	N00014-18-1-2859		823,549	-
Towards Living Materials using Synthetic Building blocks	12.300	N00014-17-1-3029		428,932	-
TwoRavens: Intuitive Statistical Exploration, Model Extraction, and Curation	12.300	FA8750-17-2-0114		252,702	76,153
Total for CFDA 12.300				8,716,690	1,233,567
Paper diagnostics for food- and waterborne pathogen detection	12.335	W911QY1910001		26,202	-
Total for CFDA 12.335				26,202	-
Fundamental Studies of Stored Energy for Photochemical Destruction of CWA Simulants	12.351	HDTRA1211001612		12,882	-
Total for CFDA 12.351				12,882	-
A prospective study of serum levels of polyunsaturated fatty acids and effects on multiple sclerosis disease activity and progression	12.420	W81XWH1910155		143,368	-
An evolutionary approach to vulnerability mapping in order identify alternative and synergistic therapeutic strategies for TSC and related diseases	12.420	W81XWH1810659		267,442	-
Anticoagulant Vascular Shunts for Temporary Arterial Bypass	12.420	W81XWH-17-2-0028		39,942	16,507
Chemigenomic Drug Discovery for Tuberculosis	12.420	W81XWH-17-1-0692		2,222,885	1,887,443
Genes, environment, and Prodromal features of Parkinson disease	12.420	W81XWH-20-1-0303		257,784	28,759
Gut Symbiotic Lipid A Family: Structures and Immunomodulation in IBD	12.420	W81XWH1910625		865,713	-
Identification of Premotor Parkinson disease	12.420	W81XWH-14-1-0131		9,691	9,691
Mapping the routes to tumor cell death in TSC	12.420	W81XWH-18-1-0370		258,931	-

Harvard University
Schedule of Expenditures of Federal Awards
Year Ended June 30, 2021

Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
Metabolomic Predictors of MS Outcomes	12.420	W81XWH1810341		85,881	686
Posttraumatic Stress Disorder and Ovarian Cancer Risk	12.420	W81XWH1710153		75,193	(247)
The longitudinal impact of treatment on cognitive function in men with advanced prostate cancer	12.420	W81XWH1910412		96,703	-
Theranostic Cellular Backpacks for Precision Imaging and Treatment of Traumatic Brain Injury Sites	12.420	W81XWH1920011		1,943,649	147,397
Understanding the role of gene-environment interactions in the degeneration of human dopaminergic neurons in Parkinson's Disease	12.420	W81XWH1910696		305,791	-
Total for CFDA 12.420				6,572,973	2,090,235
Aggregation in Foreign Policy Decision-Making	12.431	W911NF1920162		28,946	-
An Automated Scientific Discovery Framework (ASDF) for Mechanistic Reasoning Across Complex Data	12.431	W911NF-18-1-0124		55,956	-
Continuation Study: A Systems Approach to Understanding Post-Traumatic Stress Disorder	12.431	W911NF-17-2-0086		726,432	542,742
Design of Automatically Dispersed Metals on Oxides as Catalysts for Oxidative Decomposition of Chemical Warfare Agents	12.431	W911NF-20-2-0183		187,885	37,757
Design of Cellular Blocks, their Programmatic Assembly into Biological Meshes, and the Synthesis of Tissue-Like Structures	12.431	W911NF-17-2-0079		(2,634)	-
Facility For the Development and Characterization of New High-Performance Submillimeter Wave Lasers	12.431	W911NF2010157		162,291	-
Hydrodynamic Electron Transport in 2-Dimensional Materials for Nanoelectronics	12.431	W911NF-17-1-0574		91,112	41,846
ii.3.AMP: Hybrid quantum-classical algorithm for analyzing many-body systems: from NMR inference to validating microscopic theories on quantum simulators	12.431	W911NF2010163		29,005	-
Imaging and Control of Biological Transduction using NV-Diamond	12.431	W911NF-15-1-0548		491,773	291,553
Integrated Human Organ-on-Chip Microphysiological Systems	12.431	W911NF-12-2-0036		1	-
Programmable Optical Lattice for Fermi-Hubbard Quantum Simulations	12.431	W911NF2010104		191,756	-
Quantum Nanophotonics with Lithium Niobate	12.431	W911NF2010248		194,513	-
Quantum Optimization with Programmable Simulators based on Atom Arrays	12.431	W911NF2010021		2,407,660	796,459
Quantum Sensing of Quantum Materials	12.431	W911NF-17-1-0023		315,498	-
Quon Pictorial Language, Analysis, Quantum Information	12.431	W911NF1910302		143,356	-
Topological Superconductivity using Layered Materials	12.431	W911NF1810316		60,268	34,917
Toward Mathematical Intelligence and Certifiable Automated Reasoning: Theoretical Understanding and Experimental Realization	12.431	W911NF2010082		960,160	144,191
Widely-tunable, compact sub-millimeter source operating at room-temperature from 100 GHz to 1 THz	12.431	W911NF1920168		133,439	-
Total for CFDA 12.431				6,177,417	1,889,464
[Quantum Accelerator] Frequency Domain Quantum Communications using Electro-Optic Photonic Molecule	12.800	FA9550-21-1-0056		61,582	-
Active Metasurfaces for Advanced Wavefront Engineering and Waveguiding	12.800	FA9550-14-1-0389		(246)	(10,190)
Cooperative radiation for Quantum information processing and metrology	12.800	FA9550-19-1-0233		196,929	-
Distributed Coordination in Multi-agent Networked Systems Algorithms and Fundamental Limits	12.800	FA9550-18-1-0150		89,101	-
Enhanced Superconductivity through Picoscale Engineering	12.800	FA9550-21-1-0043		28,751	-
Entangling Ultracold Atoms	12.800	FA9550-19-1-0089		186,225	-
High-index dielectric metasurfaces for enhanced magneto-optics	12.800	FA9550-19-1-0352		108,046	-
High-Performance Electro-Optic Frequency Combs for High-Precision Measurements	12.800	FA9550-19-1-0310		3,194	-
Injectable Mesh Nanoelectronics for Brain Mapping and Modulation	12.800	FA9550-18-1-0469		4,982	-
Laser Cooling of Complex Molecules for Quantum Science	12.800	FA9550-19-1-0068		33,248	-
Metasurface Polarization Optics and Imaging	12.800	FA9550-19-1-0135		163,749	-
Modulating Cellular Performance with Nanoscale Biocircuits	12.800	FA9550-19-1-0246		258,277	-
Nanostructured Optics for High-Power Laser Applications	12.800	FA9550-19-1-0376		180,777	-
New Approaches to Quantum Control with Individual Molecule Sensitivity	12.800	FA9550-20-1-0323		780,965	204,692
Optical Magnetic Imaging of Neuronal Currents and Impedance using Quantum Defects in Diamond	12.800	FA9550-17-1-0371		3,186	-
The Neural Architecture of Reinforcement Learning in Partially Observable Environments	12.800	FA9550-20-1-0413		16,277	8,949
The Production and Study of Antiprotons and Cold Antihydrogen	12.800	FA9550-15-1-0275		177,351	169,433
Wigner Crystals in Atomically Thin Heterostructures	12.800	FA9550-21-1-0216		20,522	-
Total for CFDA 12.800				2,312,915	372,883
Active Context	12.910	W911NF-15-1-0544		1,869,240	751,045
Collaborative scientific discovery with semantically linked machine-built models	12.910	W911NF2010255		143,908	-
DARPA Biological Control: A generalizable approach to engineer ultra-precise cellular control systems with applications to drug resistance	12.910	HR0011-16-2-0049		156,027	-
Design and Engineering of Biostasis Proteins	12.910	W911NF1920017		2,341,439	368,764
Engineering Self-Organizing Systems: Theory and Top-down Synthesis Methodology for Resilient Collectives using Kilobot and Molecular Robotics Platforms	12.910	W911NF-17-1-0075		(1,208)	-
High-efficiency aberration corrected large metalenses	12.910	HR00111810001		587,982	-
Identifying pathogenic bacteria by phenotyping	12.910	W911NF-19-2-0018		3,711,480	652,449
Incentive alignment and lifelong learning in stochastic games.	12.910	W911NF1820265		(263,373)	-
Information Storage and Processing Using Time-Ordered Strings of Molbytes, and Molecular Processes	12.910	W911NF-18-2-0030		872,076	181,584
Mechanism Design for Resource Coordination in Dynamic, Multi-Actor Worlds	12.910	HR00111920029		595,488	-
Multiplexed Organism-Based Pathogen Detection	12.910	W911NF1920023		25,686	-
STOP PAIN: Safe Therapeutic Options for Pain and Inflammation	12.910	HR0011-19-2-0022		4,006,326	1,589,486
Surveillance of Passenger Organisms to Record Embarkment	12.910	HR0011-18-2-0014		(23,040)	-
Time-Tolerant Biostasis Therapeutics	12.910	W911NF1920027		6,091,201	72,162
Ultra-Rapid Drug Repurposing for COVID19 Therapeutics	12.910	HR0011-20-2-0040		10,175,020	7,047,188
Total for CFDA 12.910				30,288,253	10,662,677
3D Printing for Low-loss RF Components	12.RD	7000445922		107,867	-
An Integrative Exploration of Actuation and Power Systems for Microrobots	12.RD	HR001119C0044		438,771	-
Development of NV Diamond Integrated Circuit (IC) Imager	12.RD	124787		11,858	-
Evaluating the Importance of Precursor Transport and Transformation for Groundwater Contamination with Poly- and Perfluoroalkyl Substances	12.RD	W912HQ19C0002		343,720	90,941
Integration of top-down and bottom-up methodologies for accurate modeling of biological networks	12.RD	FA8750-17-C-0255		507,471	-
Laser Cooling of Polyatomic Molecules	12.RD	FA9550-21-1-0136		29,073	-
Personalized computational modeling to support effective use of back support exosuits to prevent back injuries	12.RD	W81XWH2010609		39,897	-
Transmitters, Receivers, Amplifiers for Microwave Photonics On Lithium Niobate (TRAMPOLIN)	12.RD	HR0011-20-C-0137		1,138,904	794,318
Total for CFDA 12.RD				2,617,560	885,259
Total for Department of Defense Direct Awards R&D Cluster				56,724,891	17,134,086
Department of Education					

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Core Academic Language Skills Instrument: Refining the assessment to measure and monitor English Learners' progress	84.305	R305A190034-21		280,367	75,400
Partnering in Education Research (PIER): A Predoctoral Interdisciplinary Training Program	84.305	R305B150010-16		597,816	-
Student Outcomes of Integrative Mental Health Services	84.305	R305A140253-16		102,264	37,942
Developing and Testing Training Modes for Improving Teachers' Race-Related Competencies to Promote Student Learners' Academic Adjustment	84.305	R305A200279-21		232,287	-
The language of written argumentation and explanation: Individual developmental trajectories from 4th to 8th grade□	84.305	R305A170185 - 18		17,540	17,540
National Center on Rural Education Research Networks	84.305	R305C190004 - 21		1,512,022	112,425
Total for CFDA 84.305				2,742,295	243,306
Partnering in Education Research (PIER) An Interdisciplinary Pre-doctoral Training Program	84.305B	R305B200012		93,000	-
Total for CFDA 84.350B				93,000	-
Total for Department of Education Direct Awards R&D Cluster				2,835,295	243,306
Department of Energy					
A Lagrangian study of the transition from shallow to deep convection using ASR observations and LES simulations	81.049	DE-SC0018120		104,830	-
Biomimetic Self-Growing Modular Materials with Encoded Morphologies and Deformabilities	81.049	DE-SC0005247		204,409	76,467
CATALYST DESIGN FOR SMALL MOLECULE ACTIVATION OF ENERGY CONSEQUENCE	81.049	DE-SC0019144		104,133	-
Converting Metal–Organic Liquids into Microporous Glasses via Non-Equilibrium Syntheses	81.049	DE-SC0021145		141,950	-
Correlated Quasiparticles in Graphene	81.049	DE-SC0012260		76,368	-
Data Structure Alchemy	81.049	DE-SC0020200		259,616	-
Design and Assembly of Atomically-Precise Quantum Materials and Devices	81.049	DE-SC0020128		500,798	47,129
Discovering Dark Matter Clumps and Primordial Particles with Galaxies	81.049	DE-SC0020223		180,328	-
Dynamics of Many-Body Quantum Entanglement	81.049	DE-SC0019030		67,166	-
Energy Transductions in Multimodal Stimuli-Responsive Systems with Information Encoding Capabilities and Non-equilibrium Signal Processing	81.049	DE-SC0005247		5,645	5,662
INTEGRATED MESOSCALE ARCHITECTURES FOR SUSTAINABLE CATALYSIS (IMASC)	81.049	DE-SC0012573		2,865,147	785,970
Microbial Ecology, Proteogenomics and Computational Optima	81.049	DE-FG02-02ER63445		2,958,398	-
Mixed-Metal Oxide Energy Conversion Catalysts for Integration with Photoabsorbers	81.049	DE-SC0017619		286,455	-
Programmable quantum simulators for lattice gauge theories and gauge-gravity correspondence	81.049	DE-SC0021013		168,786	-
Pursuing Dark Energy with Large Galaxy Redshift Surveys: Baryon Acoustic Oscillations and Beyond	81.049	DE-SC0013718		75,889	-
QPress: Quantum Press for Next-Generation Quantum Information Platforms	81.049	DE-SC0019300		1,032,650	478,785
Quantum Field Theory and Theoretical Particle Physics	81.049	DE-SC0013607		334,856	-
Research in High Energy Physics	81.049	DE-SC0007881		1,456,476	-
SISGER: Transport and Imaging of Mesoscopic Phenomena in Novel Low-Dimensional Materials	81.049	DE-SC0001819		445,824	240,000
State-to-State Molecular Reactions in the Ultracold Regime	81.049	DE-SC0019020		337,579	-
Theoretical Research in High Energy Physics	81.049	DE-SC0007870		206,714	-
Topics in string theory, quantum field theory and quantum gravity	81.049	DE-SC0021528		54,271	-
Understanding Flow Cell Porous Electrodes as an Active Materials for Electrochemical Transformations	81.049	DE-SC0020170		524,150	-
Total for CFDA 81.049				12,392,441	1,634,014
From Z to Planets: Phase III	81.112	DE-NA0003904		385,541	85,726
The Properties of Metallic Hydrogen	81.112	DE-NA0003917		163,833	-
Total for CFDA 81.112				549,374	85,726
GaN NMR Spectrometer Integrated Circuits Towards Broadly Distributed On-line Monitoring and Management of Subsurface Oil/Gas Reservoirs and Downstream	81.135	DE-AR0001063		424,625	41,463
Mining the deep sea for microbial ethano- and propanogenesis	81.135	DE-AR0000963		(155)	-
Total for CFDA 81.135				424,469	41,463
AQUEOUS SOLUBLE ORGANIC MOLECULE AND ELECTRODE DEVELOPMENT	81.RD	428977		12,493	-
ATLAS Phase II Upgrade: ITk Strip Stave Assembly	81.RD	340452		5,065	-
Long Lifetime Aqueous Soluble Organic Flow Battery Development	81.RD	535264		126,226	-
WBS 1.2.4.1 Trigger Processor Integration and Commissioning	81.RD	358424		119,356	-
Wire Tension for DUNE Anode Plane Assemblies	81.RD	665148		150,536	-
Total for CFDA 81.RD				413,675	-
Total for Department of Energy Direct Awards R&D Cluster				13,779,959	1,761,203
Department of Housing & Urban Development					
First-Time Homeownership in Fringe Cities: A Case Study of Brockton MA	14.506	RP-19-MA-004		1,257	-
Total for CFDA 14.506				1,257	-
Optimizing the Impact of Smoke-Free Residential Policies using an Evidence-Informed Implementation Approach	14.906	MAHJU0041-18		262,469	-
Total for CFDA 14.906				262,469	-
Total for Department Housing & Urban Development Direct Awards R&D Cluster				263,726	-
Department of Justice					
Applying a Development Evaluation Approach to Address Community Safety and Health Challenges of Reintegration Programs in the USA	16.560	2019-ZA-CX-0001		410,085	-
Augmenting, Analyzing, and Archiving Criminal Trajectories in Four Birth Cohorts from the Project on Human Development in Chicago Neighborhoods, 1995-2023	16.560	2020-JX-FX-0002		2,494	-
The Final Stage Reentry Project: An RCT of Expungement and Its Effect on Recidivism, Housing, and Employment	16.560	2019-RY-BX-0001		258,989	150,173
Total for CFDA 16.560				671,568	150,173
Total for Department of Justice Direct Awards R&D Cluster				671,568	150,173
Department of State					
Investigating the Feasibility of Extracting Digital Data from Analog Microform Seismogram Recordings	19.RD	19AQMM20P1475		34,816	-
Total for CFDA 19.RD				34,816	-
Total for Department of State Direct Awards R&D Cluster				34,816	-
Department of the Interior					
Historic Resource Study: African-American Civil Rights Leaders and the Roosevelts	15.946	P17AC00787-01		3,404	-
Total for CFDA 15.946				3,404	-
Total for Department of the Interior Direct Awards R&D Cluster				3,404	-
Department of Veterans Affairs					
MAVERIC Project	64.RD	36C24E18D0048 36C24E21N0139		946,094	-

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Total for CFDA 64.RD				946,094	-
Total for Department of the Interior Direct Awards R&D Cluster				946,094	-
DHHS					
Catalyzing Oral Health Workforce for Rural and Vulnerable Populations	93.059	5 D88HP37552 02 00		171,778	5,698
Total for CFDA 93.059				171,778	5,698
Pre-disease biomarkers of persistent organic pollutants, immune system, and amyotrophic lateral sclerosis	93.061	1R01TS000315-01		27,291	-
Serological profiling of the human virome and ALS risk in a military population	93.061	1R01TS000318-01		125,786	-
Total for CFDA 93.061				153,076	-
Image Forensics: Quantitative Assessments of Image Duplication	93.085	6 ORIIR190048-01-01		3,886	-
Total for CFDA 93.085				3,886	-
Scaffolds mimicking antigen presenting cells	93.103	5R01FD006589-03		767,187	-
Total for CFDA 93.103				767,187	-
Training Grant in Maternal and Child Health	93.110	6T76MC00001 64 01		320,688	-
Total for CFDA 93.110				320,688	-
A big data approach to phthalates, hormones, and ADHD	93.113	5R21ES028900-02		145,205	-
Air Particulate, Metals, and Cognitive Performance in an Aging Cohort- Roles of Circulating Extracellular Vesicles and Non-coding RNAs	93.113	5R01ES027747-05		431,290	104,662
Assessing the effects of exposures to phthalates in both the female and male germlines	93.113	1F31ES032631-01		2,110	-
Cardiovascular Health and Air Pollution: A National Study	93.113	5R01ES024332-04REVISED		12,898	(780)
Causal machine learning methods for studying the effects of environmental exposures on childhood cancer using natural experiments	93.113	1K0ES032458-01		56,516	-
Early and late-life metal exposures and Alzheimer's disease	93.113	5R01ES024165-05REVISED		395,262	112,096
Effects of Environmental Phthalates and Chemical Mixtures on Male Puberty and Semen Quality	93.113	5R01ES014370-15		472,480	192,494
Engineered Nanomaterial Synthesis, Characterization and Method Development Center for Nano-safety Research	93.113	5U24ES026946-05		563,417	145,078
Environmental Obesogens and Weight Change in the POUNDS LOST Trial	93.113	5R01ES022981-06		313,099	91,539
Glucose Metabolism in Adults Prenatally Exposed to Diabetogenic Pollutants	93.113	5R01ES021477-05 REVISED		(3,335)	-
Graduate Training in Biostatistics	93.113	5T32ES007142-39		478,599	-
Gut Microbiome in Adults with Early Life Exposures to Environmental Chemicals	93.113	5R21ES023376-03Revised		28,002	-
Harvard Chan School NIEHS Center for Environmental Health	93.113	5P30ES000002-58		1,991,542	57,906
HSPH NIEHS Center for Environmental Health	93.113	5P30ES000002-55		(75)	-
Human Exposure to Bisphenol A, Phthalates and Fertility, Pregnancy Outcomes	93.113	5R01ES009718-20 REVISED		103,383	-
Identifying low dose measurement error corrected effects of multiple pollutants using causal modeling	93.113	1R01ES032418-01		78,287	-
Inflammation and metabolic abnormalities in pollutant-exposed children	93.113	5R01ES026596-02		20,828	20,828
Interdisciplinary Training in Genes and the Environment	93.113	5T32ES016645-10Rev		168	-
International Society for Environmental Epidemiology (ISEE) Annual Conference	93.113	1R13ES032292-01		13,526	-
Maternal and Paternal Preconception Environmental Exposures and Children's Health	93.113	5R01ES027408-04		584,622	116,945
Metals and developmental origins of late life cognitive function	93.113	5R01ES031943-02		63,551	3,003
MicroRNAs, ER stress, and arsenic neurotoxicity	93.113	5K99ES029548-02REVISED		55,667	-
Multi-Pathway DNA Repair Capacity Measurements in Lung Cancer Patients and Healthy Controls	93.113	5U01ES029520-04		707,567	182,980
New Tools for the interpretation of Pathogen Genomic Data with a focus on Mycobacterium tuberculosis	93.113	5K01ES026835-06		294	-
Novel markers of exposure and pathways of response to Chromium	93.113	5R01ES027981-04		367,203	18,895
Nurses Health Study 3: A multiple exposure environmental epidemiology cohort of young adults	93.113	5R24ES028521-04		509,382	82,784
Organ on chip technology to evaluate engineered nanomaterial toxicity	93.113	5U01ES027272-05		440,928	-
PCA-based selection scans in very large samples	93.113	5R03ES027902-02		24,541	-
Per- and Polyfluoroalkyl substances mixtures and maternal cardiovascular disease risk across the reproductive life course	93.113	5R01ES031065-02		254,085	103,716
Phthalates, Gestational Diabetes, and Markers of Type 2 Diabetes Risk in Women	93.113	5R01ES026166-06		354,337	227,049
Relationship Between Multiple Environmental Exposures and CVD Incidence and Survival: Vulnerability and Susceptibility	93.113	5R01ES028033-04		530,827	78,344
Retrospective assessment of radon progeny and pollution effects in COPD	93.113	5R21ES029637-02		208,759	20,079
SPP1, Oxidative Stress, and Lead Toxicity	93.113	5R01ES029097-02		497,292	210,348
The Impact of Maternal and Paternal Preconception Perfluoroalkyl Substance (PFAS) Exposure on Reproductive and Perinatal Outcomes	93.113	5R01ES031657-02		384,207	60,369
Training Program in Environmental Epidemiology	93.113	5T32ES007069-40		619,134	-
Vulnerability During Infancy to Immunotoxic Contaminant Exposures	93.113	5R01ES030394-02		323,090	236,228
Total for CFDA 93.113				11,028,687	2,064,565
Regulation of Inflammation in T2D-Associated Periodontitis.	93.121	5R00DE024575-05		159,448	-
Anti-Inflammatory Mesenchymal Stem Cell Therapy for Dental Applications	93.121	5K08DE025292-05		96,377	-
Bayesian multivariate image analysis for studying oral microbiome biogeography	93.121	7R21DE026872-03REVISED		93,986	-
Biology of cortical bone of long bones and calvarium Role of Sfrp4 in periosteal bone formation	93.121	5R01DE029615-02		365,106	17,859
Biology of cortical bone of long bones and calvarium. Role of Sfrp4 in the local regulation of Wnt signaling	93.121	1R56DE028299-01A1 REVISED		(22,728)	-
Chemical Approaches to Rescue Human Mitochondrial Disease Mutations	93.121	5F30DE028206-03 REVISED		56,783	-
Dynamics of the bacterial type IX secretion system and its effect on subgingival biofilm formation by bacteria of the human oral microbiome	93.121	5K99DE026826-02 REVISED		412	-
Engineering Skeletal Muscle With Biodegradable Hydrogels	93.121	5R01DE013349-20		831,150	-
Gas-Hedgehog signaling in intramembranous bone formation and expansion	93.121	5R01DE025866-04		327,532	-
Multivariate Bayesian variable selection for high-dimensional oral microbiome data	93.121	7R03DE027486-02REVISED		96,155	14,444
Nicotinamide Mononucleotide (NMN) as a Novel Therapeutic in the Treatment of Oral Mucositis	93.121	1R21DE027490-02 REVISED		72,753	-
Targeting the source: bacterial specific pain mechanisms in dental pulp	93.121	7R56DE027368-02 REVISED		140,596	-
Tooth Movement derived by PDL Cellular Manipulations	93.121	5R00DE025053-05		191,784	-
Total for CFDA 93.121				2,409,354	32,303
Health Promotion and Disease Prevention Research Centers	93.135	6U48DP006376-02M001		584,776	-
Total for CFDA 93.135				584,776	-
Safety and Health Management of Hazards Associated with Emerging Technologies.	93.143	5R25ES023635-07REVISED		116,263	7,901
Metals and Metal Mixtures: Cognitive Aging, Remediation and Exposure Sources (MEMCARE)	93.143	5P42ES030990-02REVISED		1,753,313	613,703
Total for CFDA 93.143				1,869,576	621,604
Center for Genomically Engineered Organs	93.172	3RM1HG008525-05S1		(68,548)	2,222
Coordinating Center for the Undiagnosed Disease Network Phase II	93.172	5U01HG007530-07 REVISED		3,875,058	906,672
Fast and accurate phasing using the positional Burrows-Wheeler transform (PBWT)	93.172	5R21HG009513-02Rev		42,110	-

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FLYBASE: A DROSOPHILA GENOMIC AND GENETIC DATABASE	93.172	5U41HG000739-29		2,905,763	1,042,689
Functionally specialized components of disease heritability in ENCODE data	93.172	3U01HG009379-04S1		469,618	196,950
HMMER and Infernal: Finding distant homologs of sequences and RNA structures	93.172	5R01HG009116-04		365,498	-
Identifying genetic code reassignments in nucleotide sequence databases	93.172	5F31HG010984-02 REVISED		34,008	-
Mechanisms of Transcriptional Control Revealed by Nascent Transcript Sequencing	93.172	5R01HG007173-09		731,946	-
Methods for disease mapping in multi-ethnic populations	93.172	5R01HG006399-09		281,961	82,314
Multi-allelic forms of human genome structural variation	93.172	2R56HG006855-09 REVISED		239,323	-
Patient-Centered Information Commons (PIC)	93.172	5U54HG007963-05 REVISED		17,838	-
PFinder: A computational tool to identify genomic regions affected by perturbation	93.172	5F31HG010570-02 REVISED		17,822	-
Population-Based Approaches to Genome Structure and Structural Variation	93.172	5R01HG006855-08 REVISED		(17,541)	-
Powering whole genome sequence-based genetic discovery for common human diseases	93.172	3U01HG009088-04S4		874,638	589,923
Pragmatic randomized trial of polygenic risk scoring for common diseases in primary care	93.172	5R35HG010706-02		503,719	-
Statistical and high-throughput models of enhancer function and evolution	93.172	1R01HG011485-01		30,942	-
Systematic Exploration of the Human Interactome III	93.172	5U24HG006673-10		732,965	-
Training in Bioinformatics and Integrative Genomics	93.172	5T32HG002295-18		691,383	-
Total for CFDA 93.172				11,728,503	2,820,769
Characterizing the Functional Architecture of the Necklace Olfactory System	93.173	3R01DC016222-05S1		761,828	-
Afferent-efferent interactions in the developing cochlea	93.173	5R01DC015974-05 REVISED		275,818	-
Binding of PCDH15 to TMC1 for Mechanosensation in the Inner Ear	93.173	5F32DC018713-02		61,471	-
Clear speech in ALS: Effects of feedback from a novel ASR practice paradigm and practice dosage	93.173	5F31DC019016-02		34,590	-
Cortical feedback and olfactory processing	93.173	5R01DC016289-04		258,850	-
Corticostriatal Contributions to Auditory Perceptual Hypersensitivity	93.173	5F31DC018974-02		38,810	-
Diversification of spiral ganglion neurons during development and in maturity	93.173	5R21DC018356-02 REVISED		119,911	-
Emergence of valence coding in the ventral striatum	93.173	5R01DC017311-03		440,887	-
Gene Therapy for Hearing and Balance Disorders	93.173	5R01DC016932-04		494,878	46,285
Genetic Dissection of Auditory Circuit Assembly	93.173	5R01DC009223-12		519,522	-
Harnessing Otic Progenitor Cells Derived From Many Donors to Test for Cisplatin Associated Hearing Loss	93.173	5R21DC018092-02 REVISED		7,722	-
Individual and population differences in the representation of harmonic sounds	93.173	5F31DC018433-02 REVISED		34,083	-
Learning-mediated plasticity in cortical feedback projections to the olfactory bulb	93.173	5K99DC017754-02		107,424	-
Mechanisms of Hair Cell Mechanotransduction Channel Gating	93.173	5R21DC018631-02		173,726	-
Molecular Basis of Inherited Deafness	93.173	5R01DC002281-21		(7,150)	41,596
Molecular Mechanisms of Auditory Transduction	93.173	5R01DC000304-35		81,699	-
Morphological and Molecular Development of Efferent Innervation of the Cochlea	93.173	5F32DC019009-02		67,638	-
Neuromodulation of sensory processing by the serotonin system	93.173	5R01DC014453-05		(4,986)	-
Olfactory tubercle circuits involved in odor valence assignment	93.173	5F32DC017891-03		67,313	-
Spatial and sensorimotor encoding for goal-directed navigation	93.173	5F30DC017698-02 REVISED		36,380	-
Synaptic and Circuit Mechanisms of Olfactory Processing	93.173	5R01DC008174-15		291,782	-
Synaptic and Functional Changes in Cochlear and Vestibular Hair Cells of Tmc Mutant Mice	93.173	5F32DC018233-02		65,096	-
The mechanism of inner ear pressure homeostasis by the endolymphatic sac	93.173	5R01DC015478-05		412,898	-
The role of inhibition in higher olfactory processing	93.173	5F31DC016471-03		2,068	-
Training for Speech and Hearing Sciences	93.173	5T32DC000038-30		671,789	-
Transcriptional diversity in olfactory sensory neurons	93.173	5F31DC019017-02		32,835	-
What Causes Hearing Loss: Advancing the Methods	93.173	5R01DC017717-02		247,593	30,679
Why are interneurons within the same brain region so diverse	93.173	5F31DC016196-03		6,204	-
Total for CFDA 93.173				5,300,681	118,560
Sensory receptors of the vagus nerve	93.213	5DP1AT009497-05		482,805	-
Total for CFDA 93.212				482,805	-
2020 Research Day on Teaching Kitchens and Self Care Practices	93.213	1R13AT010554-01		30,392	-
Chemical biology of bacterial symbionts	93.213	5R01AT009874-11		258,069	-
Identification and characterization of gut microbial bioactive molecules that determine predisposition to autoimmune disease and atopy	93.213	3R01AT009708-04S1		845,045	278,168
Inequities in Health Outcomes in the Twenty-First Century: Understanding New Causes and the Impact of Delivery System Reforms on Health Care Disparities	93.213	5DP5OD024564-05		345,361	-
Mining the Gut Microbial Metabolome for Immunomodulatory Molecules that Contribute to Health or Disease	93.213	1F32AT010415-01A1 REVISED		39,953	-
Sensory Neuron-Bacteria Interactions in Modulating Pain and the Host Microbiota	93.213	3DP2AT009499-01S1		1,051,270	-
Spinal Cord Nociceptive Circuits that Deliver Outputs to the Brain to Initiate Pain	93.213	1R01AT011447-01		741,557	244,988
Total for CFDA 93.213				3,311,646	523,157
Comparing Targeted and Non-Targeted Approaches to Improving the Value of Cancer Care Services	93.226	5R01HS026498-03		433,855	31,835
Deriving an Evidence Base for Emergency Management in U.S. Hospitals: Toward Resilience in the Midst of COVID-19	93.226	1R01HS028240-01		141,345	15,473
Engineering highly reliable learning lab	93.226	5P30HS024453-04Revised		251,550	250,745
Health Policy Training Program	93.226	5T32HS000055-28		409,936	-
Identifying Predictors of Hospital Admission from the ED Among the Elderly	93.226	3R01HS025408-04S1		271,300	68,071
Prescribing of opioids at hospital discharge and associated adverse patient outcomes	93.226	5R01HS026753-03		328,287	148,466
Quality and Outcomes under Medicaid Managed Care: Evidence from Random Plan Assignment	93.226	5K01HS025786-04		143,025	-
R18 Closed Loop Diagnostics : AHRQ R18 Patient Safety Learning Laboratories	93.226	5R18HS027282-02 REVISED		666,608	487,448
Risk Aversion, Fear of Malpractice, and Medical Decision Making in the Emergency Department	93.226	5R01HS026730-02		331,997	226,189
Strategic Behavior Among Provider Organizations in Risk-Sharing Contracts	93.226	1R36HS027531-01		25,441	-
Total for CFDA 93.226				3,003,342	1,228,226
In situ transcriptional analysis of brain circuits at single cell resolution	93.242	5R01MH111502-03		(1,238)	-
2/4 Powering Genetic Discovery for Severe Mental Illness in Latin American and African Ancestries	93.242	1U01MH125045-01REV		368,202	-
A General Approach for the Development of New Cell-Type-Specific Viral Vectors	93.242	1RF1MH114081-01 REVISED		174,626	-
A novel output pathway from the cerebellum for regulation of diverse non-motor behaviors	93.242	5R01MH122570-02 REVISED		284,004	-
Basal forebrain parvalbumin neurons regulate attention by controlling cortical oscillations	93.242	1F32MH119838-01A1		59,403	-
Basal forebrain purinergic P2 receptor mechanisms of sleep-wake regulation	93.242	5R03MH107650-02 REVISED		(1,887)	-

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Bidirectional Interactions of Cortex and Basal Ganglia During Action Selection	93.242	1F32MH125596-01		45,576	-
Biological/behavioral rhythms and suicidal behavior: A real-time monitoring study	93.242	5K23MH120439-02		150,185	4,147
Brain-wide correlation of single-cell firing properties to patterns of gene expression	93.242	1RF1MH117042-01		483,842	-
Building a robust organoid platform to study the developmental potential and physiology of human specific cortical cell types	93.242	1RF1MH123948-01		484,764	-
Cerebellar network mapping with a high-throughput TEM platform	93.242	1RF1MH114047-01 REVISED		85,707	-
Child Trauma and the Development of Neural Systems Underlying Emotion Regulation	93.242	7R01MH103291-05 REVISED		175,473	9,692
Computational and neural underpinnings of decision-making in social contexts	93.242	8K00MH125856-02		78,554	-
Context dependent modulations of dopamine signaling	93.242	5R01MH110404-05		133,179	-
CRCNS: Leveraging decision-making variability to identify underlying computations	93.242	5R01MH115554-03		64,641	-
Decision-making and suicidal behavior	93.242	5F31MH116649-02		(755)	-
Deprivation and Threat: Dimensions of Early Experience and Neural Development	93.242	5R01MH106482-05 REVISED		421,995	24,596
Developmental origins of mental illness: evolution and reversibility	93.242	5P50MH094271-09		1,949,566	400,283
Dissecting the assembly of vertebrate neurotransmitter release sites	93.242	5R01MH113349-05 REVISED		625,092	-
ESSENCE (Enabling translation of Science to Service to Enhance Depression Care)	93.242	5U19MH113211-05		571,723	320,236
Event-related Neuroimaging of Human Memory Formation	93.242	5R01MH060941-19 REVISED		120,038	-
Exploring a Novel Paradigm of Schizophrenia and Bipolar Disorder	93.242	5R01MH113279-05		686,254	-
Functional Roles of Long Noncoding RNAs During Neuronal Development	93.242	5R01MH102416-05 REVISED		(5,659)	-
Genetic Topography of Brain Morphology in Relation to Language in Large N Study of Schizophrenia	93.242	1R03MH122759-01A1		29,080	-
Genomic mechanisms of firing rate homeostasis	93.242	5R01MH116223-04		416,352	-
Health Policy Training Program: Promoting Outcomes, Quality, and Diffusion of Medical Advances	93.242	5T32MH019733-27		331,652	-
High throughput assaying of circuit activity and connectivity in brain organoids	93.242	1RF1MH123977-01 REVISED		387,838	122,395
Impact of Telemedicine on Medicare Beneficiaries with Mental Illness	93.242	5R01MH112829-04 REVISED		757,901	165,375
In situ transcriptome imaging in single cells	93.242	5R01MH113094-05		957,527	-
Intensive longitudinal study of suicidal behaviors and related health outcomes	93.242	5U01MH116928-04		831,055	100,929
Intercellular TWEAK/Fn14 Cytokine Signaling in Sensory-Dependent Circuit Refinement	93.242	5K99MH120051-02 REVISED		3,284	-
Leveraging EHR data to evaluate key treatment decisions to prevent suiciderelated behaviors	93.242	5R01MH121478-02 REVISED		554,414	130,461
Modeling ASD-linked genetic mutations in 3D human brain organoids	93.242	5R01MH112940-04 REVISED		715,881	203,945
Molecular, spatial, and functional development of innate behavior in the periaqueductal gray	93.242	5F31MH120911-03		32,708	-
Neural mechanisms of foraging decisions	93.242	1F32MH126505-01		15,838	-
Neurodevelopment In HEU Children Exposed In Utero To Dolutegravir Or Efavirenz	93.242	5R01MH121191-02		319,329	281,305
Neurodevelopmental Mechanisms Underlying Stress Vulnerability during Adolescence	93.242	5R37MH119194-02		1,068,559	-
New approaches to understand neuronal microcircuit dynamics for working memory	93.242	5R01MH107620-05 REVISED		202,919	-
Non-invasive targeted neuromodulation via focused ultrasound BBB permeabilization	93.242	5R01MH116858-04		966,221	301,129
Optical measurement of causal functional connectivity in posterior parietal cortex	93.242	5F32MH118698-03		64,147	-
Pathogenic mechanisms in post-bereavement psychopathology: Contributions of gene-environment interplay, psychosocial factors, and cognitive ability in two population-based cohorts	93.242	5K23MH117278-03		154,821	-
Ph.D. Training in Neuroscience	93.242	5T32MH020017-24		659,836	-
Post Traumatic Stress Disorder and Accelerated Aging in Women	93.242	5R01MH101269-08		688,325	317,836
Precision Mapping the Human Cerebellum for Neuromodulation and Understanding of Brain Disorders	93.242	5R01MH124004-02		331,655	24,948
Pregnancy influences maternal immune cell function and fetal brain development	93.242	5R01MH119459-03		784,198	-
Real-time fMRI Neurofeedback as a Tool to Mitigate Auditory Hallucinations in Patients with Schizophrenia	93.242	5R61MH113751-02 REVISED		434,785	234,692
Regional and Genetic Diversity of Cortical Interneurons	93.242	5R01MH071679-16		752,181	268,031
Regulation of Neuronal Calcium Dynamics and Learning by Mental Disease-Associated miRNAs	93.242	1R21MH117386-02		67,994	-
Somatic Mosaicism in Neuropsychiatric Disorders	93.242	1F31MH124292-01A1 REVISED		14,646	-
Structural Stigma and HIV Prevention Outcomes	93.242	5R01MH112384-06		182,299	13,513
Synaptic Basis of Sleep Cycle Control	93.242	5R01MH039683-32 REVISED		(10,555)	-
Temporal Specification of Basal Forebrain Circuitry	93.242	5R01MH119156-02		606,938	-
Testing FIRST in Youth Outpatient Psychotherapy	93.242	1R01MH124965-01		6,397	-
The Brain Wiring of Frontostriatal Connections in Early Psychosis	93.242	5R21MH121704-02 REVISED		239,585	151,955
Tools to broaden access to high-throughput functional connectomics	93.242	1RF1MH117808-01A1		718,545	356,059
Training Program in Psychiatric Genetics and Translational Research	93.242	5T32MH017119-35		412,486	-
VENTRICLES, CORPUS CALLOSUM, SYMPTOMS and MIR137 IN LARGE N STUDY OF SCHIZOPHRENIA	93.242	5R21MH109819-02 REVISED		21,977	-
Total for CFDA 93.242				20,674,102	3,431,527
A Novel portable KXRF measurement system for in vivo metal measurements	93.262	5K01OH011648-02-00		63,395	-
Lung Disease in Chinese Textile Workers	93.262	6R01OH002421-23M002		761,655	118,162
The Harvard TH Chan School of Public Health Center for Work, Health and Wellbeing	93.262	6U19OH008861-14-04		1,543,998	1,255,912
The HSPH Education and Research Center of Occupational Safety and Health	93.262	6T42OH008416-16M001		1,775,580	14,178
Total for CFDA 93.262				4,144,628	1,388,252
Alcohol and Breast Cancer: Genetic Interactions and Effects on Aromatase Inhibitor Therapy	93.273	5K01AA027831-02		122,614	-
Data-Based Methods for Just-In-Time Adaptive Interventions in Alcohol Use	93.273	5R01AA023187-05		185,682	-
Total for CFDA 93.273				308,297	-
Multi-Study Integer Programming Methods for Human Voltammetry	93.279	5F31DA052153-02		35,125	-
Next Generation Cell-Type-Specific Viral Vectors for Non-Neuronal Brain Cell Types	93.279	1RF1DA048787-01		879,106	-
Precision pharmacology of the opioids	93.279	5DP1DA046586-04		532,188	-
Stress, Arousal and Mood: Affective Influences on Decisions under Uncertainty	93.279	5R01DA042855-05		534,722	-
Syringe Injectable Electronics Platform for Chronic Mapping and Modulation of Neural Circuits in Addiction	93.279	3R21DA043985-02S1 REVISED		(138)	-
Telemedicine for Treatment of Opioid Use Disorder	93.279	3R01DA048533-03S1		859,415	112,728
Validated tools for identifying, characterizing, and targeting all non-neuronal cells in the brain and determining the neuro-glio-vascular connectome	93.279	1RF1DA048786-01		298,589	-
Young Adults Responses to E-Cigarette Advertisement Features and the Effect of Restricting Features on Tobacco Use	93.279	5K99DA046563-03		50,896	-
Total for CFDA 93.279				3,189,903	112,728
MSC Encapsulation with Thin Gel Coating	93.286	5R01EB023287-03		349,597	-
Total for CFDA 93.286				349,597	-
Advancing novel methods to measure and analyze multiple types of discrimination for population health research	93.307	5R01MD012793-03		786,156	229,966

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Disparities in Exposure and Health Effects of Multiple Environmental Stressors Across the Life Course	93.307	3P50MD010428-05S1REVISED		310,167	170,492
DNA methylation and adversity: pathways from exposures to health inequities	93.307	5R01MD014304-03REVISED		426,456	248,285
Health Reform and Oral Health Disparities: a Mixed Methods Evaluation	93.307	5K99MD012253-02 REVISED		66,130	-
Trends in Racial Disparities in Surgical Readmissions and Strategies to Narrow the Gap	93.307	5R21MD011701-02REVISED		5,411	5,411
Work Requirements and Health Care Disparities in Medicaid: A Randomized Controlled Trial	93.307	5R01MD014970-02Revised		152,983	17,466
Work Requirements and Health Care Disparities in Medicaid: A Randomized Controlled Trial	93.307	7R01MD014970-03		67,103	-
Total for CFDA 93.307				1,814,406	671,618
4D Nucleome Network Data Coordination and Integration Center	93.310	2U01CA200059-06		1,729,538	133,768
Antibody therapeutics for human viral hemorrhagic fevers and prevention of late neurological syndromes	93.310	5DP5OD023084-05		474,441	-
Deconvolution and reconstruction of immune histories to enhance infectious disease prevention and vaccination strategies and optimize surveillance efforts	93.310	5DP5OD028145-02REVISED		148,742	-
Exploring the unknown protein universe using evolutionary information	93.310	5DP5OD026389-03		404,292	-
High-throughput single-molecule protein identification via super-resolution imaging	93.310	5DP1GM133052-03		1,844,735	-
High-Throughput, Highly Multiplexed In Situ Proteomic Imaging of Human Tissues	93.310	5UG3HL145600-02 REVISED		9,032	-
High-Throughput, Highly Multiplexed In Situ Proteomic Imaging of Human Tissues	93.310	5UH3CA255133-04		375,210	-
Identifying Principles of Protein Mechanics by Applying Force and Observing Motion	93.310	1DP2GM141000-01		327,320	-
Investigating Organ Formation and the Emergence of Complexity in the Visual System Using Comparative Developmental Approaches	93.310	5DP5OD023111-05		376,121	-
Leveraging Single-Cell Analysis to Elucidate Mechanisms of Vertebrate Limb Regeneration	93.310	7DP2HD087953-02 REVISED		473,758	-
Machine Learning for Health Outcomes and Quality of Care in Low-Income Populations□	93.310	1DP2MD012722-01 REVISED		23,096	-
Mechanisms of arousal threshold and sleep homeostasis	93.310	1DP2AT009498-01 REVISED		985,032	-
Molecular Causes of Down Syndrome Associated Congenital Heart Disease and Other Phenotypes	93.310	1R01HL151257-01 REVISED		925,506	-
Molecular determinants of neuronal protein homeostasis through plasma membrane-localized proteasome complexes	93.310	5DP5OD028133-02		354,185	-
Molecular mechanisms of adiponectin signaling and PAQR function	93.310	5DP5OD021345-05 REVISED		68,288	-
New tools for understanding the blood brain barrier	93.310	5DP1NS092473-05		115,451	-
Pharmaco Response Signatures and Disease Mechanism	93.310	5U54HL127365-06 REVISED		598,338	35,758
Psychological functions of music in infancy	93.310	5DP5OD024566-04 REVISED		315,205	-
Quantification and prediction of treatment efficacy for HIV cure strategies	93.310	5DP5OD019851-05 REVISED		21,582	-
Single-cell epigenomic and cellular plasticity	93.310	1DP2HL151353-01		824,659	-
Subcellular RNA-Proteome Mapping in Subtype- and Circuit-specific Growth Cones: Development, Cell Biology, Disease, and Regeneration	93.310	5DP1NS106665-05		900,580	-
Syringe-Injectable Mesh Electronics for Seamless Integration with the Central Nervous System	93.310	5DP1EB025835-03 REVISED		(21,214)	-
The Molecular Basis of Caste Development and Evolution in Ants	93.310	1DP5OD029792-01		205,744	-
Tools to facilitate manipulation of protein-specific glycosylation stoichiometry in cells	93.310	5U01CA242098-03		616,071	41,350
Toward mechanistic cognitive neuroscience: cell types, connectivity, and patterned perturbations	93.310	1DP1MH125776-01		600,860	-
Transporting established insights from classical experimental design to address causal questions in environmental epidemiology, including the understanding of biological mediating mechanisms	93.310	5DP5OD021412-05 (REVISED)		146,953	-
Uncovering molecular effectors of mammalian aging	93.310	5DP1AG063419-04		976,184	-
HuBMAP HIVE Tools Component Supplement	93.310	3OT2OD026677-01S4		997,777	-
Total for CFDA 93.310				14,817,485	210,876
Institutional Career Development Core	93.350	5KL2TR002542-04 REVISED		1,498,939	1,123,316
NRSA Training Core	93.350	5TL1TR002543-04		647,310	-
Robotic Apparel to Enable Low Force Haptic Cueing for Improving Parkinson's Gait	93.350	5U01TR002775-02		365,178	115,521
The Harvard Clinical and Translational Science Center	93.350	5UL1TR002541-04 REVISED		18,649,138	6,299,495
Total for CFDA 93.350				21,160,566	7,538,332
ARC: Building Awareness, Respect, and Confidence through Genetics	93.351	5R25GM129172-05 REVISED		89,452	-
Drosophila resources for modeling human diseases	93.351	5R24OD021997-04 REVISED		101,959	-
Next-generation Drosophila cell lines to elucidate the cellular basis of human diseases	93.351	5R24OD019847-04		415,231	209,968
TRIP resources for modeling human disease	93.351	5R24OD030002-02		292,093	-
Using CRISPR technology to study the function of paralogous genes	93.351	5R24OD026435-04		663,015	109,158
600 MHz NMR Spectrometer Console	93.351	1S10OD028526-01		389,495	-
Total for CFDA 93.351				1,951,245	319,126
Biomaterials to Create T Cell Immunity	93.353	1U54CA244726-01		2,381,016	1,009,242
The Implementation Science Center for Cancer Control Equity	93.353	3P50CA244433-01S2REVISED		2,995,296	2,046,557
The pre-cancer atlases of cutaneous and hematologic origin (PATCH Center)	93.353	3U2CCA233262-01S1		1,699,338	410,473
Total for CFDA 93.353				7,075,649	3,466,272
Household contact tuberculosis preventive therapy program in rural Eastern Cape, South Africa	93.361	5K23NR019019-02		109,389	-
Total for CFDA 93.361				109,389	-
4D Nucleome Network Data Coordination and Integration Center	93.393	5U01CA200059-05 REVISED		434,561	9,185
Cancer Epidemiology Cohort in Male Health Professionals	93.393	5U01CA167552-10		1,749,369	78,749
Colorectal carcinogenesis and Fusobacterium nucleatum: oncomicrobe, oncometabolites, and oncoimmunology	93.393	5R01CA154426-10		324,992	-
Comparative Modeling to Inform Cervical Cancer Control Policies	93.393	1U01CA253912-01REVISED		847,702	522,432
Comparative Modeling to Inform Cervical Cancer Control Policies	93.393	5U01CA199334-05REVISED		501,486	411,239
Conflict-driven aneuploidy and genomic instability caused by meiotic proteins	93.393	4K00CA234523-03		83,115	-
Expanding pharmacological modalities for targeted cancer therapy	93.393	1F99CA253754-01 REVISED		27,263	-
Genomic targets of oncoproteins and tumor suppressors	93.393	5R01CA107486-13		555,818	-
Impact of screening and diagnostic intensity on the study of prostate cancer epidemiology	93.393	5R03CA226942-02		75,277	-
Improving Mammography Completion and Follow-Up in Community Health Centers	93.393	1R03CA256233-01		42,205	5,719
Informing anti-tobacco communications with affective and decision science: Application of the Appraisal Tendency Framework	93.393	5R01CA224545-02		577,623	68,052
Integrating diet and tissue whole exome sequencing data to study processed meat and colorectal cancer	93.393	5R21CA222940-02 REVISED		18,976	913
Integrating diet, lifestyle and tumor tissue molecular subtyping to study the role of adolescent calcium intake on the risk of early onset colorectal neoplasia	93.393	5R21CA230873-02		56,345	10,575
Integrative Approach to Understand the Role of Diet, Physical Activity and Adiposity on Survival in Patients with Colorectal, Endometrial and Prostate Cancer	93.393	5R03CA249027-02		87,739	7,572
Investigation of the carcinogenic effects of bactericidal antibiotics in the gut	93.393	4K00CA245801-03		30,226	-
Life Course Cancer Epidemiology Cohort in Women	93.393	5U01CA176726-08REVISED		2,180,583	1,377,083

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Marine omega-3 fatty acid, gut microbiome and colorectal cancer prevention	93.393	5R00CA215314-04		202,763	78,972
Molecular Biology of Oncogenic Papillomaviruses	93.393	5R35CA197262-06 REVISED		927,095	-
Multifactorial breast cancer risk prediction accounting for ethnic and tumor diversity	93.393	5U01CA249866-02		293,580	105,194
Risk Factors for Breast Cancer in Younger Nurses	93.393	5R01CA050385-30		352,959	189,527
Semi-supervised Algorithms for Risk Assessment with Noisy EHR Data	93.393	5R21CA242940-02		158,666	54,107
Single-cell analysis of tumor-microenvironment interactions in follicular lymphoma	93.393	5R21CA220147-03		252,765	12,078
Single-molecule analysis of eukaryotic transcription activation	93.393	5R01CA246500-02		427,014	228,092
Statistical framework for assessing drug sensitivity in vitro and linking patient outcomes	93.393	1F99CA245736-01 REVISED		1,601	-
Statistical Methods for Analysis of Massive Genetic and Genomic Data in Cancer Research	93.393	5R35CA197449-07		880,017	-
Statistical methods for cancer genomics and cell-free DNA analysis	93.393	5R01CA240299-02		217,867	28,644
T Cell Receptor Forces: From Molecular Mapping to Cancer Therapeutic Triggering	93.393	5K00CA234959-04		68,444	-
The Boston Lung Cancer Survival Cohort	93.393	5U01CA209414-05		1,265,962	525,099
The Genetic Architecture of Breast Parenchymal Textural Features and its Implications for Breast Cancer Risk	93.393	5R03CA224196-02REV		16,562	-
The Impact of a Changing Health Care Delivery System on the Quality of Oncology Care	93.393	1R01CA255035-01		329,169	12,558
Theory and methods for mediation and interaction	93.393	5R01CA222147-04REVISED		330,114	102,079
Understanding the Mechanism of a Gut Microbial Genotoxin Involved in Colorectal Carcinogenesis	93.393	5R01CA208834-05		228,743	30,828
Total for CFDA 93.393				13,546,602	3,858,696
COVID-19: Causal, Statistical and Mathematical Modeling with Serologic Data	93.394	1U01CA261277-01REVISED		170,870	-
Droplet microfluidic technology for single cell cancer genomics	93.394	5R33CA212697-03 REVISED		49,686	-
High dimensional digital pathology to investigate the tumor micro environment and its impact on response to therapy	93.394	1R50CA252138-01		207,605	-
Total for CFDA 93.394				428,160	-
Biomaterial Cancer Vaccines that Generate Patient-Specific Antigen In Situ	93.395	5R01CA223255-04 REVISED		436,588	-
Developmental regulation of apoptosis as a modifiable driver of radiotherapy-induced neurocognitive impairment in pediatric patients	93.395	5R37CA248565-02		340,046	-
Synthesis and Study of Natural and Non-natural Antiproliferative Agents	93.395	5R01CA047148-33		487,583	-
Target MDM2/MDMX for reducing normal tissue toxicity induced by chemotherapy	93.395	5R01CA233558-03		348,855	-
Targeted and Timed-Releasing Nanotherapeutics Against Leukemia Stem Cells	93.395	5R01CA176803-05		58,418	-
Total for CFDA 93.395				1,671,489	-
3D Models of Immunotherapy	93.396	5U01CA214369-05		509,126	174,892
Cellular and molecular mechanism of Hippo signaling in suppressing liver tumor formation	93.396	5R01CA222571-04		424,826	-
Decoding and targeting the PI3K-mTOR signaling network in cancer	93.396	5R35CA197459-06		996,607	16,100
Elucidating chromatin organization with molecular rulers	93.396	5R21CA235421-02		188,050	-
Epithelial layer jamming in breast cancer cell migration	93.396	5U01CA202123-05		83,623	40,490
Identification of Transposable Element Insertions in the Kids First Data	93.396	5R03CA249364-02		167,721	-
Molecular mechanisms of Nutrient sensing in cancer	93.396	5R01CA213062-05		350,367	-
Notch Signaling in Cancer	93.396	5R35CA220340-05		956,311	-
Roles of Eukaryotic Translation Initiation Factors in Gene Expression	93.396	5R01CA200913-05		304,969	-
Single Cell Genome-Wide Myeloid Response Profiling in Immunotherapy	93.396	5R01CA218579-04		429,183	97,702
Tracking the evolution of breast cancer through single cell analyses of premalignant breast tissues from women at high risk for cancer development	93.396	5R35CA242428-03		1,121,669	-
Unraveling the Complexities of Risk and Mechanism in Cancer	93.396	5R35CA220523-03		697,188	56,818
WebMeV: A Robust Platform for Intuitive Genomic Data Analysis	93.396	5U24CA231846-03		859,411	-
Total for CFDA 93.396				7,089,050	386,003
Systems Pharmacology of Therapeutic and Adverse Responses to ImmuneCheckpoint and Small Molecule Drugs	93.397	5U54CA225088-04		2,307,693	382,808
Total for CFDA 93.397				2,307,693	382,808
Automatic Volumetric Treatment Response Assessment and Determination of Regional Genetic Characteristics in Glioblastoma	93.398	5F30CA239407-03		50,478	-
Behavioral Economics and Improving Chemotherapy Decisions for Advanced Cancer	93.398	5K24CA181510-05		20,829	-
Characterizing ETV6 as a regulator of EWS-FLI oncoprotein in Ewing Sarcoma	93.398	5F30CA246925-02		37,052	-
Clinical trial data analysis to design novel treatment regimens in oncology	93.398	1F30CA260780-01		2,153	-
Deciphering the mechanism of colibactin-induced DNA damage through quantitative and biochemical approaches	93.398	1F32CA254165-01		63,023	-
Deciphering the role of Six2 in regulating cancer stem cell properties and promoting late-stage metastasis in breast cancer	93.398	5K00CA223023-05		85,961	-
Defining the biochemical functions of the TSC tumor suppressors in mTORC1 signaling	93.398	1F31CA239432-01A1REVISED		21,080	-
Defining the Novel mTORC-ATF4 Axis in Cancer	93.398	5F31CA228332-02		(492)	-
Determining the role of LSD1 in multiple myeloma through a multi-omics approach at single cell resolution	93.398	1F31CA257625-01 REVISED		17,118	-
Developing polycistronic replication-defective herpes simplex virus vectors as immunotherapeutic tools for treating melanoma	93.398	1F31CA235898-01A1 REVISED		28,572	-
Effects of Brca1 Heterozygosity on Mammary Gland Biology	93.398	5F31CA228200-03		27,372	-
Elucidating Oncogenic Mechanisms of CBL RING Domain Mutations	93.398	5F30CA236112-03		50,649	-
Etiology of glioma and glioblastoma	93.398	5F30CA235791-02 REVISED		48,410	-
Genome-scale CRISPR activation screening to identify lung-specific metastatic pathways	93.398	5F30CA232407-03 REVISED		48,368	-
Harvard Education Program in Cancer Prevention Control	93.398	5T32CA057711-27		450,135	-
Identifying optimal dynamic strategies for prostate cancer control	93.398	5K99CA248335-02		108,685	-
Impact of RPS 15 mutation on development and progression of chronic lymphocytic leukemia	93.398	5F31CA239443-03		37,046	-
Interrogating the role for ATP-dependent chromatin remodeling complexes in immune response	93.398	5F30CA239317-03		32,921	-
Investigating the intracellular signaling mechanisms of coinhibitory receptor PD-1	93.398	5F31CA247073-02		31,483	-
Investigating the role of ALG3 in the regulation of N-glycosylation by PI3K/AKT signaling in breast and lung cancer	93.398	5F31CA250094-02		38,896	-
Investigating the role of EZH2 as a therapeutic target in colorectal cancers	93.398	1F31CA260804-01		15,588	-
Investigating the role of Strada signaling in promoting AML chemoresistance	93.398	5F31CA213902-03 REVISED		53,514	-
MCV ST activates specific gene transcription by redirecting the activity of the Tip60/p400 complex	93.398	5F31CA239345-03		32,878	-
Mechanisms of tumor microenvironmental regulation of T-cell infiltration in melanoma	93.398	1F31CA260802-01		15,588	-
Metabolic regulation of anti-tumor T cell responses	93.398	5F31CA224601-03 REVISED		7,980	-
Methods for Mendelian randomization and mediation analysis using integrative genetic and genomic data for breast cancer	93.398	1K99CA256513-01		43,999	-
Optimal BET inhibitor combination therapies in triple negative breast cancer	93.398	5F30CA228208-04 REVISED		48,539	-
Optimizing the therapeutic index for pediatric medulloblastomas by targeting apoptosis	93.398	5F31CA246811-02		33,679	-
Overcoming Tumor Resistance with Enzyme-Instructed Nanoscale Assemblies and Immunotherapies	93.398	5K00CA234746-04		99,655	-
Program for Training in Cancer Epidemiology	93.398	5T32CA009001-46		488,569	-

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Rational Design of Combination Therapy Administration Schedules Using Mathematical Modeling	93.398	5F31CA239565-02REVISED		16,817	-
Redefining the Molecular Landscape of Melanoma	93.398	5F31CA239347-03		32,878	-
Regulation of the cell cycle and growth signaling pathways by a sensing mechanism for Vitamin B5-Coenzyme A metabolism	93.398	5F31CA254169-02		34,815	-
Role of a Two-Factor Genetic Circuit Regulating Stemness in Colorectal Cancer	93.398	1F30CA260739-01		2,153	-
Role of Chromatin Bridges in Activating Innate Immune Signaling following Failed Mitosis	93.398	1F31CA254156-01A1		12,417	-
Role of DHX29 in the regulation of Hippo pathway effectors YAP/TAZ in cancer	93.398	5F31CA235893-03 REVISED		32,054	-
Role of the Gut Microbiota in Regulating Responses to anti-PD-1 Cancer Immunotherapy	93.398	5F32CA247072-02 REVISED		67,767	-
Small molecule inhibitors for the study of colibactin-induced carcinogenesis by gut microbes	93.398	5F31CA247069-02 REVISED		33,753	-
Substrates and Functions of the Sideroflexin Mitochondrial Transporter Family	93.398	4R00CA241332-03		140,776	-
Targeting the PI3K/AKT pathway in cancer using a pan-AKT degrader	93.398	5F31CA254000-02		30,682	-
Targeting Unique Myeloid Populations to Overcome Anti-PD-1 Resistance Conferred by Specific Cancer Mutations	93.398	5K08CA248960-02		153,635	-
The mechanism of cancer-specific allele selection for K-RAS	93.398	5F31CA243163-02		31,550	-
Training Grant in Quantitative Sciences for Cancer Research	93.398	5T32CA009337-40		489,547	-
Unraveling the influence of genetic subtype on spatial configurations of tissue and immune compartment composition in clear cell renal cell carcinoma	93.398	5F31CA250136-02		37,734	-
Total for CFDA 93.398				3,156,307	-
Determinants of an Effective Job Training Program: An Analysis of Year Up	93.595	90PE0039-01-00		45,514	-
Total for CFDA 93.595				45,514	-
A novel approach to professional development for early childhood educators and caregivers	93.647	90PD0305-02-00		3,656	-
Total for CFDA 93.647				3,656	-
Investigating the role of the complement system in cardiac regeneration	93.837	1F32HL146000-01A1 REVISED		19,103	19,103
A defend and destroy approach to curing HIV	93.837	5U19HL129903-05 REVISED		1,054,968	825,413
A Novel Cognition-based Guidance System to Improve Surgical Safety	93.837	5R01HL126896-05		524,483	311,027
Acoustic speech analysis of patients with decompensated heart failure	93.837	1F31HL143824-01A1		4,136	-
Bioprinting A Physiologically Aligned, Thick Cardiac Tissue for Regenerative Medicine	93.837	5F31HL144043-03		29,980	-
Characterizing the mechanism of loss-of-function mutations in ALPK3 in the pathogenesis of cardiomyopathy	93.837	5F30HL147389-03		37,089	-
Complement Activation and Initiation of Heart Regeneration	93.837	5R01HL137710-04		379,881	-
CVD Epidemiology Training Program in Behavior, the Environment and Global Health	93.837	5T32HL098048-12		437,133	-
Defining Genetic Architecture and Pathways of DCM	93.837	5R01HL080494-12 REVISED		490,144	-
Diet quality and cardiometabolic disparities among Latino ethnic subgroups	93.837	5K01HL120951-05REVISED		16,047	-
Dietary Etiologies of Heart Disease	93.837	5R01HL035464-29		85,594	62,409
Engineering Capillary Networks	93.837	5R01HL069957-08 REVISED		(207)	(207)
Genetic Determinants of Chagas Cardiomyopathy	93.837	5R01HL133165-04		371,646	-
Genetic Signals in Ventricular Hypertrophy	93.837	5R01HL084553-12		615,910	-
Integrating lifecourse approaches, biologic and digital phenotypes in support of heart and lung disease epidemiologic research.	93.837	3U01HL145386-02S1		1,772,227	996,712
Investigating the contribution of rare coding variants to cardiovascular diseases	93.837	1F31HL154537-01		32,480	-
Mechanisms of DNA interstrand cross-link repair	93.837	5R01HL098316-08		(814)	-
Mediterranean diet, Metabolites, and cardiovascular Disease	93.837	5R01HL118264-08		254,363	95,732
Molecular Architecture Of The Mitochondrial Calcium Uniporter	93.837	5R01HL130143-04 REVISED		779,353	437,239
Molecular Quiescence and Cardiomyocyte Maturation	93.837	5R01HL151684-02		638,942	-
Multi-scale modeling of inherited pediatric cardiomyopathies	93.837	5UH3HL141798-04		1,627,429	904,299
Neuronal and vascular interactions in the CNS	93.837	5R01HL153261-02		263,867	-
NHLBI Summer Training Experience to Increase Diversity in Health-Related Research	93.837	5R25HL121029-07		47,310	-
Novel pathways controlling macrophage inflammation and resolution in atherosclerosis	93.837	5R01HL148137-02		854,968	128,266
Regulation of Cardiac Development in Health and Disease	93.837	5UM1HL098166-11		44,986	(1,039)
Reprogramming Non-myocytes to Cardiomyocytes in vivo	93.837	5R01HL119230-04		(19,385)	-
Reverse Engineering the Alveolus: From cellular to microenvironmental specification during development	93.837	5R00HL127267-05		247,211	-
Role of interleukin-3 in autoimmune and viral myocarditis	93.837	5F31HL147364-03		32,835	-
Sensory biology of respiratory control neurons in the vagus nerve	93.837	5R01HL132255-04		109,312	-
Statistical methods for analysis of single-cell variability	93.837	5R01HL131768-05 REVISED		76,896	64,305
The Effects of Early Psychosocial Deprivation on Cardiometabolic Risk in Early Adulthood	93.837	7R01HL151848-02		11,547	-
The role of mitochondrial DNA mutations in chemotherapy induced cardiomyopathy	93.837	5F32HL154644-03		24,467	-
The role of the enteric microbiome in chronic HIV pathogenesis and cardiovascular disease in HIV-infected individuals	93.837	5F30HL136257-04		33,658	-
Training in Interdisciplinary Pulmonary Sciences	93.837	5T32HL007118-45		690,336	-
Total for CFDA 93.837				11,587,894	3,843,259
Function and application of lung surfactant proteins	93.838	5R01HL150520-02 REVISED		492,799	43,467
Lung-on-a-Chip Disease Models for Efficacy Testing	93.838	5UG3HL141797-02 REVISED		1,789,372	-
MicroRNA-10a in Airway Smooth Muscle and Asthma	93.838	5R01HL139496-04REVISED		483,516	189,313
Neural-Epithelial Encoding of Airway Senses	93.838	1F32HL156583-01 REVISED		20,612	-
Physics of bronchial epithelial unjamming	93.838	5R01HL148152-03		756,254	-
Predicting Pulmonary and Cardiac Morbidity in Preterm Infants with Deep Learning	93.838	5K01HL141771-04		170,750	-
Trial of Vitamin D Supplementation to Prevent TB Infection in Schoolchildren	93.838	5R01HL122624-05REV		(5,782)	-
Total for CFDA 93.838				3,707,521	232,781
Cap-Dependency in Hematopoietic Stem and Progenitor Cell Translation	93.839	1F31HL158020-01		5,506	-
Characterizing the clonal dynamics and origins of the developing hematopoietic system	93.839	5F30HL137235-04 REVISED		48,625	-
Erythrocyte maturation through global remodeling of the proteome	93.839	1R01HL153970-01A1 REVISED		112,268	-
Functional analysis of red blood cell determinants of Plasmodium invasion	93.839	5R01HL139337-04		309,337	-
Investigating host kinase modulation of erythrocyte deformability during Plasmodium falciparum invasion	93.839	5F31HL154510-02		32,792	-
Mechanisms of DNA interstrand cross-link repair	93.839	5R01HL098316-10		300,061	-
Red cell determinants of premature hemolysis of Plasmodium infected red cells	93.839	5F32HL136173-03		7,922	-
Single-Cell Profiling and Lineage Tracing of Zebrafish Hematopoiesis	93.839	5F30HL152628-02		37,321	-
Stem Cell-Niche Interactions in the Establishment of Hematopoietic Stem Cell Heterogeneity	93.839	5F31HL149154-02		32,708	-
The Molecular Mechanism of the CD19-CD81 B Cell Co-Receptor Complex	93.839	5F31HL147459-03		31,565	-
Understanding the role of Id2 in T cell differentiation and activation during GVHD	93.839	1F31HL156288-01 REVISED		18,223	-

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Total for CFDA 93.839				936,328	-
PRIMECare Trial: Preventing Ischemic Heart Disease with mHealth, electronic decision support, and Community Health Workers	93.840	5R01HL149912-02		340,793	24,949
Project Title: PROSPECT: Puerto Rico Observational Study of Psychosocial, Environmental, and Chronic Disease Trends	93.840	3R01HL143792-04S1REVISED		787,486	478,701
Simulation Modeling and Disparities in Obesity and Chronic Disease	93.840	5R01HL146625-03		268,765	-
Total for CFDA 93.840				1,397,045	503,650
The role of mechanical stimulation in macrophage-mediated skeletal muscle regeneration in an in vitro injury model	93.846	5F31AR075367-03		33,841	-
Adult Bone Mass Regulation by Type 2 BMP Receptors	93.846	5R01AR064227-05		(1)	-
Biogenesis of Extracellular Matrix	93.846	5R56AR036819-34 REVISED		83,231	-
BMP2 Regulation of Periosteal Function	93.846	5R01AR077432-02		570,124	-
Characterization of the Insulin to Autophagy Pathway in Muscles	93.846	5R01AR057352-12		396,558	-
Development, Evaluation and Translation of Robotic Apparel for Alleviating Low Back Pain	93.846	1UH2AR076731-01		614,495	59,505
Elucidation of the Role of Creb5 in Synovial Joint Formation	93.846	5R01AR074385-02 REVISED		621,937	30,905
Epigenetic regulation of skeletal patterning and morphogenesis during development	93.846	5K01AR069197-05		57,842	-
Hypertrophy and Inflammation in Osteoarthritis: epistasis or synergy	93.846	5R01AR069671-05 REVISED		(3,580)	-
Interdependence of lineages within the mammalian skin	93.846	5R01AR070825-05		256,766	-
Investigating modes of cartilage cell size regulation and fate during endochondral ossification	93.846	5F32AR076187-03		65,629	-
Mechanism of action of PTH: New signaling components that regulate bone formation and bone marrow fat	93.846	5R01AR073774-02 REVISED		422,457	103,209
Molecular Mechanism of Wnt/Planar Cell Polarity Signaling	93.846	5R01AR070877-04 REVISED		170,984	-
Muscle Tregs in health and disease	93.846	5R01AR070334-05		430,569	-
Real-time quantification of muscle-tendon dynamics for individualized and adaptive robot-assisted locomotion	93.846	5R21AR076686-02		57,923	3,208
Regulation of Skin Inflammation by Nociceptive Sensory Neurons	93.846	5R01AR068383-05		131,193	-
The role of GGPS1 and CYP11A1 mutations in atypical femoral fracture	93.846	5R21AR076687-02		60,063	-
The role of notochord derived signaling, mechanical force generation and AF derived Tgfb signaling on intervertebral disc formation	93.846	5F32AR076226-02		66,424	-
Uncovering the Genetic Mechanisms Behind Joint-Specific Osteoarthritis	93.846	5R01AR070139-04		734,281	279,318
Using axolotls to define innate mechanisms for combatting fibrosis	93.846	1F32AR075381-01A1		46,160	-
Total for CFDA 93.846				4,816,894	476,145
Adipose-tissue Tregs: important players in immunological control of metabolism	93.847	5R01DK092541-11		650,375	-
Aire, a zinc-finger protein that controls autoimmunity	93.847	5R01DK060027-20		309,604	-
Automated Glucose Regulation to improve Diabetes Control and Outcomes for Pregnant Women with Type 1 Diabetes and Fetus	93.847	5R01DK120358-03		462,360	262,705
Bacterial Metabolites controlling Th17 cells	93.847	5R01DK110559-06		464,704	27,000
Biomanufacturing of Vascularized Kidney Tissues: A Foundational Step towards Building a Kidney	93.847	1R56DK122380-01		318,770	230,522
Cellular signaling in muscle metabolic adaptation and energy metabolism	93.847	5R01DK113791-03		(2)	-
Central circuitry controlling micturition	93.847	5R01DK114834-04		411,638	97,474
Charting vagal circuits containing glucagon-like peptide 1 receptor	93.847	5R01DK103703-04		132,446	-
Chronic Inflammation and Type 2 Diabetes: A Multi-omics Approach	93.847	5K99DK122128-02		79,935	-
Coordination of Energy Metabolism Across Individual Tissues in Mammals	93.847	5R00DK117066-04REVISED		391,673	-
Deciphering the molecular basis of T1D in human cells using functional genomics	93.847	1DP3DK111898-01 REVISED		1,295,795	1,041,407
Dietary Interventions, Metabolites, and Risk of Type 2 Diabetes	93.847	5R01DK102896-04-REVISED		22,551	-
Dissecting the molecular mechanisms underlying lipotoxicity in the kidney	93.847	1F31DK126252-01		32,705	-
Effect of mitochondrial mutations on ion channel activity and cytoskeletal homeostasis	93.847	5F30DK112477-04		48,326	-
Elucidating mechanisms of SIRT1 activation	93.847	5R01DK100263-05		427,500	-
Ex Vivo Generation of Functional Kidney Tissues for Transplantation	93.847	5UC2DK126023-02		468,258	197,794
Examining the role of succinate-SUCNR1 signaling in skeletal muscle remodeling following exercise	93.847	1F31DK128924-01		14,388	-
FOOD-BASED BIOMARKERS, DIET QUALITY, AND CARDIOMETABOLIC HEALTH	93.847	5R01DK120870-03		448,321	247,554
Hemoglobin A1c variability as a risk factor for diabetes complications	93.847	5R01DK114098-03		452,248	313,770
Human Gut Microbiome and Incident Diabetes Risk in U.S. Populations	93.847	1R01DK126698-01		100,232	10,211
Identifying targetable apoptotic vulnerabilities for the treatment of AL amyloidosis	93.847	5R01DK125263-02		290,056	-
Investigating the role of PHD3 in lipid homeostasis	93.847	1R01DK127278-01A1		5,240	-
Investigation of the role of TMED9 in the accumulation of a mutant protein in MUC1 Kidney Disease (MKD)	93.847	1F30DK127546-01		30,905	-
Lifestyle Interventions, Metabolites, Microbiome, and Diabetes Risk	93.847	1R01DK127601-01		31,142	-
Lipid droplets and transcriptional regulation of metabolism	93.847	5R01DK124913-02		750,711	-
Lipid-dependent regulation of human Th17 cell function	93.847	5R01DK106351-06		433,175	-
Mapping protein communication between organs in homeostasis and disease	93.847	5R01DK121409-04		1,532,724	1,087,962
Mechanisms of dietary control of the transsulfuration pathway and increased endogenous hydrogen sulfide production	93.847	5R01DK090629-08		69,499	-
Mediterranean Diet, Polyphenol-Rich Foods, Gut Microbiota and Type 2 Diabetes	93.847	5K99DK119412-02		14,298	-
Metabolomics and Type 2 Diabetes in a Cohort of Older Puerto Ricans	93.847	5K01DK107804-04REVISED		21,833	-
Microbiota regulation of intestinal eosinophils	93.847	5F31DK121375-02 REVISED		32,840	-
Microglial Iron Metabolism and Its Regulation by Cannabinoids	93.847	5R01DK064750-12REVISED		510,572	-
Molecular Mechanisms of Arrestin-Domain Containing Proteins in Metabolism	93.847	1R01DK126688-01		188,428	-
Molecular mechanisms of sensory transduction in the gut	93.847	5R00DK115879-04		248,228	-
Molecular pathways underlying organ-specific targeting by the vagus nerve	93.847	5F32DK117798-03 REVISED		68,560	-
Neuronal pathways regulating metabolic adaptation	93.847	5K01DK123197-02		126,902	-
Nociceptor neuron regulation of gastrointestinal barrier protection and host defense	93.847	1R01DK127257-01		201,663	-
Pediatric Artificial Pancreas System for Enhanced Diabetes Management In Young Children with Type 1 Diabetes	93.847	7DP3DK104057-02 REVISED		(1,650)	(1,759)
Post-Transcriptional Regulatory Mechanisms of Fetal Hemoglobin Repression	93.847	5F31DK122637-02 REVISED		31,683	-
PTH resistance and marrow adipogenesis	93.847	5R01DK112374-04		476,432	60,133
Regulation of beige adipogenesis	93.847	5F31DK125004-02		33,785	-
Regulation of Fructose Transport by Thioredoxin-Interacting Protein	93.847	5R01DK107396-05		150,480	-
Robust methods for missing data in electronic health records-based studies	93.847	1R01DK128150-01		29,920	-
Role of Adipokine FABP4 in Glucoregulation and Counter Regulatory Responses	93.847	5R01DK123458-02rev		279,331	-
Saliva and Plasma Metabolomic Signatures of Diabetes Progression in a Hispanic Cohort	93.847	5R01DK120560-03		212,634	68,378
Training Grant in Academic Nutrition	93.847	5T32DK007703-27		343,756	-
Transcriptomic Identification of Vagal Motor Neurons That Differentially Regulate Gastric Function	93.847	5F31DK122620-02		34,078	-

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Vitamin D Receptor Regulation of Liver Organogenesis and Disease	93.847	5F31DK122619-02		32,792	-
Total for CFDA 93.847				12,711,842	3,643,152
A Facility to Generate Connectomics Information	93.853	5U24NS109102-03		1,563,321	-
A new molecular code for the development of synapse specificity	93.853	5R01NS110713-02 REVISED		61,173	31,855
A quantitative framework for understanding endosomal trafficking networks in Alzheimer's disease	93.853	5R01NS110395-04		568,666	-
Action and interaction of ionotropic and metabotropic neurotransmission	93.853	5R37NS046579-17 REVISED		540,592	-
Activity-Dependent Regulation of the Neuronal Epigenome	93.853	5K08NS112338-02 REVISED		165,732	-
Architecture and function of striatal dopamine release machinery	93.853	5R01NS103484-04		500,393	-
BDNF shapes the functional maturation of cortical interneurons	93.853	5F31NS110120-02		38,912	-
C9ORF72 in Motor System Biology and ALS	93.853	5R01NS089742-05		2,117	-
Cerebellar Outputs Through an Unconventional Nucleus	93.853	5K99NS110978-02		75,542	-
Characterization of MeCP2-dependent gene regulation with temporal and mechanistic precision	93.853	5K99NS112415-02		84,528	-
Characterizing a spectrum of mosaic variation in the population and across neurological disorders	93.853	5F31NS113414-03		39,122	-
Circuit-specific transcriptional mechanisms underlying the precision of synaptic connectivity	93.853	5R01NS103905-02 REVISED		221,990	-
Circuits, serotonergic neurons, and the modulation of behavior: Characterization of a specialized serotonergic neuron subtype responsive to dopamine and central to social behavior	93.853	3F99NS108515-02S1		17,997	-
Contextual Representation of Tactile Information in Mouse Primary Somatosensory Cortex	93.853	1K99NS119739-01		45,717	-
Controlling the spatial extent of light-based monitoring and manipulation of neural activity in vivo	93.853	1UF1NS108177-01 REVISED		435,228	139,774
Corticospinal modulation of tactile information processing in the spinal cord dorsal horn	93.853	5F31NS101843-03 REVISED		13,686	-
Defining a Role for the Entopeduncular Nucleus in Motivated Behavior	93.853	5K99NS105883-02 REVISED		53,217	-
Development, Validation, and Application of a Stroke Policy Simulation Model	93.853	5R01NS104143-04		513,753	214,687
Dissecting the role of the direct and indirect pathways in moment-to-moment action selection	93.853	5F31NS113385-03		32,708	-
Distributional reinforcement learning in the brain	93.853	1R01NS116753-01 REVISED		560,624	-
Electrical Stimulation of Immediate Early Genes	93.853	5R01NS028829-32		751,832	-
Elucidating cutaneous mechanosensory circuits, from development to disease	93.853	5R35NS097344-05		637,928	-
Elucidating mechanisms of ATXN2 interaction with TDP-43 in human motor neuron models of Amyotrophic Lateral Sclerosis	93.853	1F31NS122138-01		2,153	-
Epigenetic Regulation of Cortical Neuronal Lineage Progression	93.853	5R01NS102228-05		576,425	-
Functional analysis of whole-brain dynamics in learning	93.853	5R01NS115484-02 REVISED		411,368	229,156
Gasdermin-Driven Cell Death and Immune Activation in Parkinson's Disease	93.853	1F31NS122292-01		13,917	-
Generation of mouse models to define the structural basis of Ntn1-DCC activity	93.853	1R21NS113562-01		204,019	-
HMS/BCH Center for Neuroscience Research	93.853	5P30NS072030-07 REVISED		457,800	-
Identifying and Correcting Dementia-Associated Changes in the Blood-Brain Barrier	93.853	1R01NS117407-01		433,865	-
Mammalian circadian clock: genetics of PERIOD complex composition and structure.	93.853	5R01NS095977-05		520,086	-
Mapping serotonergic neuron subtypes protective for seizure-induced neurological and neurobehavioral changes	93.853	5F31NS108406-03		31,466	-
Mechanisms and functions of synapses and circuits	93.853	5R35NS097284-05 REVISED		808,481	-
Mechanisms of seizure resistance in a mouse genetic model with altered metabolism	93.853	5R01NS102586-04 REVISED		505,579	-
Mechanisms of Vesicle Docking and Priming for Striatal Dopamine Release	93.853	5F31NS105159-03 REVISED		31,592	-
Mechanisms Regulating the Specification and Differentiation of Unique Types of Cholinergic Neurons During Development	93.853	1F32NS120936-01		5,153	-
Mechanisms underlying neuronal enhancer specification during postnatal CNS development	93.853	5R01NS115965-02		816,462	-
Mechanosensory feature extraction for directed motor control	93.853	5R01NS101157-05		288,895	-
Megaplexed Neuronal Visualization Using Combinatorial Labeling and Iterative Staining	93.853	5R01NS112716-02		425,073	-
Metabolic coupling of neuronal ion transport	93.853	5F32NS116105-02		64,759	-
Metabolomics and risk of Parkinson's Disease	93.853	3R01NS089619-05S1		394,453	69,523
MicroRNA-Dependent Regulation of Synaptic and Behavioral Plasticity in Drosophila	93.853	5P01NS090994-05 REVISED		1,024,654	611,340
miRNA Control of Synaptic Stability and Structural Plasticity	93.853	5F99NS115341-02 REVISED		33,576	-
Modulation of calcium-mediated plasticity signals in dendritic spines	93.853	5F31NS113353-03		31,508	-
Molecular and functional characterization of the cells and circuits underlying the fever response	93.853	5K99NS114107-02		101,048	-
Molecular and genetic dissection of brain circuits controlling fever	93.853	5R01NS112399-02		247,396	-
Molecular Controls over Neurogenesis, Subtype Development, and Diversity of Cortical Output Projection Neurons	93.853	5R01NS045523-16		148,020	-
Molecular Development and Diversity of Callosal Projection Neurons	93.853	5R01NS104055-02		351,530	-
Molecular Dissection of Active Zone Functions in Neurotransmitter Release	93.853	5R01NS083898-08		577,333	-
Molecular mechanisms of neuron motility and axon guidance	93.853	5R01NS069913-10		320,150	-
molecular mechanisms of the blood brain barrier function and regulation	93.853	5R35NS116820-02		465,146	-
Molecular Mechanisms of the sea anemone stinging response	93.853	1F31NS117055-01		25,061	-
Molecular principles of neuronal maturation and integration in the adult and aging brain	93.853	5R01NS103758-04		601,304	220,256
Motion Sequencing for All: pipelining, distribution and training to enable broad adoption of a next-generation platform for behavioral and neurobehavioral analysis	93.853	5U24NS109520-02 REVISED		325,511	-
Multiple timescales of motor planning and execution in mouse cortex	93.853	5F31NS108450-02 REVISED		26,462	-
Neural and computational mechanisms underlying the assembly of motor skills	93.853	5K99NS112597-02 REVISED		92,766	-
Neural circuits underlying the acquisition and control of motor skills	93.853	5R01NS099323-05		281,864	-
Neuroimaging and Neuropsychological Biomarkers of Vascular Risk Factors	93.853	5R01NS086882-05 REVISED		14,622	1,593
Neuronal Activity-Dependent Regulation of MeCP2	93.853	5R01NS048276-15		33,775	-
Novel molecular genetic tool for large-scale labeling and modulating activity of neurons associated with particular physiological processes and behaviors	93.853	3R21NS106406-01A1S1 REVISED		98,831	-
Novel Regulation of Postsynaptic Assembly in Drosophila	93.853	1R21NS119932-01		163,250	-
Parietal cortex networks for sensorimotor processing during navigation	93.853	5R01NS089521-07		266,309	-
Principles of multi-whisker stimulus integration in rodent somatosensory cortex	93.853	5K00NS105186-04		79,156	-
Prospective study of vitamin D and MS risk in African Americans	93.853	5R01NS103891-03		273,276	43,486
Regulation of PINK1 and PARKIN-dependent mitophagy	93.853	5R01NS083524-17		370,478	-
Sensorimotor processing, decision making, and internal states: towards a realistic multiscale circuit model of the larval zebrafish brain	93.853	5U19NS104653-04		4,143,471	807,865
Sensory-motor processing in a developing nervous system	93.853	5R01NS082525-04		4,543	-
Single-cell computation in auditory brainstem and its impact on cortical coding and behavior	93.853	3R01NS118402-01S1		277,741	62,540
Somatosensory and Autonomic Circuit Modulation by Brainstem Serotonergic Neurons	93.853	5F32NS106762-03		32,574	-
Specification of Neuronal Enhancers during Postnatal Development	93.853	5F32NS112455-03		65,309	-

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State-dependent interaction of antiepileptic drugs with voltage-dependent sodium channels and differential regulation of excitatory and inhibitory central neurons	93.853	5R01NS110860-03		215,511	-
Structural and functional development of touch sensory neurons	93.853	5F32NS106807-03		(2,630)	-
Structural variation in neuronal circuits as a basis for functional and behavioral individuality	93.853	1R01NS121874-01		57,417	-
Structure and function of the mouse parafascicular and entopeduncular nuclei	93.853	5R01NS103226-05		387,999	110,260
Studying perceptual decision-making across cortex by combining population imaging, connectomics, and computational modeling	93.853	5R01NS108410-03		818,322	146,274
Synaptic connectivity of Basal Forebrain neurotransmitter systems	93.853	5K99NS102429-02 REVISED		14,433	-
Systematic discovery and functional analysis of the PARKIN modified proteome	93.853	5R37NS083524-15		970	-
Systems-level and in situ transcriptomics deconstruction of neural circuits underlying sensorimotor transformation in an innate behavior	93.853	1R01NS116593-01 REVISED		1,386,941	-
The Development and Integration of Early Born SST-Expressing	93.853	5R01NS081297-09		581,316	-
The diversity of dopamine neurons: from connectivity and activity to functions	93.853	5R01NS108740-03 REVISED		497,662	-
The Impact of Telestroke on Patterns of Care and Long-Term Outcomes	93.853	5R01NS111952-03		650,000	298,179
Towards a unified framework for dopamine signaling in the striatum	93.853	3U19NS113201-02S1		3,217,682	727,790
Voltage-Dependent Ion Channels Controlling Firing Patterns of Central Neurons	93.853	5R01NS036855-24		353,778	-
Total for CFDA 93.853				31,572,388	3,714,580
Regulation of HLA-C in Human Trophoblasts and its Impact on Preterm Birth	93.855	5R21AI138019-02		160,324	-
Structural Basis for Translation Initiation in Leishmania Major	93.855	1R21AI156087-01A1		25,688	-
Using genetics and multi-scale imaging to understand the mechanisms underlying mycobacteriophage host choice	93.855	1R21AI156772-01		62,268	3,845
A clinical trial to evaluate the impact of broadly neutralizing antibody VRC01 on HIV viral reservoir and maintenance of suppression in a cohort of early-treated children in Botswana	93.855	5U01AI135940-04		1,670,590	1,125,165
A genetic template for generating universally protective responses to influenza	93.855	5F31AI138368-02 REVISED		31,626	-
A Non-Canonical Translation Mechanism for Vesicular Stomatitis Virus	93.855	5F31AI138448-03		23,863	-
Accompanying HIV-positive adolescents through the transition into adult care: a feasibility study	93.855	5R21AI143365-02		204,726	102,021
Acquisition, maintenance, and transmission of antibiotic resistance in Neisseria gonorrhoeae	93.855	5F32AI145157-03		68,179	-
Bacterial Determinants of Treatment Response in Mycobacteria Tuberculosis	93.855	5U19AI142793-03		1,448,894	436,069
Bacteriology PhD Training Program	93.855	5T32AI132120-05		334,674	-
Biostatistics/Epidemiology Training Grants in AIDS	93.855	5T32AI007358-33		478,965	-
Botswana-Harvard School of Public Health AIDS Initiative Partnership CTU	93.855	5UM1AI069456-14REVISED		1,264,388	1,033,516
Botswana-Harvard T.H. Chan School of Public Health AIDS Initiative Partnership CTU	93.855	2UM1AI069456-15REVISED		1,452,171	1,283,017
Bridging Statistical Inference and Mechanistic Network Models for HIV/AIDS	93.855	5R01AI138901-02		434,696	-
Cell envelope synthesis and antibiotic resistance in Staphylococcus aureus	93.855	5F32AI150002-02 REVISED		64,380	-
Cell surface biogenesis in Streptococcus pneumoniae	93.855	5R01AI139083-03		415,299	-
CONTROL AND ACTIVATION OF THE TUMOR NECROSIS FACTOR RECEPTORS	93.855	5R01AI150709-02		867,936	393,216
Coordinate Regulation of Bacterial Virulence Factors	93.855	5R01AI026289-29		(44)	-
CRISPR/Cas9 based antivirals for treatment of latent and lytic Herpesvirus-1 and -2 infection in vivo	93.855	5R21AI135423-02 REVISED		60,993	-
Cytotoxic T Cell Mediated Immunity to Chlamydia	93.855	5R01AI039558-24		1,148,972	-
Deep sequencing of pathogens to precisely define transmission networks using rare variants	93.855	5R01AI128344-05		730,827	-
Defining Features of Bacterial Control in M. tuberculosis Granulomas Using Single-cell mRNA Sequencing	93.855	5F30AI143160-03		50,520	-
Defining functional domains of a P. aeruginosa efflux pump using periplasmic nanobodies	93.855	5R21AI153471-02		165,886	-
Defining regulators of immunity to acute infection using CRISPR screens	93.855	3U19AI133524-04S1		1,990,057	949,122
Detection of transrenal Mycobacterium tuberculosis DNA in urine	93.855	5R03AI153554-02		15,904	-
Determining the interactions between mosquito oogenesis and Plasmodium falciparum survival and transmission	93.855	5R01AI153404-02		552,653	-
Developing comparative chemical genomics and genetic validation tools for Babesia spp.	93.855	5R21AI153945-02		244,720	-
Discovery and characterization of new bacterial cell wall targets and inhibitors to treat resistant infections	93.855	5R01AI148752-02		831,642	-
Disentangling the Death Decision: How Living Cells Release Interleukin-1	93.855	5F31AI138369-02 REVISED		16,996	-
Dynamic Strategies for the clinical management of HIV disease	93.855	5R37AI102634-09		567,026	13,830
Early Infant Treatment	93.855	4U01AI114235-06 REVISED		107,120	91,714
Elucidating ligand-receptor interactions required for Plasmodium vivax blood-stage infection	93.855	5R01AI140751-03		396,561	-
Elucidating novel mechanisms controlling cell envelope biogenesis in Streptococcus Pneumoniae	93.855	5F32AI136431-03		47,438	-
Elucidating the Structural Requirements for Next-Gen Glycoconjugate Vaccines	93.855	5R01AI148273-02		777,717	-
Epidemiology of Infectious Diseases	93.855	5T32AI007535-20REVISED		102,987	-
Expansion of research and mentoring to improve birth outcomes and treatment outcomes among HIV-affected children in Botswana	93.855	5K24AI131924-04		159,162	16,195
Exploiting Fc-engineering to dissect mechanisms of anti-microbial action of M. tuberculosis-specific antibodies	93.855	1F31AI150171-01		27,263	-
Exploring metabolic resistance to small molecule inhibitors in Trypanosoma cruzi	93.855	5R21AI146815-02		170,817	-
Exploring the roles of acquired immunity and functional constraint in sculpting malaria antigenic diversity in a longitudinal cohort	93.855	5R01AI141544-03		585,237	-
Forward genetic overexpression screens to identify parasite determinants of antimalarial susceptibility	93.855	5R21AI139973-02		206	-
Functional analysis of epigenetic regulators of malaria blood-stage proliferation and transmission	93.855	5R01AI138551-04		465,801	-
Functional regulation of an arenavirus polymerase by the viral matrix protein and RNA ligands	93.855	5F31AI133689-03 REVISED		31,550	-
Genetic Analysis of Toxinogenesis in Vibrio Cholerae	93.855	5R37AI018045-41		986,362	-
Genetically-encoded fluorescent RNA sensors for measuring transport of antibiotics into the cytoplasm of Gram-negative pathogens and development of efflux pump inhibitors	93.855	5R01AI136789-04		254,938	-
Genomics approaches to elucidating pathways to antibiotic resistance in Neisseria gonorrhoeae	93.855	5R01AI132606-05		381,554	-
Harvard University Center for AIDS Research	93.855	5P30AI060354-18(REVISED)		4,232,699	2,784,318
HIV cure studies: risk, risk perception, and ethics	93.855	5R01AI114617-05REVISED		19,015	19,015
How Hepatitis C Virus Regulates Desmoterol to Affect RNA Replication: a New Virus- Host Interaction	93.855	5R21AI148972-02 REVISED		89,595	-
Human adaptation and transmissibility of Mycobacterium tuberculosis genetic lineages. A genomic epidemiology study to guide TB control	93.855	1R21AI154089-01A1		46,582	-
Human Cytomegalovirus Nuclear Egress: Molecular Mechanisms and Drug Targeting	93.855	5R01AI026077-32 REVISED		445,610	-
Identification and analysis of compensatory mutations that support the evolution of antibiotic resistance in Neisseria gonorrhoeae	93.855	5R01AI153521-02		244,725	129,302
Identification of Adipose Tissue Factors that Induce Regulatory INKT Cells	93.855	5F31AI138353-03 REVISED		6,330	-
ImmGen: Gene Expression and Regulation in Immune Cells	93.855	5R24AI072073-14		1,332,844	65,230
In vivo role of CTLA-4 in Costimulation and Autoimmunity	93.855	5R01AI040614-20		55	-
Incorporation of a histone variant into viral chromatin to promote herpes simplex virus replication	93.855	5F31AI145062-02		31,715	-
Infant blood epigenome and risks of IgE sensitization, obesity, and asthma: MARC-35/43 cohorts	93.855	5R01AI148338-02		206,223	123,984
Infectious cell entry pathway of human-infecting thogotoviruses	93.855	1F31AI154710-01A1		4,306	-

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Integrated discovery and development of innovative TB Diagnostics	93.855	5U19AI109755-05 REVISED		341,656	-
Interferon-induced IFITM recruitment of ZMPSTE24 blocks viral endocytic entry	93.855	5R01AI121288-04		314,213	-
Intravascular Immune Surveillance by Anti-viral T Cells	93.855	1R01AI155865-01 REVISED		290,763	-
Investigating bacterial contributions to TB treatment response: a focus on in-host pathogen dynamics	93.855	1R01AI155765-01 REVISED		288,031	-
Investigating Cell-Wall Synthesis in Mycobacterium abscessus	93.855	5F31AI149932-02		54,950	-
Malaria Genomic Epidemiology for Identifying Sources of Malaria Infection and Transmission	93.855	5R21AI141843-02		229,617	-
Malaria transmission blocking through mosquito contact with treated surfaces	93.855	5R01AI148646-02		618,514	-
Mechanisms and Immunological consequences of Host-Virus Interactions	93.855	5P01AI12521-05		213,089	-
Mechanisms of cell entry of Lymphocytic Choriomeningitis Virus.	93.855	5F31AI154700-02		32,417	-
Mechanisms of itch and neural regulation of inflammation in S. aureus infection	93.855	5F31AI138384-02 REVISED		11,576	-
Mechanisms regulating vimentin-dependent invasion of the brain by Listeria monocytogenes	93.855	5R01AI146102-03		376,027	21,868
Methods to Advance the HIV Prevention Research Agenda	93.855	5R37AI051164-17REVISED		121,816	37,167
Modeling the Role of PrEP in Getting to Zero	93.855	1R56AI149736-01A1REVISED		176,818	24,206
Molecular Basis of Viral Infectivity	93.855	5T32AI007245-38		447,268	8,113
Molecular biology of trichomonasviruses	93.855	5R01AI132445-04		382,430	-
Molecular Mechanism of NLRP1 and CARD8 Inflammasome Regulation by DPP9	93.855	1F31AI152267-01A1 REVISED		18,694	-
Novel Genetic Mechanism of Artemisinin Resistance for Malaria	93.855	5R01AI099105-08		766,969	-
Novel Nutrient-sensing Pathway Suppresses Pathologic Tissue Remodeling	93.855	5R21AI142343-02		17,647	-
Nuclear Sensing of Herpesviral DNA	93.855	5R01AI106934-08		414,822	-
Optimal targeting for individual and population-level TB prevention	93.855	5R01AI146555-02		444,483	94,370
Outer Membrane Biogenesis: New Antibiotic Targets	93.855	5R01AI081059-13		472,970	-
Pain and Neuro-immune Signaling in S. pyogenes pathogenesis	93.855	5R01AI130019-05		692,242	269,512
Peptidoglycan Biogenesis in Escherichia Coli	93.855	5R01AI083365-12 REVISED		563,956	22,219
Plasma Gelsolin as Immunotherapeutic for Antibiotic-Resistant Pneumonia	93.855	5R01AI125152-03REVISED		(998)	-
Proline homeostasis: a novel mediator of drug tolerance in Plasmodium falciparum	93.855	5R01AI143723-02		657,104	242,852
Release of Extracellular DNA during Biofilm Formation in Staphylococcus aureus	93.855	5R01AI139011-04		524,082	-
Repair of Incorporated Ganciclovir During Drug-Resistant Human Cytomegalovirus Replication	93.855	5R03AI140048-02		59,388	-
RNA polymerase and oxidative stress mediate ceftriaxone resistance in Neisseria gonorrhoeae	93.855	1F30AI160911-01		4,306	-
Role of host fatty acid metabolism in Trypanosoma cruzi amastigote growth	93.855	5R01AI114622-05		94,021	-
SDMC - IMPAACT Leadership Group	93.855	5UM1AI068616-14Revised		10,843,971	4,674,940
Sensory Transduction in Bacterial Chemotaxis	93.855	5R01AI016478-40		70,650	-
Small molecule degraders of HIV-1 Nef	93.855	1R21AI156928-01 REVISED		11,236	-
Small molecule-induced degradation of dengue proteins as an antiviral strategy	93.855	1R01AI148632-01A1 REVISED		300,603	9,638
Social Epidemiology of COVID-19	93.855	5K08AI139361-03		204,913	-
Specification of Treg cells: FOXP3 functional facets	93.855	5R01AI116834-05		122,372	-
Statistical and Data Management Center (SDMC), AIDS Clinical Trials Group	93.855	3UM1AI068634-14S1REVISED		16,868,748	7,631,906
Statistical and Data Management Center-Pediatric, Adolescent, and Maternal CTG	93.855	5UM1AI068616-07REVISED		(22,051)	(22,051)
Strengthening evidence on optimal multidrug-resistant tuberculosis treatment regimens through improved epidemiologic methods	93.855	5R01AI146095-02		444,840	78,507
Structural Basis of Immune Cell Receptor Function	93.855	5R01AI037581-25		410,292	-
Structural studies of herpesvirus DNA polymerases	93.855	5R21AI141940-02		122,695	-
Studies on the Biological Mechanisms of Antibiotics	93.855	5R01AI149778-18		502,588	-
T Cell Costimulatory Pathways: Functions and Interactions	93.855	5P01AI056299-18		2,382,842	1,499,493
T regulatory cell subsets at the microbial interface: determinism and function	93.855	5R01AI125603-05		416,174	-
Targeting Membrane Transport Steps in Cell Envelope Assembly	93.855	5R01AI153358-02		755,808	-
Targeting steroid hormone signaling in Anopheles mosquitoes for malaria control	93.855	5R01AI124165-05		263,024	-
Targeting the Mitochondrion of P. falciparum	93.855	5R01AI093716-09		651,309	133,559
The Graduate Program in Tropical Infectious Diseases (GPITID)	93.855	5T32AI049928-18		271,109	-
The molecular mechanism of Aire	93.855	5R01AI088204-10		472,142	-
The physiological activation and consequences of Toxin-Antitoxin systems in Salmonella	93.855	1R01AI155552-01A1		34,806	-
The role of Fc function in broadly neutralizing antibody efficacy against HIV	93.855	5F31AI131747-03		2,068	-
The Role of the Nuclear Envelope in Antiviral Signaling and HSV-1 Restriction	93.855	5F31AI129207-03		4,136	-
Training Program in Immunological Tolerance and Autoimmunity	93.855	5T32AI118692-05		17,868	-
Treg cell diversity and homeostatic control	93.855	5R01AI150686-02		555,564	-
Understanding the Regulation and Biological Roles of Peptidoglycan Hydrolases in Staphylococcus aureus	93.855	1F30AI156972-01 REVISED		18,991	-
Using agent-based modeling to estimate the effectiveness of the Miami Getting to Zero HIV campaign	93.855	5K01AI138863-04		99,547	-
Validating a potential interaction between error-prone polymerases and SSB as a therapeutic target for Mycobacterium tuberculosis	93.855	1R03AI159062-01		14,359	-
Validating the Flavivirus Envelope Protein as an Antiviral Target	93.855	5R01AI146152-02		420,762	152,831
Viral and host mechanisms that tilt the HSV lytic/latent balance	93.855	5P01AI098681-08		1,563,656	475,089
Zika Virus in Pregnancy in Nigeria	93.855	5R21AI137840-02		109,112	21,492
Total for CFDA 93.855				73,102,051	23,945,269
Mechanistic Analysis of the Ubiquitin-Proteasome System	93.859	5R35GM127032-04		419,449	-
A synchronized circadian clock in gut bacteria, using control theory	93.859	5F32GM125108-03		14,939	-
A system for long-term high-resolution 3D tracking of movement kinematics in freely behaving animals	93.859	1R01GM136972-01A1		73,579	34,716
Advanced Tools for Reconstructing Population History	93.859	5R01GM100233-08		107,292	-
Advancing Multiplexed Isobaric Tag-based Strategies for Proteome Profiling	93.859	5R01GM132129-02		352,821	-
Aggression in Drosophila: circuitry involved; learning and memory accompanying aggression; and establishing the circuitry of high-level aggression in the brain	93.859	5R35GM118137-05		404,587	-
Amyloid aggregation and prion formation in bacteria	93.859	5R01GM115941-04		17,408	-
Analysis of conserved eukaryotic transcription elongation factors	93.859	1R01GM135251-01A1		238,595	-
Analysis of the Essential Transcription Factors Spt5 and Spn1/lws1	93.859	5R01GM120038-04		260,463	-
Asymmetric Nucleophilic Aromatic Substitution Enabled by Hydrogen-Bonding Catalysis	93.859	5F32GM136042-02 REVISED		61,081	-
Bioinformatics and Chemical Biology Approaches for Identifying Bioactive Natural Products of Symbiotic Actinobacteria	93.859	5F32GM128267-03		63,612	-
Biophysical foundations of evolutionary dynamics	93.859	3R35GM139571-01S1		183,524	-
Biophysical mechanisms of proteomic and fitness effects of synonymous substitutions	93.859	5R01GM124044-04		259,059	-

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Biophysics of Nuclear Formation and Micronucleation	93.859	5F32GM131585-03		74,012	-
Broadly Applicable, Small Molecule Catalysts for Stereoselective and Site-Selective Glycosylation Reactions	93.859	5R01GM132571-03		463,248	-
Cell and Chemical Biology of Microtubules	93.859	5R35GM131753-03		802,669	-
Cell Envelope Homeostasis in Bacillus subtilis	93.859	5R01GM127399-03 REVISED		491,148	-
Characterizing the O-GlcNAc Transferase Tetraatricopeptide Repeat Domain's Role in Substrate Selection	93.859	5F32GM129889-02 REVISED		4,972	-
Chiral Catalysts Designed to Catalyze Organic Reactions	93.859	3R01GM043214-29S1		80	-
Chiral Complexes Designed to Catalyzed Organic Reactions	93.859	3R01GM043214-31S1		939,816	-
Chromosome Dynamics in Bacillus Subtilis	93.859	5R01GM086466-12		545,340	-
Chromosome organization and function in time and space: meiosis, mitosis and E.coli	93.859	5R35GM136322-02		945,377	-
Complementary Activation of Hydroxylamine Derivatives by Hydrogen-Bond Donor Catalysts to Enable Enantioselective Nitrogen-Atom Transfer Processes	93.859	5F32GM137576-02		60,516	-
Controlling Radicals via Sulfonium Activation and Anion Binding Catalysis	93.859	5F32GM133068-03		63,729	-
Deciphering the logic of glycolipid signaling at the host-microbiome interface	93.859	4R00GM130964-03		31,635	-
Decoding chromosome structure with multiplexed super-resolution microscopy	93.859	5R01GM124401-03		445,519	-
Decoding ribosome-triggered quality control mechanisms	93.859	1DP2GM137415-01		588,711	-
Defining OGT's Essential Functions to Guide Therapeutic Approaches	93.859	3R01GM094263-09A1S1		215,004	-
Determine the mechanism of recognition of ubiquitin configurations by the 26S proteasome	93.859	5R01GM134064-02		383,288	-
Determining the source of missing heritability	93.859	5R01GM120122-05		317,260	-
Discovering the regulatory roles of transcription during erythropoiesis, one nucleotide at a time	93.859	5F32GM125238-03		18,621	-
Dissecting the establishment and regulation of human pluripotency	93.859	5P01GM099117-10		1,743,005	1,138,845
Diversity in Biomedical Sciences Via Personalized Research and Education Programs for Post-Baccalaureates	93.859	5R25GM109436-05		295,545	-
DNA-corralled nanodiscs for study of large membrane proteins and their complexes	93.859	5R01GM131401-03		466,296	228,210
Drosophila Transgenic RNAi Resource Project	93.859	5R01GM094947-12 REVISED		250,297	-
Dual Hydrogen-Bond Donor and Cation- π Catalysis: Enantioselective Cycloadditions of Strained Donor-Acceptor Ring Systems	93.859	5F32GM126636-03 REVISED		27,055	-
Dynamic regulatory mechanisms of robust pattern formation in the neural tube	93.859	5R01GM107733-07		720,903	-
Dynamics of Cellular Senescence in Single Cells	93.859	5R01GM116864-04 REVISED		417,654	-
Dynamics of Signaling Pathways: Mechanism and Function	93.859	5R01GM083303-13		448,475	-
Dynamics, Regulation and Function of p53 in Single Cells	93.859	1R35GM139572-01		99,615	-
Elucidating a physiological role for ARRD-1 Mediated Microvesicles (ARMMs): A versatile platform for the delivery of biological therapeutics	93.859	5F31GM131567-02REVISED		9,761	-
Elucidating physiology of dormant bacteria to combat antibiotic persistence	93.859	5R35GM137895-02		364,763	-
Elucidating the role of an immunomodulator from a gut microbe in inflammatory bowel disease	93.859	5F32GM126650-03 REVISED		47,142	-
Enhancement of Protein Breakdown through PKG-mediated Phosphorylation of the Proteasome	93.859	5F32GM128322-02		10,770	-
Enhancing Diversity in Academic Medicine through Faculty Networks	93.859	5R01GM111563-04 REVISED		1,825	-
Epigenetic Inheritance of Heterochromatin	93.859	5R01GM072805-16		309,745	-
Evolutionary Tradeoffs in Antibiotic Resistance	93.859	5R35GM133700-03		571,672	-
Feedback Control of the Cell Cycle	93.859	5R01GM043987-28 REVISED		355,697	-
Function and Regulation of TRAP at Replisome-Blocking DNA Lesions	93.859	1K99GM138763-01A1		22,591	-
Functional genomics resources for the Drosophila and broader research communities	93.859	5P41GM132087-03		1,193,726	-
Furspan and Potter Native American High School Summer Program	93.859	5R25GM129830-03		96,261	-
Genetic Mechanisms of Axis Formation in Vertebrates	93.859	5R37GM056211-21 REVISED		1,637	-
Genetics and Genomics PhD Training Grant	93.859	3T32GM096911-10S1 REVISED		265,131	-
Global control of co-transcriptional splicing	93.859	1R01GM136794-01A1		272,742	-
Harvard Chemical Biology Graduate Program	93.859	5T32GM095450-10 REVISED		525,054	-
Harvard Systems Biology Graduate Program	93.859	3T32GM135014-02S1		289,233	-
High Resolution Analysis of Transcription-Splicing Coupling	93.859	5R01GM117333-04		183,354	-
High-throughput optimization of genetically-encoded fluorescent biosensors	93.859	5R01GM124038-04		391,664	-
HMS Laboratory of Systems Pharmacology	93.859	5P50GM107618-05		(1,133)	(1,133)
Human microbiome metabolites in health and disease	93.859	5R35GM128618-04		506,320	-
Identifying genetic pathways and cellular sources for neural regeneration in adult animals	93.859	1F31GM134633-01A1		23,063	-
Identifying the mechanisms of mechanosensing by the bacterial flagellar motor	93.859	1K99GM134124-01A1 REVISED		69,853	-
Identifying the sequences and factors that govern the fate of elongating RNAPII	93.859	1R01GM139960-01		160,749	-
Illegitimate Recombination by Drug Resistance Elements	93.859	5R01GM025326-39		(141,582)	-
Illuminating molecular mechanisms of cellular functions by single-molecule and super-resolution imaging	93.859	5R35GM122487-05		523,132	-
Information Integration and Energy Expenditure in Eukaryotic Gene Regulation	93.859	5R01GM122928-04		327,468	-
Information Processing by Post-translational Modification	93.859	5R01GM105375-07		414,262	76,736
Interdisciplinary training: Statistical Genetics/Genomics and Computational Biology	93.859	5T32GM074897-15		20,072	-
Interdisciplinary training: Statistical Genetics/Genomics and Computational Biology	93.859	5T32GM135117-02		410,542	-
Joint Program in Molecules, Cells and Organisms	93.859	3T32GM007598-41S1		44,669	-
Joint Program in Molecules, Cells, and Organisms	93.859	5T32GM135143-02		598,097	-
Kinetic control of transcription in animals	93.859	5F32GM128310-02 REVISED		8,548	-
Limits and trade-offs of feedback control	93.859	5R01GM081563-09		(6,931)	-
Lipotoxic Protective Response of the Endoplasmic Reticulum	93.859	1R01GM141050-01		62,765	-
Mapping Structure-Activity Relationships of Chemical Inhibitors via Genome- Editing	93.859	1DP2GM137494-01		946,882	-
Mapping the assembly pathways for viral capsids by direct single-particle measurements	93.859	5K99GM127751-02		63,391	-
Maximizing Investigator's Research Award	93.859	5R35GM127136-04		261,220	-
Measuring and modeling the dynamics of patterning in human stem cells	93.859	5R01GM131105-03		131,275	-
Mechanism and Inhibition of Enzymes that Assemble Bacterial Cell Wall	93.859	5R01GM076710-12		19	-
Mechanism of Divalent Metal Transport by NRamp-Family Transporters	93.859	5R01GM120996-04 REVISED		272,358	-
Mechanism of yeast gene regulation	93.859	5R35GM131801-03		809,581	-
Mechanisms of Lipid Droplet Formation	93.859	5R01GM124348-04		230,758	-
Mechanisms of Lipid Droplet Protein Targeting	93.859	5R01GM097194-10REVISED		341,026	90,000
Mechanisms of yeast transcriptional initiation	93.859	5R01GM030186-37		785	-
Mechanoregulation of Ciliary Motility	93.859	1R01GM141109-01		67,429	-
Medical Scientist Training Program	93.859	3T32GM007753-43S3		2,601,938	-
Meiotic Chromosome Synapsis and Recombination in Yeast	93.859	5R01GM044794-29		(40,785)	(21,355)

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Microbial Adaptation and the Statistics of Epistasis and Pleiotropy	93.859	5R01GM104239-09		202,699	-
Microtubule Integrity Response	93.859	3R01GM122784-02S1		(5,592)	-
MIDAS Center for Communicable Disease Dynamics	93.859	5U54GM088558-10REV		950,495	-
Mitochondrial coordination of gene expression across complex cellular states using mitoribosome profiling	93.859	5F32GM139244-02		52,428	-
Modeling individual-to-collective behavior in mound-building termites	93.859	5R01GM112633-05		(869)	-
Molecular Biophysics Training Grant	93.859	5T32GM008313-33(REVISED)		575,818	-
Molecular Chaperones and Protein Degradation	93.859	5R01GM051923-24		440,680	-
Molecular Genetic Analysis of Extracellular RNAs in C. elegans	93.859	5R01GM089795-12		466,651	-
Molecular mechanisms by which mild elevation of mitochondrial superoxide extends lifespan	93.859	5R01GM121756-04 REVISED		320,809	-
Molecular Mechanisms of Lipopolysaccharide Transport Driven by ABC Transporters	93.859	5R01GM122797-05		280,718	-
Molecular mechanisms of sigma receptor signaling	93.859	5R01GM119185-04		296,188	-
Molecular mechanisms of spore germination	93.859	5F32GM130003-03		64,382	-
Molecular, Cellular and Developmental Dynamics PhD Program	93.859	3T32GM007226-46S1		923,576	-
mRNA Capping Enzyme	93.859	5R01GM056663-23		559,842	14,317
Multiscale study of the phenotypic consequences of protein folding intermediates in dihydrofolate reductase	93.859	5F32GM126651-02		(30)	-
New and Disruptive Technologies to Study Ubiquitin Biology through Sample Multiplexing	93.859	5R01GM067945-17 REVISED		388,513	-
New approaches to measuring and containing the spatial spread of human pathogens	93.859	5R35GM124715-05		420,525	-
New Sample Multiplexing Technologies to Identify Chemical Probes and Illuminate Ubiquitin Biology	93.859	2R01GM067945-18		132,540	-
Next Generation Solution NMR Techniques for GPCR Structure, Dynamics and Function	93.859	5R01GM129026-04		502,994	-
Noise, memory, and adaptation in the flagellum system in E. coli.	93.859	5R01GM134275-02		273,578	-
Nuclear-mitochondrial co-regulation during mitochondrial biogenesis	93.859	5R01GM123002-04		350,059	-
Polynuclear iron complexes as functional mimics of the nitrogenase FeMo-cofactor	93.859	5R01GM098395-09		84,950	-
Predictive biophysical models of evolution	93.859	5R01GM068670-16 REVISED		369,181	-
Prions in the bacterial domain of life	93.859	5R35GM136247-02		519,928	-
Probing the specificity and activity of the metazoan Integrator complex	93.859	5R01GM134539-03		512,341	164,259
Protein Transport Across Membranes	93.859	5R01GM052586-27		361,558	-
Proton Coupled Electron Transfer Mechanism of Ribonucleotide Reductase	93.859	5R01GM047274-28 REVISED		342,257	-
Reconstitution of heterochromatin and gene silencing in vivo	93.859	5K99GM137045-02		80,685	-
Regulation of translesion synthesis by the bacterial replisome	93.859	5R01GM114065-05		149,314	-
RNA Processing Machines in Biology and Disease	93.859	5R35GM122524-05		750,532	-
Sending and receiving Hedgehog signals	93.859	5R01GM122920-03		323,607	-
Small regulatory RNA functions in the nucleus	93.859	5R01GM088289-12		438,468	-
Spatiotemporal Regulation of Liquid-like Condensates in the Germline	93.859	5R01GM132286-03		413,183	-
Strategic Molecular Activations for the Selective Synthesis of 2-Deoxy-Beta-Glycosides, and for the Synthesis of Novel Donor-Acceptor Stenhouse Adducts	93.859	1K99GM140070-01		52,745	-
Structural and Functional Roles of the Membrane-Related Components of Single-Pass Membrane Proteins	93.859	1R35GM140887-01		102,878	-
Structure of Sphingosine 1-phosphate Receptors	93.859	5F32GM136092-02 REVISED		65,399	-
Structure-Function Studies of Ribonucleotide Reductase	93.859	3R01GM047274-29S1 REVISED		94,627	-
Structure, Function and Inhibition of Human O-GlcNAc Transferase	93.859	5R01GM094263-08		86	-
Studying the mitochondrial motor/adaptor complex by misdirecting it to peroxisomes	93.859	3F31GM126681-02S1		10,880	-
Substrate recognition and processing by the proteasome	93.859	5R01GM043601-27 REVISED		235,712	-
Synaptonemal complex assembly and function in meiosis	93.859	5R01GM072551-16		390,685	74,813
Systematic elucidation of allele specific proteome at Imprint Control Regions	93.859	5R01GM135377-02		112,960	-
Technologies for visualizing the genome in situ	93.859	5R01GM123289-04 REVISED		489,401	-
The 3D architecture of the mitochondrial nucleoid and its role in organelle regulation	93.859	5F32GM130028-03		64,308	-
The biosynthesis of N-N bond-containing natural products	93.859	5R01GM132564-02 REVISED		222,569	-
The first secreted Tyrosine kinase	93.859	5R01GM115417-04 REVISED		(866)	-
The mechanism of vertebrate DNA replication termination	93.859	5R01GM080676-12		(4,667)	-
The molecular mechanism of relaxin receptor signaling	93.859	5F31GM128233-03		28,572	-
The of Role DNA LigIV and Its Accessory Factors in the NHEJ Synaptic Complex	93.859	5F32GM129913-02		11,964	-
The RNA polymerase II transcription complex	93.859	5R01GM046498-29 REVISED		401,671	11,772
Training in Pharmacological Sciences	93.859	5T32GM132089-03		415,744	-
Transcriptional Activator Complex of the Mammalian Circadian Clock	93.859	5R01GM129275-02		350,881	-
Transcriptome-Scale, Condition-Specific Regulation of mRNA Isoform Stability Via the 3'UTR	93.859	1F32GM140555-01A1		10,372	-
Transducing Hedgehog signals across the plasma membrane	93.859	5R01GM135262-02		206,770	-
Unraveling the neural basis of female aggression and dementia-related aggression: a systems biology approach.	93.859	1K99GM141449-01		19,970	-
Using a new regenerative model system to elucidate mechanisms for stem cell regulation	93.859	5R35GM128817-04		735,734	-
Visualizing DNA break repair: single-molecule studies of non-homologous end joining	93.859	5R01GM115487-06		413,763	-
Total for CFDA 93.859				43,090,902	1,811,181
A population-based online study of the transition of young adults with perinatal HIV infection to adult clinical care	93.865	5R01HD089853-05REV		181,320	13,312
Angiotensin receptor blocking antibody fragments as next-generation therapeutics for preeclampsia	93.865	5R21HD101596-02		258,778	-
Apoptotic dysregulation in male infertility	93.865	3F32HD102088-02S1		52,895	-
Botswana Birth Outcomes Surveillance Extension	93.865	5R01HD095766-04		506,440	355,746
Comparative Safety of Non-Insulin Agents in Pregnant Women with Pregestational Diabetes	93.865	5R01HD097778-03		590,379	220,017
Culling the human genome of disease variants using ultraconserved elements	93.865	5R01HD091797-05 REVISED		1,328,781	113,285
Descending engagement of brainstem neuronal circuits that govern orofacial motor behaviors	93.865	5K99HD096512-02 REVISED		11,088	-
Determining lineage decisions and gene regulatory networks governing the generation of key progenitor cell types during early human brain development	93.865	5R01HD100036-02		253,708	-
Development and function of a neural circuit underlying sex-specificity of social behaviors	93.865	5K99HD092542-02 REVISED		14,554	-
Development of a Modular Soft Exosuit Platform Suitable for Community-Based Neurorehabilitation	93.865	5R01HD088619-05		426,869	97,271
Development of children's language comprehension using ERPs during natural listening	93.865	3R03HD097629-02S1		89,979	-
Developmental mechanisms of posterior axis termination in vertebrates	93.865	1F31HD104316-01		2,153	-
Dissecting the mechanism of epigenetic spreading by targeted degradation of architectural proteins	93.865	5F31HD100109-02 REVISED		32,883	-
DNA-mediated recording of cellular history	93.865	5DP1HD094764-03 REVISED		11	-
Does neurotransmitter plasticity of para-serotonergic neurons augment autoresuscitation following perinatal stress and buffer SIDS risk	93.865	1R01HD100823-01A1		353,340	26,925

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Elucidating the Role of Metabolism in Regulating the Vertebrate Segmentation Clock	93.865	5F31HD100033-02		31,466	-
Embryonic gene regulatory networks from spatially resolved transcriptomes	93.865	5R01HD085905-04 Revised		2,290	-
Enhancing Assisted Reproductive Technologies with Deep Learning and Data Visualization	93.865	1R01HD104969-01		108,006	-
Genetics of long non-coding RNAs in zebrafish	93.865	5R01HD076708-05 REVISED		5	-
Global Investigation of cell trajectory and lineage relationships in the vertebrate brain with single-cell transcriptomics	93.865	5K99HD098298-02		145,429	-
Health Outcomes around Pregnancy and Exposure to HIV/ARV (HOPE): Extending the Reach of PHACS to Examine Women's Health	93.865	5R01HD101351-02		520,574	86,275
IDENTIFYING ROADBLOCKS TO LIMB REGENERATION	93.865	3R01HD095494-03S1		422,609	-
Identifying the role of dynamic ECM-derived forces in zebrafish semicircular canal morphogenesis	93.865	3K99HD098918-02S1		103,538	-
Integrating Forces and Signals in Tissue-Level Patterning of the Developing Digestive Tract	93.865	5R01HD087234-05		258,252	-
Integration of Mechanical Forces and Signaling in the Morphogenesis of the Gut	93.865	5R01HD089934-05		450,869	-
Intergenerational impact of maternal trauma history on preschoolers' behavioral health outcomes: Assessing links with caregiving sensitivity and DNA methylation	93.865	1R01HD102342-01		213,443	56,169
Language Input as a Mechanism Underlying Socioeconomic Disparities in Neurocognitive Development	93.865	1K99HD103873-01		37,174	-
Long-term health consequences of birth by cesarean section	93.865	5R01HD093761-04		660,248	325,991
Mapping the signaling landscape of vertebrate development at single cell resolution	93.865	5R01HD096755-04		682,831	-
Maternal Exposure to Childhood Abuse and Disparities in Offspring Neurodevelopment: Identifying Mechanisms	93.865	5R01HD094725-03		291,553	126,960
Mechanisms modulating cell identity in regenerative mammalian epithelia	93.865	4R00HD101021-03		277,534	-
Mechanisms of Morphogen Transport and Interpretation in Early Embryos	93.865	5K99HD097297-02 REVISED		27,391	-
Metabolic control of global gene expression during the Maternal-to-Zygotic Transition	93.865	3F32HD095590-03S1		80,512	-
Methods for High-Dimensional Statistical Inference and Individualized Risk Prediction under Semi-Competing Risks	93.865	1F31HD102159-01		34,900	-
Microcircuits underlying murine parental behavior	93.865	5R01HD082131-07		326,442	-
Pediatric HIV/AIDS Cohort Study (PHACS) 2020	93.865	3P01HD103133-01S1REVISED		5,503,895	2,014,028
Pediatric HIV/AIDS Cohort Study (PHACS) Data and Operations Center	93.865	5U01HD052102-15 REVISED		8,859,289	8,440,206
Predictive coding in typical speech perception and dyslexia	93.865	5F31HD100101-02 REVISED		33,673	-
Proteomics of Cell Signaling in Embryogenesis	93.865	5R01HD091846-09		615,463	-
SCt: Flexible Electronics For Assessment to Planning By Children Born Prematurely	93.865	5R01HD090985-04		56,518	9,250
Social determinants of corticolimbic development and aggressive behavior	93.865	5F31HD096820-02REVISED		2,886	-
Systems Analysis of cell type differentiation in Xenopus development	93.865	5R01HD073104-10		551,481	-
The Development and Nature of the Processes that Underlie the Representation of Center-embedded, Recursive Structures	93.865	5F32HD101208-02		64,270	-
The neurodevelopmental mechanisms linking environmental experience and executive function	93.865	1K99HD099203-01A1		97,545	-
The reprogramming of limb progenitor cells	93.865	5R01HD032443-25		347,639	-
The Role of Hypothalamic Pituitary - Adrenal Axis Dysregulation in Preterm Birth	93.865	5R21HD102822-02		113,998	33,761
The Ventral Medulla and the Sudden Infant Death Syndrome	93.865	5P01HD036379-20		(4,476)	-
Trial of Vitamin D in Maternal HIV Progression and Child Health	93.865	5R01HD083113-05 REVISED		252,432	191,083
Uncovering mechanisms and progenitors responsible for limb regeneration	93.865	5F32HD092120-04		(339)	-
Total for CFDA 93.865				25,272,317	12,110,278
(R37 Merit Extension) SIRT1 as a regulator of health and lifespan of mammals	93.866	5R37AG028730-15		430,581	-
A National Analysis of the Extent and Value of Medicare Advantage Physician Networks	93.866	1R01AG068122-01A1		16,374	-
A New Pathway for Reversing Cardiac Aging	93.866	5R01AG047131-06		(30,686)	-
A Research Mentoring Program in Geriatric Rehabilitative Care	93.866	5K24AG069176-07		76,677	-
Alteration of sleep and cortical parvalbumin interneurons in mouse model of Alzheimer's disease	93.866	1K01AG068366-01A1		8,316	-
Cell Non-autonomous Regulation of Aging via Neuronal TORC1	93.866	5R01AG059595-04		390,859	-
Characterizing the landscape of cell-type specific changes associated with Alzheimer's disease before death with single-cell genomics	93.866	5F30AG069446-02		33,090	-
Characterizing the mechanisms behind the association between purpose in life and health	93.866	5K99AG055696-02 REVISED		6,099	-
Cognitive Function, Alzheimer's Disease and Related Disorders in the HAALSI Cohort	93.866	5R01AG054066-03		495,207	125,616
Comparing hospitalization rates, outcomes, and treatment intensity for elderly patients across OECD countries	93.866	5R01AG058878-02 REVISED		425,967	98,810
Controlling oscillations to treat Alzheimers disease targeting the basal forebrain parvalbumin system	93.866	1K99AG066819-01A1		8,316	-
Deciding about Dialysis: Improving Decision-Making Among Older Adults with ESRD	93.866	5K23AG049088-05 REVISED		115,427	-
Defining Functional Outputs of Mitochondrial Networks in Longevity	93.866	5R21AG056930-02		59,168	-
Dietary methionine restriction as an exercise mimetic via increased muscle oxidative metabolism	93.866	1F31AG064863-01Revised		6,204	-
Direct and Indirect Effects of GDF11 in the Aging Central Nervous System	93.866	5R01AG072086-02		241,060	-
Direct and Mediating Pathways Linking Personal Network Characteristics with Cardiovascular Disease	93.866	4R00AG059950-03		31,407	-
Disability among Older Low-Skilled Workers	93.866	5R01AG056239-05		453,330	275,843
Effects of Job Quality in the Service Sector on Health-Related Outcomes Across the Life Course	93.866	1R01AG066898-01A1		300,143	-
Elucidating SHIP1 in microglia in health and disease	93.866	5F31AG063398-02 REVISED		33,198	-
Elucidating the role of SORL1 as an APOE receptor in human astrocytes	93.866	5F31AG063399-02		32,835	-
Epigenetic Dysregulation as a Driver of Skeletal Muscle Aging	93.866	5F32AG069363-02		50,932	-
Epigenetic Reprogramming to Counteract Neuronal Aging and Degeneration	93.866	5K99AG068303-02		121,189	-
Episodic Retrieval and Problem Solving in Aging	93.866	5R01AG008441-29 REVISED		476,748	-
Examining Trajectories of Lifestyle Factors Associated with Healthy Aging and Longevity Using a Novel Mixture Model	93.866	5R03AG060247-02		16,157	1,780
Exploration of MRI measures of neurodegeneration within individuals over short intervals	93.866	1R01AG067420-02		464,244	31,293
Exploring Mechanisms of Pathogenicity in C9ORF72 Frontotemporal Dementia and Amyotrophic Lateral Sclerosis	93.866	5K99AG057808-02 REVISED		35,370	-
Frailty, Statins, and Cardiovascular Disease Burden in Older Adults	93.866	5R03AG060169-02 REVISED		24,485	24,485
Gene Therapy for Alzheimer's Disease	93.866	5R21AG059157-02		51,102	62,057
Health and Aging in Africa: Longitudinal Studies of an INDEPTH Community	93.866	5P01AG041710-08		1,158,918	513,805
Health and Human Capital over the Life Course	93.866	5R01AG056238-05		233,868	81,220
Human Capital of Disabled Workers	93.866	5R01AG046290-06		185,791	125,383
Impact of social cohesion on functional recovery after earthquake and tsunami	93.866	5R01AG042463-09 REVISED		468,962	217,790
Improving Medicare in an Era of Change	93.866	5P01AG032952-12 REVISED		1,834,356	22,363
Improving the quality of care provided through bundled payments for patients with Alzheimer's Disease or Other Forms of Dementia or Frailty	93.866	3R01AG060935-03S1Revised		502,210	225,869
In vivo Structure-Function relationships of GDF11 and GDF8	93.866	1R56AG062468-01A1		398,578	-
Investigating GDF11 and MSTN as candidate circulating geronic factors	93.866	5R01AG057428-04		181,610	-
Investigating the neuroinflammatory role of RIP1 kinase	93.866	3R01AG047231-05S1		(36,367)	-
Investigating the role and mechanism of RIPK1 in mediating cerebrovascular pathology of AD	93.866	5R21AG059073-02		(38,418)	-

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Lifecourse Stressors and Social Disparities in Cognitive Aging: The Roles of Social Networks and Sleep Disturbance	93.866	1F99AG068431-01		25,686	-
MD-PhD Training Program in Aging and the Social/Behavioral Sciences	93.866	5T32AG051108-05 REVISED		60,735	-
Mechanisms of Intermittent Fasting and Longevity in C. elegans	93.866	5F31AG066458-02REVISED		31,889	-
Mechanisms of stem cell aging that contribute to clonal outgrowth in head and neck tissues	93.866	1F32AG071208-01		15,759	-
Mechanisms Specific to the Beneficial Effects of Dietary Restriction	93.866	5R01AG044346-07		201,845	-
Medicare in a Restructured Delivery System	93.866	5P01AG032952-10 REVISED		77,544	107,922
Molecular mechanisms linking epigenetic changes to longevity	93.866	5K99AG065508-02		108,322	-
Multifunctional tough adhesive hydrogels to recruit, expand, and deliver tendon cells during aging and injury	93.866	5K99AG065495-02		132,985	-
Muscle regulatory T cells in exercise and aging	93.866	1F32AG072874-01		15,525	-
Myocardial Effects of Caloric Restriction in Primates	93.866	5R03AG059129-02		43,752	-
National Cohort Studies of Alzheimer's Disease, Related Dementias and Air Pollution	93.866	5R01AG066793-02		522,556	87,700
Neurodegenerative diseases and the role of green space: A deep learning assessment	93.866	5K99AG066949-02		99,674	-
Neuronal Circuit Maintenance in Healthy Aging	93.866	5K99AG064042-02		69,498	-
Novel Age-Dependent DNA Modifications	93.866	5R01AG063341-04		464,261	231,701
Optimism and Exceptional Longevity	93.866	5R01AG053273-04REVISED		440,518	218,983
Post-Acute Care Referral and Outcomes for Patients with Alzheimer's Disease and Related Dementias	93.866	1R56AG062544-01A1 REVISED		274,845	-
Proteomics profiling and risk of dementia	93.866	5K01AG066817-02		76,072	-
Regulation and function of Growth Differentiation Factor 11 during development and aging	93.866	5R01AG048917-05		215,197	87,490
REST and Neural Network Dysfunction in Alzheimer's Disease	93.866	1R56AG069042-01 REVISED		396,665	-
Reversing Loss of Metabolic Homeostasis to Ameliorate Alzheimer's Disease Pathogenicity	93.866	5R01AG067106-02		200,141	-
Role of epigenetic decay in cell senescence and aging	93.866	5R01AG019719-14		223,814	-
Single cell RNA-seq analyses of age-related changes in glial cells and in AD	93.866	1RF1AG055521-01A1 REVISED		(623,340)	-
Slow-wave activity as a modifier of the progression of neurodegeneration in Alzheimer's disease	93.866	3RF1AG061774-01S1		584,009	290,763
Targeting a Novel Regulator of Brain Aging and Alzheimer's Disease	93.866	5R01AG046174-05		117	-
Targeting REST in Alzheimer's Disease	93.866	1R01AG069042-01A1		109,313	-
Targeting RNA homeostasis to promote healthy aging	93.866	5R01AG051954-04REVISED		378,625	-
The Center for the Global Demography of Aging	93.866	3P30AG024409-14S1Revised		502,035	31,146
The Changing Landscape of Post-Acute Care and Health Outcomes for Older Adults	93.866	5K23AG058806-04		225,266	-
The Impact of Employee Wellness Programs	93.866	5R01AG050329-04		98,590	-
The Longitudinal Aging Study in India	93.866	5R01AG042778-05REV		538,274	286,025
The role of epigenetics in age-related cognitive decline and Alzheimer's disease	93.866	5K99AG055683-02 REVISED		125	-
Training in the Molecular Biology of Neurodegeneration and Alzheimer's Disease	93.866	5T32AG000222-30		813,021	1,425
Transgenerational Inheritance of Protein Aggregates in Animals	93.866	5R21AG061850-02		121,396	-
Ubiquitin-mediated proteolysis and cell cycle control	93.866	5R01AG011085-28		501,976	227,460
Uncovering the Human Secretome	93.866	5DP1AG058605-05		928,004	-
Use of prescription opioids following surgery and associated adverse patient outcomes in older adults	93.866	5R56AG059620-02		438,596	102,625
Welfare Effects of Balancing the Federal Social Security and Health Care Budgets	93.866	5R01AG048037-05 REVISED		131,441	29,718
Understanding how physician cognitive biases affect the treatment of older adults with dementia and other vulnerable populations	93.866	5F32AG060650-02 REVISED		5,743	-
Total for CFDA 93.866				17,713,779	3,509,270
A novel mechanism for synapse localization in the retina	93.867	1R21EY032392-01		120,959	-
AAV Induced Toxicity in the Eye	93.867	5R01EY029348-03		526,919	-
Characterizing and Remediating Recollection-Specific Face Recognition Deficits in Developmental Prosopagnosia	93.867	5R21EY031000-02		153,227	9,141
Characterizing training-related neuroplasticity in developmental prosopagnosia	93.867	5R01EY026057-04		18,033	-
Cognitive and Neural Representations of Reachable Environments	93.867	5R21EY031867-02		113,359	-
Combinatorial roles of cadherins in retinal circuit assembly.	93.867	5R01EY022073-09 REVISED		(3,377)	-
CORE GRANT FOR VISION RESEARCH	93.867	5P30EY012196-24		833,421	201,714
Cortico-Cortical Feedback	93.867	5R01EY011379-22 REVISED		199,981	-
Determinants of type-dependent retinal ganglion cell resilience: potential targets for neuroprotection and axon regeneration	93.867	3K99EY029360-02S1 REVISED		83,313	-
Determination of Cone Photoreceptor Fate	93.867	5R01EY029771-03 REVISED		580,996	-
Development of domains in inferotemporal cortex	93.867	2R01EY025670-05A1		72,128	-
Elucidating the molecular and cellular mechanisms underlying cone survival in the peripheral retina in mouse models of Retinitis Pigmentosa	93.867	1K99EY032110-01		15,451	-
Elucidation of cellular reprogramming processes that drive lens regeneration in axolotl as a basis for future therapeutic approaches	93.867	5K99EY029361-02		104,065	-
HIGH THROUGHPUT SINGLE CELL TRANSCRIPTOMIC APPROACH TO IDENTIFY SUSCEPTIBLE CELL TYPES AND GENE EXPRESSION CHANGES IN HUMAN GLAUCOMA	93.867	1R21EY032219-01 REVISED		133,484	-
Investigation of the Mechanisms of Cone Degeneration in Retinitis Pigmentosa	93.867	5K99EY030951-02		101,191	-
Optical interrogation of laminar microcircuit computations in mouse primary visual cortex	93.867	1F31EY031562-01 REVISED		32,480	-
Research Training in Visual Neuroscience	93.867	5T32EY007110-33		97,527	-
Reverse Correlation Mapping in Face Patches	93.867	5R01EY016187-15 REVISED		448,388	-
Structure and Interactions of Conformational Intermediates in gamma-D Crystallin Aggregation, and Their Targeting for Cataract Prevention	93.867	5R01EY030444-02		440,716	-
The normal development of inferotemporal cortex	93.867	5R01EY025670-04		(10,099)	-
Ultrastructural Analysis of a Form of Macular Degeneration - Macular Telangiectasia	93.867	5R21EY030255-02		266,962	-
Total for CFDA 93.867				4,329,126	210,855
Biases introduced by filtering electronic health records for patients with	93.879	1R01LM013345-01A1		140,736	10,335
BIC TRAIN - Biomedical Informatics COVID-19 Training	93.879	3T15LM007092-29S1 REVISED		1,087,398	-
Statistical and Quantitative Training in Big Data Health Science	93.879	5T32LM012411-05		288,189	-
Total for CFDA 93.879				1,516,323	10,335
Academic Units for Primary Care Training and Enhancement	93.884	6 UH1HP29962 05 02		670,129	201,905
Primary Care Training and Enhancement Program	93.884	4 T0BHP29997 05 02		388,991	198,450
Total for CFDA 93.884				1,059,120	400,354
Dietary Patterns and Risk of Cardiovascular Disease	93.837	5R01HL060712-19		706,078	376,857
Total for CFDA 93.897				706,078	376,857
2/2-Air Pollution and Health GeoHealth Hub Research and Capacity Building-US	93.989	5U2RTW010108-05REVISED		247,361	-
Ethiopia Global Infectious Diseases Training Program	93.989	5D43TW011386-02		97,041	53,580

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Identifying genetic determinants of Rotavirus Vaccine Failure in Malawian Children	93.989	5K01TW010853-04REVISED		248,301	35,523
Novel therapeutic agents from the bacterial symbionts of Brazilian invertebrates	93.989	5U19TW009872-05 REVISED		56,634	-
Partnership for Global Health Research Training Program	93.989	5D43TW010543-05		739,086	226,783
Tanzania Infectious Disease Research Training Program	93.989	5D43TW007886-10REV		26,902	-
Telemedicine to improve the diagnosis of surgical site infections post-caesarean delivery in rural Rwanda	93.989	3R21TW011229-02S1 REVISED		142,010	93,212
Training in HIV/AIDS Prevention and Treatment Research in Botswana	93.989	5D43TW009610-09		329,627	192,094
Training Tanzanian Researchers for HIV/AIDS Implementation Science	93.989	5D43TW009775-05		85,384	37,126
Total for CFDA 93.989				1,972,347	638,318
Harvard School of Public Health (HSPH)/United States Population Longitudinal Data and Specialized Analytic Support: Research on energy drinks/other dietary intakes/health outcomes over time	93.RD	75F40119P10486		91,778	-
Human Organ Chips for Radiation Countermeasure Development	93.RD	75F40119C10098		2,090,153	482,292
Identifying Information Needs and communication Channels for researching at-risk populations during Emergencies	93.RD	75D30118C03566		767,202	584,000
Immune Mechanisms of Protection against Mycobacterium tuberculosis Center (IMPAC-TB)	93.RD	75N93019C00071		5,991,408	4,865,176
Long-term transgenerational health impacts of maternal obesity and gestational diabetes and their determinants	93.RD	HHSN275201600003I		(271,323)	-
Total for CFDA 93.RD				8,669,218	5,931,469
Total for DHHS Direct Awards R&D Cluster				389,140,894	90,538,871
EPA					
Disparities in Exposure and Health Effects of Multiple Environmental Stressors Across the Life Course	66.509	83615601		120,374	104,075
Effects of Changes in Climate and Land Use on U.S. Dust and Wildfire Particulate Matter	66.509	83587501		1,779	-
Improving chemical mechanisms for regional/global models in support of US air quality management: application to the GEOS-Chem model	66.509	84001401		134,338	-
Regional Air Pollution Mixtures: The Past and Future Impacts of Emission Controls and Climate Change on Air Quality and Health	66.509	83587201		1,693,708	240,048
Total for CFDA 66.509				1,950,199	344,123
Total for EPA Direct Awards R&D Cluster				1,950,199	344,123
Millennium Challenge Corporation					
Growth Diagnostics: Building New Methods to Identify and Address Constraints to Accelerate Growth	85.002	95332418T0020		48,815	-
Total for CFDA 85.002				48,815	-
Total for Millennium Challenge Corporation Direct Awards R&D Cluster				48,815	-
NASA					
Initial Reconnaissance of a Transiting Rocky Planet in a Nearby M-Dwarf's Habitable Zone	43.RD	HST-GO-14888.002-A		20,668	-
Total for CFDA 43.000				20,668	-
A comprehensive state-of-science GEOS-Chem capability for atmospheric chemistry in the GEOS Earth System Model (ESM) and Data Assimilation System (DAS) at GMAO	43.001	80NSSC17K0134		199,800	-
A First Opportunity to Test Models of Atmospheric Escape for a Terrestrial Exoplanet	43.001	HST-GO-15704.002-A		2,892	-
A Full Characterisation of the Multiple Population Properties of Young Globular Clusters	43.001	HST-GO-15630.009-A		66,596	-
A Homogeneous, Global Analysis of all Kepler and K2 Planets	43.001	80NSSC19K1014		83,869	-
A Low-redshift Strong-lensing Elliptical Galaxy With a Bright Source: A Unique Test for IMF Gradients	43.001	HST-GO-15477.002-A		(5,690)	-
Accelerated Expansion of the Early and Late Universe: Bridging Observations and Consistent Theories	43.001	80NSSC20K0506		145,071	-
An extreme interacting supernova from a very massive star: probing the immediate and galaxy-scale environment of a new pair-instability candidate	43.001	HST-GO-15709.002-A		7,132	-
Assessing the High-Energy Environment of the Habitable Zone Planet LHS 1140b	43.001	80NSSC19K0861		46,728	-
Atmospheric Tomography Mission (ATOM): Imaging the Chemistry of the Global Atmosphere	43.001	NNX15AJ23G		87,706	-
Aura Science Team activities and GEOS-Chem support	43.001	NNX17AI67G		219,123	-
Ca, K, Nd and Mg isotopic heterogeneities in the Solar System	43.001	80NSSC20K0346		226,661	-
Characterization and optimization of CdZnTe low energy threshold for the HREXI SmallSAT Prototype	43.001	80NSSC20K1537		38,824	-
Cold Dark Matter and the GD-1 Stellar Stream	43.001	HST-GO-15930.001-A		68,925	-
Constraining the Late-Time Light Curve Behavior of Three Diverse Superluminous Supernovae	43.001	HST-GO-15162.002-A		8,652	-
Constraining the onset of multiple stellar populations in globular clusters	43.001	HST-HF2-51387.001-A		17,717	-
Cosmic Storytelling with NASA Data: Tools for Exploring Data Science	43.001	80NSSC21M0002		119,800	6,548
Decoding the Isotopic Fingerprints of Solar System Volatiles: A Laboratory Investigation of Isotopic Fractionation Chemistry in Interstellar Ice Analogs	43.001	80NSSC21K0382		21,376	-
Determining the explosion mechanism of a superluminous supernova through the deepest ever late-time study	43.001	HST-GO-14743.002-A		1	-
Development and deployment of an Autonomous Biogeochemical Instrument for In Situ Studies (the ABISS)	43.001	NNX17AB31G		408,062	164,287
Discovery and Atmospheric Reconnaissance of the Most Spectroscopically Accessible Temperate Transiting Terrestrial Exoplanets	43.001	80NSSC18K0476		152,536	-
Dynamics and Chemistry of the Summer Stratosphere	43.001	80NSSC19K0326		1,590,949	-
Estimating Total Ecosystem Carbon in Blue Carbon and Tropical Peatland Ecosystems: Coastal Mangrove and Wetland Extent Mapping	43.001	80NSSC19K1002		50,232	-
Field Measurements of Atmospheric Trace Species: Airborne/Balloon in situ and Ground-Based Remote Sensing of CO2, CH4, CO, N2O, and C2H6	43.001	NNX17AF54G		183,406	-
Fine-Tuned Search for Kilonova Emission in a Short Gamma-Ray Burst: Implications for the Progenitors, Advanced LIGO, and r-Process Nucleosynthesis	43.001	HST-GO-15329.001-A		14,875	-
Fine-Tuned Search for Kilonova Emission in a Short Gamma-Ray Burst: Implications for the Progenitors, GW Sources, and r-Process Nucleosynthesis	43.001	HST-GO-15964.001-A		16,656	-
FIRST X-RAY OBSERVATIONS OF A PECULIAR FLARING AGN OBSERVED BY KEPLER: A SUPERMASSIVE BLACK HOLE BINARY HYPOTHESIS	43.001	80NSSC19K1392		15,478	6,621
HREXI prototype for 4piXIO	43.001	NNX17AE62G		447,611	9,125
Imaging the transition of SN 1987A to SNR 1987A	43.001	HST-GO-15256.002-A		14,196	-
Improved characterization of the tropospheric NO2 background for retrieval and interpretation of NO2 columns from satellites: application to interpret the long-term OMI record over the US in terms of NOx emissions and their trends	43.001	80NSSC20K0930		143,017	-
Improved Understanding of Methane Emissions and Trends in North America and Globally Through a Unified Top-Down and Bottom-Up Approach	43.001	80NSSC18K0178		218,960	-
Exploiting GOSAT and TROPOMI Satellite Data	43.001	NNX17AE27G		61,290	44,858
Isotopic and chemical consequences of different accretion scenarios: Comparing models with observations	43.001	80NSSC21K0634		56,819	-
Knitting Together the Milky Way: An Integrated Model of the Galaxy's Stars, Gas, and Dust	43.001	80NSSC18K1063		202,619	-
Laboratory Kinetics and Spectroscopic Studies of Halogens and Nitrogen Oxides in Support of the NASA Panel for Data Evaluation	43.001	80NSSC20K0318		317,279	-
Metasurfaces for Compact, Next-Generation Polarimetric Remote Sensing of Aerosols and Clouds	43.001	NNX16AL75G		170,503	61,132
Miniature Light-weight X-ray Optics for Solar System Exploration	43.001	HST-HF2-51445.001-A		100,604	-
Modeling the Turbulent Evolution of Galaxies over Cosmic Time	43.001	HST-AR-13909.003-A		11,351	-
Predictive Simulations of Metals Ejected from Galaxies in Galactic Winds	43.001	80NSSC20K0009		201,736	-
Quantifying and Partitioning the Global Methane Budget Using Satellite and Ground Based Measurements Of CH4 and Tracers of Its Sources and Sinks	43.001	80NSSC18K1111		38,447	-
Shocks Across Simulated Cosmological Environments	43.001	80NSSC18K1111		38,447	-

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Spectral Signatures of Atmospheric Escape in Exoplanets	43.001	HST-HF2-51443.001-A		7,315	-
The Emergence of Galactic Structure	43.001	HST-HF2-51416.001-A		6,170	-
The Milky Way in a Bottle: Realizing the promise of Galactic surveys	43.001	80NSSC20K1536		32,500	-
Understand predictability and improve prediction of atmospheric blocking and associated extreme weather	43.001	80NSSC17K0267		107,395	-
Understanding The Atmospheric Methane Budget And Trends Using Satellite Observations In Combination With New Emission Inventories And Biogeochemical Models	43.001	NNX17AK81G		194,035	-
Using Linear Mixed Effects Modeling to Improve Stability of Total Solar Irradiance Reconstructions	43.001	80NSSC19K1327		40,320	-
Total for CFDA 43.001				6,159,543	292,571
Crowd Innovation Laboratory at Harvard University NASA Open Innovation Research	43.003	NNX16AC77A		172,210	-
Total for CFDA 43.003				172,210	-
Nicotinamide dinucleotide (NAD)-boosting as a strategy to mitigate musculoskeletal loss during space exploration	43.007	16-ROSBFP-PD-0004		5,553	-
Physics of Colloids in Space	43.007	80NSSC19K0598		11,293	-
Total for CFDA 43.007				16,846	-
Accelerated Computational Design of Multifunctional Polymeric Materials with Machine Learning Dynamics	43.012	80NSSC20K1189		48,591	-
Developing a multi-scale understanding of the kinetics of dehydration and rehydration in a model cellular food system	43.012	80NSSC19K1146		55,748	-
Total for CFDA 43.012				104,339	-
Total for NASA Direct Awards R&D Cluster				6,473,607	292,571
National Endowment for the Humanities					
Women's Worlds in Qajar Iran (NEH HCRR)	45.149	PW-259037-18		(836)	-
Total for CFDA 45.149				(836)	-
Total for National Endowment for the Humanities Direct Awards R&D Cluster				(836)	-
National Science Foundation					
CAREER: First Principles Design of Error-Corrected Solid-State Quantum Repeaters	47.041	ECS-1944085		44,092	-
CAREER: Optimization, Control, and Incentive Design for Power Networks with High Levels of Distributed Energy Resources	47.041	ECCS-1553407		68,405	-
Collaborative Research: Integrated memristor neural networks for in-situ analysis of intracellular neuronal recordings	47.041	ECCS-1915984		46,838	-
Collaborative Research: Mechanics of fusion of dissimilar lipid bilayers and multi-lamellar vesicles	47.041	CBET-1705775		(866)	-
Collaborative Research: Programming non-linear waves in compliant mechanical metamaterials	47.041	CMMI-2041440		5,493	-
Collaborative Research: Quantum cascade laser transceivers for terahertz wireless communication	47.041	ECCS-1807323		1,634	-
Collaborative Research: Use of Wearable Sensors to Track Muscle-Tendon Loading during Exosuit Assisted Locomotion	47.041	CBET-2019580		1,048	-
CPS: Medium: An AI-enabled Cyber-Physical-Biological System for Cardiac Organoid Maturation	47.041	ECCS-2038603		187,055	8,161
CQIS: Coherent Spin-Phonon Interfaces with Diamond Color Centers	47.041	ECCS-1810233		91,007	-
Data-Driven Management of Post-Transplant Medications	47.041	CMMI-1562645		(998)	(998)
E2CDA: Type II: Collaborative Research: Nanophotonic Lithium Niobate platform for next generation energy efficient and ultrahigh bandwidth optical interconnect	47.041	ECCS-1740296		24,107	-
EAGER: Combining van der Waals heterostructures and superlattices: new approach to 2D tunable optoelectronic devices	47.041	ECCS-2015668		78,927	-
EAGER: Real-Time: Learning, Selection, and Control in Residential Demand Response for Grid Reliability	47.041	ECCS-1839632		177,599	-
EFRI C3 SoRo: Textile Robotics: Integrative Design, Modeling, Manufacture, and Control of Soft Human-Interactive Apparel	47.041	EFMA-1830896		850,124	64,804
EFRI NewLAW: Topological Mechanical Metamaterials Science	47.041	EFMA-1741685		264,047	211,247
FMRG: AI Driven Cybermanufacturing of Quantum Materials Architectures	47.041	CMMI-2036359		219,916	137,205
FW-HTF: Collaborative Research: The Next Mobile Office: Safe and Productive Work in Automated Vehicles	47.041	CMMI-1839870		174,344	-
GOALI: Nano-Machining of Diamond Mirror for High-Power Laser Optics	47.041	CMMI-1825257		68,682	-
I-Corps Teams: Tough Adhesive Hydrogels	47.041	2		1,521	-
I-Corps: Soft Robotic Toolkit for Students and Researchers	47.041	IIP-2121958		3,489	-
Kinetics and stability of redox-active organics for electrochemical systems	47.041	CBET-1914543		288,015	-
NNCI: The Center for Nanoscale System (CNS) at Harvard University	47.041	ECCS-1541959		460,826	-
NNCI: The Center for Nanoscale System (CNS) at Harvard University	47.041	ECCS-2025158		475,225	-
NRI: Achieving selective kinematics and stiffness in flexible robotics	47.041	CMMI-1637838		1,025	-
NRI: FND: COLLAB: A Foundational Approach to Muscle Actuators that Lowers Barriers to Muscle-Powered Robotics Research	47.041	CMMI-1830291		84,503	-
NRI: INT: Wearable Robots for the Community: Personalized Assistance using Human-in-the-loop Optimization	47.041	CMMI-1925085		833,630	95,037
PFI-TT: Development of Metabolic Imaging to Improve Treatment of Infertility	47.041	IIP-1827309		29,470	-
RAISE TAQS: Towards a Quantum Cloud	47.041	ECCS-1839197		373,137	331,443
COVID-19: RAPID: Arresting the spread of SARS-CoV-2 on surfaces and in the air using engineered water nanostructures enriched with de novo designed neutralizing peptides	47.041	2031785		159,685	81,387
Total for CFDA 47.041				5,011,979	928,286
2020 Waterman Award	47.049	CHE-2038059		144,480	-
Admissible Lagrangians, Fukaya categories, and homological mirror symmetry.	47.049	DMS-1937869		88,187	-
Algebraic geometric approaches to biological complexity	47.049	DMS-1462629		104,645	-
Analysis, Geometry and Mathematical Physics	47.049	DMS-1607871		22,056	-
Arithmetic Geometry	47.049	DMS-1601054		18,322	-
Arithmetic Geometry and Applications	47.049	DMS-1902158		118,642	-
CAREER: Adapting the fluid projection method to model elasto-plastic materials	47.049	DMS-1753203		83,880	-
CAREER: Extreme climate perturbations by meteorite impacts and volcanism on terrestrial planets	47.049	AST-1847120		121,481	-
CAREER: Learning Probabilistic Factor Models	47.049	DMS-1943902		75,735	-
CAREER: Nanobody technology to decipher the essential roles of O-GlcNAc in cells	47.049	CHE-1942574		300,378	-
CAREER: Randomness in Number Theory and Beyond	47.049	DMS-2052036		99,936	-
CAREER: Stochastic effects in the microbial cell cycle: from single-cell level variability to population growth	47.049	PHY-1752024		140,971	-
CAREER: Unbiased Estimation with Faithful Markov Chains for Scalable Statistical Inference	47.049	DMS-1844695		75,242	-
CAS: Collaborative Research: Electronic Structure/Function Relationships in Base Metal Complexes Spanning the Oxo/Oxene and Imide/Nitrene Continuum	47.049	CHE-1954690		165,057	-
CDS and E: AAG: Glupyter: Enabling multi-dimensional linked data visualization with glue in the browser	47.049	AST-1908419		65,431	-
Center for Integrated Quantum Materials	47.049	DMR-1231319		4,569,577	2,175,057
Classical and Quantum Aspects of Black Holes, Horizons and Asymptotic Symmetries	47.049	PHY-1707938		47,029	-
Collaborative Research: Atomic-Scale Hybrids, Tuning the IR Dielectric Function through Superlattice Design	47.049	DMR-1905295		(24,453)	-

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Collaborative Research: Bayesian and Semi-Bayesian Methods for Detecting Relationships in High Dimensions	47.049	DMS-2015411		38,029	-
Collaborative Research: Exploring the physics of galaxy clusters with comprehensive cosmological simulations	47.049	AST-1815978		140,934	-
Collaborative Research: Formation of a High Flux Student Research Network (HF-SRN) as a Laboratory for Enhancing Interaction in the PoLS SRN	47.049	1806818		183,614	-
Collaborative Research: Highly Principled Data Science for Multi-Domain Astronomical Measurements and Analysis	47.049	DMS-1811308		56,303	-
Collaborative Research: MINERVA - A dedicated, global, precision radial velocity machine for TESS	47.049	AST-2007811		86,323	-
Collaborative Research: Multiscale engineering of active stress in biomaterials	47.049	DMR-2004380		110,009	-
Collaborative Research: Multiscale Modeling of Amorphous Solids - Energy Landscapes to Failure Prediction	47.049	DMR-1909733		84,753	-
Collaborative Research: Novel statistical tools for metagenomics and metabolomics data	47.049	DMS-1903139		95,446	-
Collaborative Research: Pioneering planet formation chemistry with ALMA	47.049	AST-1907832		98,952	-
Collaborative Research: Theoretical and Methodological Frameworks for Causal Inference of Peer Effects	47.049	DMS-1712714		80,781	-
Collaborative: Isotopologue Synthesis and Use for Elucidating Important Chemical Mechanisms of Organic Condensation Reactions in Atmospheric Particles	47.049	CHE-2003368		30,854	-
Colloids as Models for Crystals and Glasses	47.049	1611089		266	-
Completion of Scanning, Data Releases and Optimization of Analysis and Database for DASCH	47.049	AST-1910561		208,017	-
Complex Dynamics and Diophantine Geometry	47.049	DMS-2050037		84,654	-
Complex Dynamics and Moduli Spaces	47.049	DMS-1903764		152,745	-
Designer Soft Microparticles for a Changing Environment	47.049	DMR-1708729		8,305	-
Discovering New Physics Beyond the Standard Model with Cosmological Data Sets	47.049	AST-1813694		152,404	-
DMREF: Collaborative Research: Digital Magnetic Handshake Materials, Structures, and Machines	47.049	DMR-1921619		127,357	-
DMREF: Collaborative Research: The Search for Novel Superconductors in Moire Flat Bands	47.049	DMR-1922172		329,188	-
DMREF: Hydrogel-actuated cellular soft robotic materials with programmable mechanical properties	47.049	DMR-1922321		532,802	78,147
EAGER-QAC-QCH: Hybrid Quantum-Classical Algorithm for NMR Inference	47.049	CHE-2037687		19,958	-
EAGER: Building a Network of Quantum Diamond Microscope (QDM) Facilities and Researchers	47.049	PHY-1843727		237	-
EAGER: Physics of Living Systems Teacher (PoLST) Network: Increasing Student Conceptual Understanding of High School Physics	47.049	PHY-2016294		89,200	-
Exploring the Galaxy: 3-Dimensional Structure and Stellar Streams	47.049	AST-1614941		94,033	-
Fluctuations and Control in Cells	47.049	DMS-1517372		3,413	-
Foundations of Data Science Institute	47.049	DMS-2023528		10,373	-
FRG: Collaborative Research: Dimers in Combinatorics and Physics	47.049	DMS-1854316		91,672	-
FRG: Collaborative Research: Geometric and Topological Methods for Analyzing Shapes	47.049	DMS-1760471		139,619	-
Fundamental Physics from Astronomy and Cosmology	47.049	PHY-1915071		143,379	-
Gamma-Ray Bursts: Physics, Progenitors, and Probes	47.049	AST-1714498		116,456	-
Gauge Theory and Spatial Graphs	47.049	DMS-1707924		37,630	-
Geometric Langlands Correspondence: Further Directions	47.049	DMS-2005475		47,713	-
Heavy binary black holes in the making: constraining the physics of chemically homogeneous evolution using gravitational waves and electro-magnetic surveys of local analogues	47.049	AST-2009131		71,357	-
Hodge Filtration, Singularities, and Complex Birational Geometry	47.049	DMS-2040378		58,397	-
Induced Topological Superconductivity in Two Dimensional Systems	47.049	DMR-1708688		42,318	-
Instanton Homology in Low-Dimensional Topology	47.049	DMS-2005310		75,955	-
Institute for Theoretical, Atomic, Molecular and Optical Physics	47.049	PHY-1521560		443,741	216,632
Interactions of Particles, Fields and Strings	47.049	PHY-1719924		4,941	-
Interactions of Particles, Fields, and Strings	47.049	PHY-2013858		37,155	-
Interfaces of Combinatorics and Physics	47.049	DMS-1854512		76,505	-
Investigating fundamental chemical and physical processes affecting gas-particle partitioning using levitated droplet-mass spectrometry	47.049	CHE-1808084		117,183	-
Investigating Laser-Activation of Structured Polymer Materials for Drug Delivery	47.049	PHY-1806434		127,181	-
Investigating Tunneling Across Self-Assembled Monolayers Using the Eutectic Gain Junction	47.049	CHE-1808361		186,943	-
Local and Global Geometric Langlands Correspondence	47.049	DMS-1707662		3,549	-
Materials Research Science and Engineering Center	47.049	DMR-1420570		1,986,706	-
Materials Research Science and Engineering Center	47.049	DMR-2011754		857,475	-
Mathematical methods to infer mechanisms from single cell data	47.049	DMS-1562497		118,978	-
Mechanistic Studies of the Photoactivation of Metal- Hydride, Halide and Oxo Bonds	47.049	CHE-1464232		(75)	-
Metallic Properties of the Isotopes of Hydrogen	47.049	DMR-1905943		179,976	-
Microscopy of bosonic fractional quantum Hall states in optical lattices	47.049	PHY-1806604		162,790	-
MINERVA: Purchase of Kiwispec, a robotic precision RV spectrograph	47.049	AST-1608203		18,198	-
MRI: Development of a Scanning 4-Probe Microscope for Discovery and Characterization of Quantum Materials and Devices	47.049	DMR-1828569		358,183	(7,500)
Multi-Wavelength Observations and Modeling of Magnetic Fields in Ultracool Dwarfs and Giant Exoplanets	47.049	AST-2007411		66,493	-
New Directions in Homology of Moduli Spaces	47.049	DMS-1803766		39,106	-
New Frontiers in Homotopy Theory	47.049	DMS-1810917		80,195	-
New Paradigms of Quantum Criticality	47.049	DMR-2002850		152,113	-
NSF-BSF:Transport, fluctuation, and Nonequilibrium phase transition in atomically thin crystalline van der Waals superconductors	47.049	DMR-1809188		87,073	53,808
NSF-Simons Research Center for Mathematics of Complex Biological Systems	47.049	DMS-1764269		1,066,101	-
Observational Studies of Magnetic Fields in Very Low Mass Stars	47.049	AST-1614770		17,502	-
OP: Quantum Physics with Nanaophotonics Systems	47.049	PHY-1506284		8,031	-
Order determination for hidden Markov and related models	47.049	DMS-1810914		66,619	-
Photoactivation of Stable Bonds for Energy Conversion and Photoredox Catalysis	47.049	CHE-1855531		154,493	-
Physics and Applications of Quantum Nanophotonics Systems	47.049	PHY-2012023		861,336	-
Physics with New Molecular Systems: Quantum Interactions, Cooling and Applications	47.049	PHY-1505961		(1,438)	-
Probabilistic Underpinning of Imprecise Probability and Statistical Learning with Low-Resolution Information	47.049	DMS-1812063		56,303	-
QII-TAQS: Majorana Nanomanipulation for Topological Quantum Computing	47.049	OMA-1936246		625,545	410,274
Random Matrices, Statistical Applications and Spin Glass Dynamics	47.049	DMS-1855509		90,388	-
Rational development of next-generation shape memory alloys	47.049	DMR-1808162		128,263	-
Research and Education in Physical Mathematics	47.049	DMS-1715477		131,776	-
REU Site: Biomaterials Research Initiative Dedicated to Gateway Experiences	47.049	DMR-1559890		2,488	-
Spectroscopy of Two Dimensional Molecular Carbon	47.049	CHE-1800101		24,208	-
Spindle Self-Organization and Bioenergetics in Vivo	47.049	PHY-2013874		278,386	-

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State Space Models: A New Look at Smoothing, Parameter Inference, and Model Choice	47.049	DMS-1712872		19,097	-
Strongly Extended Superradiance in Diamond Meta-Materials	47.049	PHY-1720438		37,570	-
Studies of Accretion onto Black Holes	47.049	AST-1816420		10,985	-
Synthesis of New Precursors for Vapor Deposition	47.049	1764338		106,631	-
Synthesizing and harnessing ultracold single molecules for quantum simulations	47.049	PHY-1806595		72,168	-
The Evolution of Evolvability in Microbial Populations	47.049	PHY-1914916		125,172	-
The HOD Project	47.049	DMS-1953093		96,801	-
The Ultimate L Project	47.049	DMS-1664764		15,707	-
Topology, Geometry and Physics	47.049	DMS-1708310		17,351	-
Topology, Geometry and Physics	47.049	DMS-2002771		95,621	-
Ultracold Triatomic Molecules: Collisions and Cooling	47.049	PHY-1806571		20,218	-
Understanding Interstellar Aromatic Chemistry: An Integrated Experimental, Theoretical, and Astronomical Approach	47.049	AST-1908576		1,342	-
Understanding the Formation and Utilization of Halogenated Metabolites in Natural Product Biosynthesis	47.049	CHE-2003436		160,679	-
Variable Selection via Inverse Modeling for Detecting Nonlinear Relationships	47.049	DMS-1613035		1,264	-
WoU-MMA: Toward an Understanding of Common Envelope Interactions of Binary Stars	47.049	AST-1909203		160,833	-
EAGER: Defining the Role of UV light in Prebiotic Chemical Evolution: the Imidazolium Bridge in Non-enzymatic RNA Replication	47.049	PHY-1933505		108,653	-
Emerging Statistical and Quantitative Issues in Genomic Research in Health Sciences	47.049	DMS-1833416		3,820	-
Workshops: Using Physics Education Research to Improve High and Middle School Physics	47.049	PHY-2025683		125,370	-
Total for CFDA 47.049				19,653,737	2,926,418
Carbon isotope fractionation in Archaea using the 3HP/4HB pathway: Prospects for paleo-geochemistry and paleo-barometry	47.050	OCE-1843285		257,362	-
A Comprehensive Coupled Model for Tropospheric Halogen Chemistry: Evaluation of Impacts on Tropospheric Ozone, Hydroxyl Radical (OH), and Mercury	47.050	AGS-1643217		26,618	-
Applying Statistical State Dynamics to Explain Spontaneous Shear/Buoyancy Layering in Stratified Turbulence	47.050	AGS-1640989		101,802	-
Belmont Forum Collaboration: Climate change, pollinator declines and the human diet	47.050	2020681		36,409	-
Belmont Forum Collaborative Research: Arctic Wetlands Ecosystems - Resilience through Restoration and Stewardship	47.050	ICER-2034778		56,605	-
Belmont Forum Collaborative Research: ARMS to reefs: A new tool to restore coral reef biodiversity, fisheries yields, and human health in Madagascar	47.050	ICER-2022717		21,734	-
Belmont Forum Collaborative Research: Governance of Sociotechnical Transformations	47.050	ICER-1856215		1,217	-
CAREER: Dynamics of surface rupturing thrust earthquakes	47.050	EAR-1749556		37,256	-
CAREER: Exploring the Earth with high-resolution paleomagnetism	47.050	EAR 1847042		136,424	-
Clumped Oxygen Isotope Signature of Marine Dissolved Oxygen	47.050	OCE-2049298		4,440	-
Collaborative Proposal - PREEVENTS Track 2: Cascadia Scenario Earthquakes: Source, Path, and implications for Earthquake Early Warning	47.050	ICER-1663827		27,751	-
COLLABORATIVE RESEARCH: A multidimensional approach to understanding microbial carbon cycling beneath the seafloor during cool hydrothermal circulation	47.050	OCE-1635365		115,011	-
Collaborative Research: A Teleconnection between the Tropical Madden-Julian Oscillation and Arctic Sudden Stratospheric Warming Events in Warm Climates	47.050	AGS-1826635		92,475	-
Collaborative Research: Constraining West Antarctic Ice Sheet elevation during the last interglacial	47.050	OPP-1744927		68,889	-
Collaborative Research: Cross-Validation of Empirical and Physics-based ground motion predictions	47.050	EAR-1850015		38,522	-
Collaborative research: Dynamics of unsaturated downdrafts, cold pools, and their roles in convective initiation and organization	47.050	AGS-1649819		94,617	21,023
Collaborative Research: Experimental and theoretical characterization of rapid Jurassic true polar wander	47.050	EAR-1723023		52,355	-
Collaborative Research: ICECAP (Ice Age Chemistry and Proxies) Phase 3: Investigating Fire Activity and its Implications for Climate Across Multiple Timescales	47.050	AGS-1702814		7,379	-
Collaborative Research: Imaging the Beginning of Time from the South Pole: The next Stage of the BICEP Program	47.050	OPP-1638957		668,216	-
Collaborative Research: Integrating GEOS-Chem atmospheric chemistry into the NCAR Community Earth System Model (CESM)	47.050	AGS-1914903		113,364	-
Collaborative Research: P2C2--Does Liebig's Law Allow for Capturing More Signal from the Forest	47.050	AGS-1903657		112,262	-
Collaborative Research: P2C2: Re-assessing Pliocene and Miocene warm climates and identifying the 'missing physics' to explain them	47.050	OCE-1602864		37,230	-
Collaborative Research: Unlocking the Cenozoic/Cretaceous seawater sulfate record via inclusion of 17O in marine barite	47.050	OCE-1946137		121,329	-
Collaborative Research: Unmanned aerial vehicles for emissions and chemistry of volatile organic compounds over the Amazon tropical forest	47.050	AGS-1829025		158,569	-
CoPe: EAGER: Collaborative Research: Development of A Novel, Mobile Coastal Observatory for Quantifying Coastal Carbon Cycling by Professional and Citizen Scientists	47.050	ICER-1940100		26,338	-
Development of a simple, low-cost device for sample collection and on-site preservation using a common oceanographic deployment platform	47.050	OCE-1924214		20,097	-
Dynamic Exchange and Reactivity in Secondary Organic Aerosol	47.050	AGS-1640378		3,274	-
EAGER: MethaneAIR	47.050	AGS-1856426		29,992	-
Elucidating the Mechanics of Tsunami Generating Earthquake Rupture with Long Period Seismology	47.050	OCE-1850831		115,972	-
Evaluating the Impact of Future Volcanic Eruptions on Stratospheric Ozone: Influence of Multicomponent Injection, Climate Change, Latitude, and Season	47.050	AGS-1764171		151,829	-
FESD Type I: VOICE - Volcano, Ocean, Ice, and Carbon Experiments	47.050	AGS-1338832		472,322	184,603
NSF/GEO-NERC collaborative research: Dynamics of warm past and future climates	47.050	AGS-1924538		70,168	-
OTREC: Convective Heating Profiles and the Transition from Shallow to Deep Convection over the Tropical East Pacific and Southwest Caribbean	47.050	AGS-1759255		44,854	-
Petrogenetic Studies of Young Volcanic Rocks	47.050	OCE-1634421		109,913	-
Use of Artificial Intelligence towards Automation of Analog Seismogram Digitization	47.050	EAR-1822136		46,682	-
Total for CFDA 47.050				3,479,281	205,626
AF: Large: Collaborative Research: Algebraic Proof Systems, Convexity, and Algorithms	47.070	CCF-1565264		143,519	-
AF: Medium: Algorithmic Complexity in Computation and Biology	47.070	CCF-1509178		133,251	-
AF: Medium: Collaborative Proposal: Foundations of Adaptive Data Analysis	47.070	CCF-1763665		62,846	-
AF: Medium: Collaborative Research: Exploiting Opportunities in Pseudorandomness	47.070	CCF-1763299		82,992	-
AF: Small: A Computational Lens on Participatory Democracy	47.070	CCF-2007080		80,079	-
AF: Small: Communication Amid Uncertainty	47.070	CCF-1715187		9,815	-
AF: Small: Learning and Optimization with Strategic Data Sources	47.070	CCF-1718549		89,658	-
AF:Small: Foundations for Data-driven Algorithmics	47.070	CCF-1816874		37,068	-
BD Spokes: SPOKE: NORTHEAST: Collaborative Research: Integration of environmental factors and causal reasoning approaches for large-scale observational health research	47.070	IIS-1636870		(25,866)	-
CAREER: A Programmable Measurement Architecture for Network Operations	47.070	CNS-1834263		218,954	-
CAREER: Algorithmic Foundations for Social Data	47.070	CCF-1452961		115,591	-
CAREER: Generative Models for Targeted Domain Interpretability with Applications to Healthcare	47.070	IIS-1750358		15,071	-
CAREER: Information-Theoretic Foundations of Fairness in Machine Learning	47.070	CCF-1845852		87,371	-

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Causal Inference and Machine Learning Methods	47.070	IIS-1941419		72,403	-
CIF: Medium: Collaborative Research: Information-theoretic Guarantees on Privacy in the Age of Learning	47.070	CCF-1900750		92,104	-
CIF: NeTS: Medium: Collaborative Research: Unifying Data Synchronization	47.070	CCF-1563710		137,935	-
CIF: Small: Exploring and Exploiting the Universality Phenomenon in High-Dimensional Estimation	47.070	CCF-1910410		214,131	-
Collaborative Research: CHS: Medium: Code demography: Addressing information needs at scale for programming interface users and designers	47.070	IIS-1955699		39,888	-
Collaborative Research: CNS Core: Medium: Cross-Layer Design of Video Analytics for the Internet of Things	47.070	CNS-1955422		7,561	-
Collaborative Research: Computational Photo-Scatterography: Unraveling Scattered Photons for Bio-imaging	47.070	IIS-1730326		155,150	-
COVID-19: Collaborative Research: RAPID: Building a Spatiotemporal Platform for Rapid Response to COVID-19	47.070	CNS-2027540		96,836	-
Collaborative Research: RI: AF: Small: Wisdom of Crowds with Machines in the Loop	47.070	IIS-2007887		59,421	-
Collaborative Research: RI: Small: Post hoc Explanations in the Wild: Exposing Vulnerabilities and Ensuring Robustness	47.070	IIS-2008461		5,535	-
Collaborative Research: Understanding Subatomic-Scale Quantum Matter Data Using Machine Learning Tools	47.070	OAC-1934598		554,519	-
CRCNS US-German Research Proposal: Neural Computations Underlying Mechanical -Flow Sensing in Zebrafish	47.070	IIS-1912293		195,296	-
CSR: Medium: Collaborative Research: Soup: Flexible Storage and Processing for On-Line Applications	47.070	CNS-1704376		67,982	-
CSR: SMALL: Virtualized accelerators for scalable, composable architectures	47.070	CNS-1718160		84,204	-
EAGER: AI-DCL: Collaborative Research: Understanding and Overcoming Biases in STEM Education Using Machine Learning	47.070	IIS-1926925		153,701	-
EAGER: Developing Markets	47.070	CCF-1841550		20,173	-
Elements: FLARE infrastructure for reproducible active learning of Bayesian force fields for ex-machina exascale molecular dynamics	47.070	2003725-OAC		109,969	-
III: CHS: Medium: Visually Interactive Neural Probabilistic Models of Language	47.070	IIS-1901030		248,769	30,645
Making With Understanding: Using Augmented Reality to Support Peer Teaching in Makerspaces	47.070	IIS-1917716		203,555	-
NCS-FO: Analyzing Synapses, Motifs and Neural Networks for Large-scale Connectomics	47.070	IIS-1835231		363,733	-
NRI: FND: Robust Grasping by Integrating Machine Learning with Physical Models	47.070	IIS-1924984		137,025	-
COVID-19: RAPID: Collaborative research: Computational Drug Repurposing for COVID-19	47.070	2030459		91,018	-
RI: Medium: End-to-end Computational Sensing	47.070	IIS-1900847		180,317	-
RI: Small: Collaborative Research: Hidden Parameter Markov Decision Processes: Exploiting Structure in Families of Tasks	47.070	IIS-1718306		56,251	-
RI: Small: Computational Social Choice: For the People	47.070	IIS-2024287		172,908	-
RI: Small: Depth from Differential Defocus	47.070	IIS-1718012		115,699	-
RI: Small: Human Validation in Batch Reinforcement Learning	47.070	IIS-2007076		29,337	-
S and AS: INT: RoboBees 2.0 towards autonomous micro air vehicles	47.070	IIS-1724197		65,841	-
SHF:Medium:A Cloudless Universal Translator	47.070	CCF-1704834		117,497	-
SI2-SSE: Collaborative Research: A Sustainable Future for the Glue Multi-Dimensional Linked Data Visualization Package	47.070	OAC-1739657		10,319	-
SI2-SSI: Collaborative Research: Bringing End-to-End Provenance to Scientists	47.070	ACI-1450277		21,885	49,872
TWC: Large: Collaborative: Computing Over Distributed Sensitive Data	47.070	CNS-1565387		125,121	124,424
Workshop on Drug Repurposing for Future Pandemics	47.070	2033384		29,952	-
XPS: FULL: CCA: Collaborative Research: Automatically Scalable Computation	47.070	CCF-1533737		11,307	-
Phase II IUCRC Harvard: Center for Spatiotemporal Thinking, Computing and Applications (STCA)	47.070	CNS-1841403		82,493	-
Total for CFDA 47.070				5,180,182	204,942
1000 species and counting: Harnessing the power of herbarium digitization, crowdsourcing, and phytofloristics to assess and predict phenological responses	47.074	DEB-1754584		66,400	-
BBSRC-NSF/BIO: Integrative analysis and Visualisation of Fly Cell Atlas datasets to enable cross-species comparisons	47.074	DBI-2035515		192,265	-
CAREER: Developmental network architecture underlies patterning precision and robustness	47.074	IOS-1452557		29,143	-
CAREER: Testing the contributions of selection, gene-flow, and recombination to reinforcement	47.074	DEB-1844906		282,916	-
CAREER: The evolution of gene regulatory networks for regeneration	47.074	IOS-1652104		103,303	-
CNH-L: Social-ecological traps and interactive dynamics of reef fisheries and human health	47.074	1826668		364,791	267,166
CNH-L:Assessing the potential for climate change and forest insects to drive land-use regime shifts	47.074	DEB-1617075		75,378	-
Collaborative Proposal: Redefining the ecological memory of disturbance over multiple temporal and spatial scales in forest ecosystems	47.074	DEB-1945910		20,889	-
Collaborative Research: ButterflyNet--an integrative framework for comparative biology	47.074	DEB-1541560		2,898	-
Collaborative Research: Comparative Genomics of Host-specific Adaptation and Life History Evolution in Brood Parasitic Birds	47.074	DEB-1754397		95,269	-
Collaborative Research: Convergent evolution and diversification of the crab body plan over 200 million years	47.074	DEB-1856679		235,181	-
Collaborative Research: Enabling control of Bacillus subtilis growth using non-standard amino acids	47.074	MCB-2027074		114,869	-
Collaborative Research: Evolving the mammalian forelimb: modeling musculoskeletal transformation in the forerunners of mammals	47.074	DEB-1754459		159,803	-
Collaborative Research: IDBR: TYPE A: Development of Squishy Robot Hands for a Delicate, Effective and Non-Intrusive Approach to Studying Deep Coral Reefs	47.074	DBI-1556164		32,635	-
Collaborative Research: NSF/MCB: Kinetic Control of the Transcription Cycle Revealed by Synthetic Enhancers	47.074	1715184		72,624	-
Collaborative Research: Physiology of Long Distance Assimilate Transport	47.074	IOS-1456845		(38)	-
Collaborative Research: The Opiiones of New Zealand: Revisionary synthesis and application of species delimitation for testing biogeographic hypotheses	47.074	DEB-1754278		200,847	-
Combinatorial Inference: Statistical Uncertainty Assessment for Discrete Structures	47.074	1916211		48,301	-
CSBR: Natural History: Preserving the genomes of the type specimens in the Museum of Comparative Zoology	47.074	DBI-1946857		25,389	-
Designing a Minimized Genome Cyanobacterial Chassis for Efficient Bioproduction	47.074	MCB-2037995		2,802	-
Dimensions US-BIOTA-Sao Paulo: Collaborative Proposal: Traits as predictors of adaptive diversification along the Brazilian Dry Diagonal	47.074	DEB-1831560		21,213	-
DIMENSIONS: COLLABORATIVE RESEARCH: The phylogenetic and functional diversity of extracellular electron transfer across all three domains of life	47.074	DEB-1542506		21,926	-
Examining the correlated molecular mechanisms of self and heterospecific pollen-pistil recognition	47.074	IOS-1906113		191,464	-
Ideas Lab Collaborative Research: Using natural odor stimuli to crack the olfactory code	47.074	IOS-1555914		171,249	-
LTER: From Microbes to Macrosystems: Understanding the response of ecological systems to global change drivers and their interactions	47.074	DEB-1832210		843,536	203,974
MRI: Development of a Microelectromagnetic, Laser Ablation Instrument for Biomechanics	47.074	DBI-1919834		182,944	-
RAPID: Is Carbon Starvation a Proximal Cause of Tree Mortality from Defoliation	47.074	DEB-1926052		10,402	-
Recombination and the Dynamics of Adaptation in Experimental Saccharomyces Cerevisiae (yeast) Populations	47.074	DEB-1655960		14	-
REU Site: A forest full of Big Data: the Harvard Forest Summer Research Program in Ecology 2015-2019	47.074	DBI-1459519		10,111	-
REU Site: Evolution, Ecology, Environment	47.074	DBI-1757780		49,495	-
REU Site: Summer Research Program in Ecology at Harvard Forest	47.074	DBI-1950364		60,934	-
Spatiotemporal Behaviors of Metabolic Fluxes in Cell Biology	47.074	MCB-2052305		94,080	-
Sustaining Flybase: The Drosophila genomic and genetic database	47.074	DBI-2039324		29,718	-
Digitization TCN: Collaborative Research: Digitizing endless forms: Facilitating Research on Imperiled Plants with Extreme Morphologies	47.074	DBI-1802209		71,858	-

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Digitization TCN: Collaborative Research: Enhancing Access to Taxonomic and Biogeographical Data to Stem the Tide of Extinction of the Highly Imperiled Pacific Island Land Snails	47.074	DBI-1902188		53,760	-
Digitization TCN: Collaborative Research: Lepidoptera of North America Network: Documenting Diversity in the Largest Clade of Herbivores	47.074	DBI-1601124		22,613	-
Digitization TCN: Collaborative Research: oVert: Open Exploration of Vertebrate Diversity in 3D	47.074	DBI-1702263		32,255	-
Digitization TCN: Collaborative Research: Using Herbarium Data To Document Plant Niches In The High Peaks And High Plains Of The Southern Rockies - Past, Present, And Future	47.074	DBI-1702322		96,582	-
Total for CFDA 47.074				4,089,816	471,140
2018 Cooperative Congressional Election Study	47.075	SES-1756447		53,685	35,633
A Robust and Reliable Resource for Accessing, Sharing, and Analyzing Confidential Geospatial Research Data	47.075	BCS-2025783		49,894	50,154
Bargaining and Network Formation: Equilibrium Medical Provider Networks in Health Care Markets	47.075	SES-1730063		53,779	-
CAREER: Engineering opportunity: Manipulating choice architecture to attenuate social bias	47.075	BCS-1653188		146,558	-
CAREER: Experimental pragmatics and semantics in visual language	47.075	BCS-1844186		115,674	-
CAREER: Global Transport Markets: impact on trade and efficiency	47.075	SES-1847555		109,766	-
CAREER: Psychological and Neurodevelopmental Mechanisms of Social Influence on Adolescent Decision-Making	47.075	BCS-1452530		94,006	-
CAREER: Strategic behavior, beliefs, and interventions in networks	47.075	SES-1847860		72,226	-
CAREER: The Tuning and Topography of the Ventral Visual Stream	47.075	BCS-1942438		120,809	-
Collaborative Research: A New Design for Identifying Persuasion Effects and Selection in Media Exposure Experiments via Patient Preference Trials	47.075	SES-1526953		5,981	-
Collaborative Research: Comprehensive Itelmen [itl] Dictionary	47.075	BCS-1848934		15,260	-
Collaborative Research: Increasing Tax Compliance: Experimental Evidence from Pakistan	47.075	1559419		18,161	-
Collaborative Research: The Tax Administration Production Function: Evidence from Indonesia	47.075	SES-1919073		86,292	-
COMPCOG: Intuitive Physics without Intuition or Physics: Leveraging Deep Neural Networks to Model Human Physical Reasoning	47.075	BCS-1946308		97,019	-
Doctoral Dissertation Improvement Award: The Fit between Producers and Consumers in Traditional Society	47.075	BCS-1905092		12,250	-
Doctoral Dissertation Research: An Investigation of Opioid Addiction and Kinship Care in Central Appalachia	47.075	SES-1904002		9,462	-
Doctoral Dissertation Research: Becoming Part of the City: Place-Belonging in Urbanizing China	47.075	SES-1802612		1,478	-
Doctoral Dissertation Research: Exploration of Positively Selected Regions of the Human Genome Shaping Pelvis and Scapula Evolution	47.075	BCS-1847979		2,687	-
Doctoral Dissertation Research: Identifying Positively-Selected Introgressed Genetic Variants with Regulatory Effects in Humans	47.075	BCS-1847287		18,294	-
Doctoral Dissertation Research: Impacts of dietary fat type on energy gain in the human holobiont	47.075	BCS-1919892		1,617	-
Doctoral Dissertation Research: Pay-Setting for New Hires	47.075	SES-1904063		15,914	-
Doctoral Dissertation Research: The Dynamics of Cultural Training in the U.S. Military	47.075	BCS-1823432		2,074	-
Doctoral Dissertation Research: The Role of New Data Technologies in the Collaborative Development of Accurate Health Measures	47.075	BCS-1917914		8,177	-
Fear and the Safety Net: Evidence from Secure Communities	47.075	SES-1849427		109,187	-
Learning-based motivation of intergroup aggression	47.075	BCS-1551559		8,460	-
Monetary values of increasing life expectancy: sensitivity to shifts of the survival curve	47.075	1824492		31,162	-
Optimal Public Transportation Networks: Theory and Evidence.	47.075	SES-2049784		3,051	-
Policing and the Educational Performance of Minority Youth	47.075	SES 1850666		94,707	-
Preferences in Matching Market Design	47.075	SES-1459912		35,862	-
COVID-19: RAPID: Collaborative Research: A Comparative Study of Expertise for Policy in the COVID-19 Pandemic	47.075	SES-2028585		4,986	-
COVID-19: RAPID: Collaborative Research: Relationships, social distancing, social media and the spread of COVID-19	47.075	SES-2029792		80,121	-
COVID-19: RAPID: Joint Epidemiological and Macroeconomic Outcomes from Non- Pharmaceutical Interventions in Response to the COVID-19 Pandemic	47.075	SES-2032493		16,265	-
RIDIR: Collaborative Research: Bayesian analytical tools to improve survey estimates for subpopulations and small areas	47.075	SES-1926424		90,208	-
Standard Research Grant: A Comparative Study of Three Models of Innovation in Their Transnational Implementation	47.075	SES-1457011		126,081	-
The Effects of Sadness Versus Gratitude on Economic Decision Making and Addictive Behavior	47.075	SES-1559511		24,071	-
The Politics of Power: Unilateral Action and the Presidency	47.075	SES-1946922		79,669	-
FW-HTF-P: Impact of AI Robotics on Labor (AIRL)	47.075	SES-1928616		122,880	-
Collaborative Conference Proposal: Support for Conferences and Mentoring of Women and Underrepresented Groups in Political Methodology	47.075	SES-1922190		70,615	-
Total for CFDA 47.075				2,008,387	85,787
Bringing Team-Based, Project-Based Learning to Scale	47.076	DUE-1504664		34,048	34,048
CAREER: Soft Robotics for Upper Extremity Rehabilitation	47.076	CBET-1454472		10,770	-
CAREER:Statistical Modeling of Single Cell States Informative	47.076	DBI-1452964		280,721	-
Collaborative Research: A Study of How Pre-College Informal Activities Influence Female Participation in STEM Careers	47.076	DRL-1612375		144,388	-
Collaborative Research: Developing an Online Game to Teach Middle School Students Science Research Practices in the Life Sciences	47.076	DRL-1907398		144,532	-
Collaborative Research: Developing rural girls' STEM competency and motivation through communicating scientific topics with advanced technology	47.076	DRL-1657017		15,517	-
Collaborative Research: Leveraging Comparison and Explanation of Multiple Strategies (CEMS) to Improve Algebra Learning	47.076	DRL-1561283		80,915	-
Collaborative Research: NCS-FO: Individual variation, plasticity, and learning in human brain evolution	47.076	DRL-1941626		50,829	46,840
Collaborative Research: Thinking Spatially About the Universe- A Physical and Virtual Model for Middle School Science	47.076	DRL-1503395		3,041	-
Core Systems for Learning Mathematics	47.076	DRL-1348140		46,610	-
Effects of ADVANCE in the STEM Disciplines: Faculty Diversity, Women in Leadership, and Institutional Transformation	47.076	DGE-1444586		36,587	10,004
Getting Unstuck: Designing and Evaluating Teacher Resources to Support Conceptual and Creative Fluency with Programming	47.076	DRL-1908110		207,363	-
Integrating Computational Thinking in Ecosystem Science Education via Modeling in Immersive Virtual Worlds	47.076	DRL-1639545		107,760	-
MOSART HSPS: Misconceptions Oriented Standards-Based Assessment Resource for Teachers of High School Physical Sciences	47.076	DRL-1621210		580,881	66,804
NCS-FO: Dynamic computational phenotyping of human cognition and brain function	47.076	DRL-2024462		52,200	-
Reconstructing Research in Teacher Education to Provide Usable Knowledge and Support Teacher Education Improvement	47.076	DUE-1920616		4,319	962
Researching Pre-College Factors that Lead to Persistence in Computer Science	47.076	DRL-2029256		113,894	-
Study of Preservice Teachers' Science Content Knowledge and Pedagogical Content Knowledge	47.076	DUE-2013263		206,852	8,505
The Mathematical Knowledge for Teaching Measures: Refreshing the Item Pool	47.076	DRL-1620914		436,246	-
Collaborative Research: Embedding Public Engagement with Science at Long-Term Ecological Research Sites	47.076	DRL-1713307		89,046	-
Graduate Research Fellowship Program	47.076	DGE-1745303		10,355,824	-
Total for CFDA 47.076				13,002,341	167,163
Total for National Science Foundation Direct Awards R&D Cluster				52,425,724	4,989,361
Office of the Director of National Intelligence					
Rapid Tests for Virus Genes that Suppress the Host Antiviral Defenses	12.431	W911NF-17-2-0092		1,457,095	879,620
Total for CFDA 12.431				1,457,095	879,620
Rapid Tests for signatures of genetic engineering in biological samples	12.910	N660011824505		296,395	42,026

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Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
Total for CFDA 12.910				296,395	42,026
Total for Office of the Director of National Intelligence Direct Awards R&D Cluster				1,753,490	921,646
Research and Development Cluster Direct Awards Subtotal				529,520,357	116,593,105
Research and Development Cluster (R & D)					
Subaward Received					
Agency for International Development					
Concern Worldwide U.S. Inc - Humanitarian Leadership Program: Developing the Next Generation of Humanitarian Leaders	98.001		NNPHL2-HHI-002	311,565	-
International Medical Corps - Building a Better Response: Strengthening Non-Governmental Organization (NGO) Capacity and Engagement in the International Humanitarian Architecture	98.001		AID-OFDA-A-12-00002/2017	(567)	-
International Medical Corps - Building a Better Response: Strengthening Non-governmental organization Capacity and Engagement in the International Humanitarian Architecture	98.001		103443.100.51	121,761	64,223
International Medical Corps - Building a Better Response: Strengthening Non-governmental organization Capacity and Engagement in the International Humanitarian Architecture	98.001		104035.100.51	236,584	-
Tufts University - Feed the Future Innovation Lab for Collaborative Research on Nutrition - Africa	98.001		AID920	139,167	-
Yale University - Genomic, spatial, and epidemiological analysis to inform targeted TB interventions in Moldova	98.001		GR104345 (CON-80001427)	36,483	-
International Rescue Committee - Innovations in SEL Research and Practice	98.001		7200AA19FA00016	137,813	-
Population Reference Bureau - MOMENTUM Round 2C	98.001		2020-030AL	537,111	-
National Academy of Sciences - Targeting lipoprotein biogenesis in multi-drug resistant Acinetobacter baumannii for the development of new antibiotics	98.001		2000010561	59,339	-
Total for CFDA 98.001				1,579,255	64,223
Catholic Relief Services Foundation - Climate Monitoring and Health and Agricultural Surveillance: Efforts to Develop a Quantitative Early Warning Forecast System to Predict Food System Failures	98.RD		No Award Number	122,871	-
Abt Associates, Inc. - Ethiopia Health Financing Improvement Program	98.RD		51926	52,113	-
PATH - President's Malaria Initiative	98.RD		AID.574718-01706921-SUB	19,057	-
Grand Challenges Canada - Visual Response Simulator (ViRS): Predictive Modeling for Humanitarian Epidemiological Response	98.RD		R-HGC-POC-2007-35040	47,356	-
Total for CFDA 98.RD				241,396	-
Total for Agency for International Development Subaward Received R&D Cluster				1,820,652	64,223
Department of Agriculture					
CRDF Global - Randomised trial of an intervention to increase tuberculosis notifications by private practitioners in Indonesia, plus sequencing and susceptibility sub studies□	10.001		DAA3-19-64909-2	42,738	-
Total for CFDA 10.001				42,738	-
Trustees of Boston University - Fragmentation effects on forest productivity across managed ecosystem gradients	10.310		4500002411	57,637	-
Total for CFDA 10.310				57,637	-
Community Outreach and Patient Empowerment - Navajo Fruit and Vegetable Prescription Program	10.331		AVA0417	9,482	-
Total for CFDA 10.331				9,482	-
Total for Department of Agriculture Subaward Received R&D Cluster				109,857	-
Department of Commerce					
Georgetown University - Formal Privacy Models and Title 13	11.016		AWD7772402-GR205353	134,615	-
Trustees of Boston University - Towards an End-to-End Approach to Formal Privacy for Sample Surveys	11.016		4500003717	110,837	-
Total for CFDA 11.016				245,451	-
Total for Department of Commerce Subaward Received R&D Cluster				245,451	-
Department of Defense					
Regents of the University of California - A Computational Cognitive Neuroscience Approach to Understanding Event Representation and Episodic Memory	12.300		A17-0260-S004	214,502	-
University of Virginia - Bio-Inspired Flexible Propulsors for Fast, Efficient Swimming: What Physics are we missing	12.300		GG13374.PO2339490	27,086	-
Regents of the University of California - Berkeley - Carbon-based Hierarchically Integrated Synthetic Electronics (CHISEL)	12.300		9294	73,687	-
San Diego State University Research Foundation - Coral Reef Arks: a cost-effective and high-return tool for restoration and conservation of coral reef resources on DoD submerged lands	12.300		SA0000736	34,852	-
University of Virginia - EN-MAE Bio-Inspired Flexible Propulsors for Fast, Efficient Swimming: What Physics are we missing	12.300		GG13311 146905	16,672	-
Cornell University - Event-based Integrated Sensorimotor Planning and Control for Insect-scale Robots	12.300		80480-10878	157,129	-
Trustees of Boston University - Fundamental Studies and Applications of Spin-Orbit Interactions of Light	12.300		4500003518	181,501	-
University of Washington - High Dimensional Causal Model Search	12.300		UWSC111180	137,529	-
Drexel University - Learning to swim: principles for the neural control and coordination of multiple fins and segmented bodies for effective swimming and maneuvering	12.300		840026	131,417	-
Dana-Farber Cancer Institute - Nanoswitch Caliper Trains for High-Throughput, High-Resolution Structural Analysis of Complex DNA Nanostructures	12.300		3300401	62,445	-
Columbia University - Reengineering the Nervous System of a Cnidarian	12.300		1(GG016259)	36,184	-
University of Maryland, College Park - SEA-STAR: Soft Echinoderm-Inspired Appendages for Strong Tactile Amphibious Robots	12.300		43637-Z8665002	70,825	-
Total for CFDA 12.300				1,143,830	-
Henry M. Jackson Fdn for the Advancement of Military Med - Combat Ready Exposure Device (CRED): Validation of a Portable in vivo Exposure Biomarker Device for Lead and Other Heavy Metal Exposures	12.420		5488	4,317	-
Brigham and Women's Hospital, Inc - Extremity regeneration of soft tissue injury using growth factor impregnated gels	12.420		115662	(52,398)	-
Children's Hospital Boston - Targeting Kv2 Channels to Prevent Neuronal Apoptosis in ALS	12.420		GENFD0001850975	14,445	-
Dana-Farber Cancer Institute - Ultra-Sensitive Detection of Subclinical Lung Cancer by Statistical Analysis of Plasma-cfDNA-Derived Whole-Genome Sequencing Data	12.420		3084502	5,070	-
Total for CFDA 12.420				(28,566)	-
Massachusetts Institute of Technology - Ab-Initio Solid-State Quantum Materials: Design, Production, and Characterization at the Atomic Scale	12.431		S4667 - PO 226099	384,110	-
University of Pittsburgh - Adaptive Self-assembled Systems: Exploiting Multifunctionality for Bottom-up Large-scale Engineering (ASSEMBLE)	12.431		CNVA0056411 (413469-1)	469,725	-
University of Maryland, College Park - Center for Distributed Quantum Information	12.431		26234-Z8401003	4,552	-
University of Southern California - Closed-Loop Multisensory Brain-Computer Interface for Enhanced Decision Accuracy	12.431		79575749	49,118	-
Regents of the University of California - Los Angeles - Dissecting microbiome-gut-brain circuits for microbial modulation of host cognition in response to diet and stress	12.431		0845 G XA622	92,755	-
Regents of the University of California - San Diego - Dynamic Artificial Cells Composed of Synthetic Bioorthogonal Membranes	12.431		28401353 (MP invoice S9000469)	125,675	-
Massachusetts Institute of Technology - Efficient light-matter interfaces for Rydberg arrays and entanglement in topological quantum networks	12.431		S4963 - PO 420751	174,302	-
Duke University - Evolutionary Mechanics of Impulsive Biological Systems: Guiding Scalable Synthetic Design	12.431		313-0588	76,703	-

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Duke University - Evolutionary Mechanics of Impulsive Biological Systems: Guiding Scalable Synthetic Design	12.431		313-1037	103,677	-
Regents of the University of California - Santa Barbara - Exotic Transport Properties and Unique Applications of Intercalated van der Waals Materials	12.431		KK1913	123,730	-
University of Chicago - Fundamental Issues in Non-equilibrium Dynamics (MURI)	12.431		FP054294-B	(3,604)	-
Massachusetts Institute of Technology - Multi- Qubit Enhanced Sensing and Metrology	12.431		5710003135	492,762	-
Regents of the University of Minnesota - MURI: Multiscale Mathematical Modeling and Design Realization of Novel 2D Functional Materials	12.431		A004135001	807,339	-
California Institute of Technology - Nonlinearity beats Damping: A New Class of Soft Active Metamaterials for Mechanical Logic, Signal Processing, and Autonomous Systems	12.431		S384025	43,597	-
University of New South Wales Australia - OPTION 1: Donor-based Silicon Quantum Computing	12.431		RG162743	68,925	-
Board of Regents of the University of Wisconsin System - OPTION 1: Qubits in Gate-Defined Silicon Quantum Dots	12.431		752K205	187,274	-
Stanford University - Precision Measurements of Transverse Transport Coefficients by Torque Magnetometry	12.431		61651086-127442	8,443	-
University of Missouri - Columbia - Quantum State Control of Molecular Collision Dynamics	12.431		C00064278-1	119,240	-
Total for CFDA 12.431				3,328,325	
Henry M. Jackson Fndn for the Advancement of Military Med - Army Study to Assess Risk and Resilience in Service Members (STARRS 2)	12.750		4908	428,681	-
Henry M. Jackson Fndn for the Advancement of Military Med - Army Study to Assess Risk and Resilience in Service Members (STARRS 3)	12.750		5343	1,235,197	-
Henry M. Jackson Fndn for the Advancement of Military Med - Identifying Predictors of Treatment Response in Servicemembers with Post traumatic Stress Disorder-Related Sleep Disturbances:Use of Large Datasets to Improve Treatment Selection over the Military Lif	12.750		4172	94,528	-
Total for CFDA 12.750				1,758,407	
Stanford University - ANSRE: Analysis and Synthesis of Rare Events	12.800		62455257-159327	122,514	-
Massachusetts Institute of Technology - Foldable and Adaptive Two-Dimensional Electronics	12.800		5710003988	175,292	-
Massachusetts Institute of Technology - Multiplexed Quantum Repeaters for High-Speed Quantum Networks	12.800		S5090 - PO 473660	59,678	-
University of Maryland, College Park - Photonic Quantum Matter	12.800		42692-Z8183002	114,065	-
Cornell University - Plant-mimetic functional materials for thermal management and suppression of freezing	12.800		87230-11088	67,459	-
University of Texas - Austin - Ultralow power, Ultrafast, Integrated Nano-Optoelectronics	12.800		UTA16-001252	269,301	-
Total for CFDA 12.800				808,309	
Regents of the University of California - Berkeley - Driven Quantum Matter for Metrology (DQM2)	12.910		9965	233,650	-
Arizona Board of Regents - Global Reading and Assembly for Semantic, Probabilistic World Models (GRASP)	12.910		431715	228,999	-
University of Southern California - Graphical Encoding of First Principles for Agent-Based Social Simulation (GEFPABSS)	12.910		125372408	48,980	-
Massachusetts Institute of Technology - Many-body atomic clocks based on non-equilibrium correlated quantum matter	12.910		S4759 - PO 278105	663	-
Regents of the University of California - San Diego - Non-equilibrium Order Parameter Optoelectronics for Quantum Information Processing	12.910		111684807	103,082	-
The Broad Institute - Programmable Cas13 - Based Antiviral Therapeutics and Companion Diagnostics	12.910		5000856-5500001473	1,712,733	1,012,748
Total for CFDA 12.910				2,328,108	1,012,748
Freedom Photonics - 1 Micrometer Integrated Transmitter for Balanced Radio-Frequency-Over-Fiber Photonic Links	12.RD		S7187-01	26,701	-
Regents of the University of Michigan - ADA Jump	12.RD		3004811120	750,152	-
International Business Machines Corporation - Artificial Mental Models for Machine Common Sense	12.RD		CW3013552	261,921	-
Radiation Monitoring Devices, Inc. - Atomic Layer Deposition of Highly Conductive Metals - Phase II	12.RD		C19-13	169,758	-
RallyPoint Networks, Inc. - Evaluation and Improvement of a Peer-to-Peer Social Support Platform for Military Service Members and Veterans	12.RD		No Award Number	223,049	-
University of Rochester - Giant Nonlinear Response of ENZ Metastructures	12.RD		417359 / URFAO: GR510802	111,399	-
Quera Computing, Inc. - Hardware-Guided Near-Term Quantum Algorithms and Gate Designs	12.RD		No Award Number	29,322	-
International Business Machines Corporation - Harvard-IBM RFP for DARPA HR001117S0055 (DSSoC)	12.RD		CW2913640	520,820	-
Massachusetts Institute of Technology - Hybrid Encoding for Singed Expressions (HESE); Term-level Architecture Optimizations in Exploiting Bit-level Sparsity	12.RD		S5181	202,984	-
Raytheon BBN Technologies Corp - INSPECT: IN Situ Phenotype Evaluation using CMOS Technology	12.RD		W911NF-19-C-0008	41,889	-
Aliro Quantum - Integrated Approach to Controlling Noise on Quantum Devices Towards Optimal Qubit Embedding	12.RD		No Award Number	43,075	-
Galois, Inc. - Merged Analysis To prevent Exploits (MATE)	12.RD		2019-004	152,814	-
Maritime Applied Physics Corporation - Methane Harvesting for Seafloor Generation	12.RD		V03343 -051920	170,894	-
Raytheon BBN Technologies Corp - Monolithic Integration of Lithium Niobate Photonics on GaN Electronics for THz for Communications and Signal Processing	12.RD		90127	100,309	-
Regents of the University of Michigan - MultiScale Network Games of Collusion and Competition	12.RD		SUBK00012224	238,639	-
Aliro Quantum - Optimizing Qubit Allocation on Hybrid Quantum Systems for Scalable Quantum Networks	12.RD		No Award Number	44,999	-
Stottler Henke Associates, Inc. - Pathogen Classification Tool	12.RD		7872192-01	188,442	-
General Biologics - Patterned, Responsive Cellular Therapies Using Novel Mammalian Cellular Regulator Systems	12.RD		GenBio-00001	98,020	-
UES, Inc. - Predicting Fluid Rheology from Printing Process Parameters	12.RD		S-124-020-001	18,118	-
University of Southern California - Realizing Cyber Inception: Towards a Science of Personalized Deception for Cyber Defense	12.RD		123811799	583,703	-
KeyW Corporation - Replication Markets	12.RD		50003016	222,320	133,205
Lincoln Laboratory - Resilient Perception in Degraded Environments	12.RD		7000496313	28,918	-
Charles Stark Draper Laboratory, Inc. - SHRIMP is SHort-Range Independent Micro-robotic Platforms	12.RD		SC001-0000001267	39,682	-
Charles Stark Draper Laboratory, Inc. - Thin-film lithium niobate (LN) Y-junction phase-modulator development	12.RD		SC001-0000001245	171,063	-
Total for CFDA 12.RD				4,438,990	133,205
Total for Department of Defense Subaward Received R&D Cluster				13,777,403	1,145,953
Department of Education					
Regents of the University of California - Berkeley - Improving methods for policy impact evaluation with group panel data in education research	84.305		10415	30,942	-
Manpower Demonstration Research Corporation - Supporting Early Learning from Preschool Through Elementary School Grades: Research Network Propos	84.305		No Award Number	(6,882)	-
Florida State University - Efficacy of the Core Knowledge Language Arts Listening and Learning Read Aloud Program in Kindergarten through Second Grade Classrooms	84.305		R01972	50,884	-
American Institutes for Research - Building and Sustaining the Capacity of Local Math Coaches to Support College- and Career-Ready Mathematics Instruction	84.305		482000001	39,362	-
Northwestern University - Contexts Inside and Outside of School Walls as Predictors of Differential Effectiveness in Preschool Professional Development	84.305		SP0034839-PROJ0009316	8,676	-
Columbia University - Improving low-income students' odds of being on-track and college ready in Chicago Public Schools: The respective roles of child self-regulation and preschool vs. high school intervention	84.305		511146	61,589	-
Total for CFDA 84.305				184,571	-
Total for Department of Education Subaward Received R&D Cluster				184,571	-
Department of Energy					
Krell Institute - Krell Institute DOE Computational Science Graduate Fellowship	81.049		No Award Number	7,363	-

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Northwestern University - Center for Bio-Inspired Energy Science (CBES)	81.049		SP0027267-PROJ0007134	215,526	-
Northwestern University - Center for Bio Inspired Energy Science	81.049		60038340Harvard	43,940	-
Stanford University - Controlled synthesis of solid-state quantum emitter arrays for quantum computing and simulation	81.049		62267247-151086	400,846	-
California Institute of Technology - Hybrid Electro- and Acousto-Dynamical Systems for Quantum Optical Networks (HEADS-QON)	81.049		S470646	200,690	-
Regents of the University of California - Los Angeles - Molecules Functionalized with Cycling Centers for Quantum Information Science	81.049		1000 G WB867	229,407	-
Stanford University - Photonics at Thermodynamic Limits	81.049		61961562-136555	162,655	-
University of Texas - Arlington - QPix Technology: Quantifying the physics potential of a kiloTon scale pixelated LArTPC	81.049		12608015662	15,185	-
University of Texas - Arlington - QPix: Achieving kiloton scale pixelated readout for Liquid Argon Time Projection Chambers	81.049		2019GC5293	10,317	-
California Institute of Technology - Quantum Communication Channels for Fundamental Physics (QCCFP)	81.049		S400020	42,971	-
California Institute of Technology - Quantum Communication Channels for Fundamental Physics (QCCFP)	81.049		S490356	107,678	-
Total for CFDA 81.049				1,436,578	
Clemson University - All-Digital Plug and Play Passive RFID Sensors for Energy Efficient Building Control	81.086		1883-219-2021621	20,251	-
Princeton University - Membrane Dehumidification as Facade-Integrated Building Screens for Latent Cooling	81.086		SUB0000465	3,188	-
Total for CFDA 81.086				23,439	
Argonne National Laboratory - Connecting Optical Models to Measurements	81.RD		0F-60073	2,533	-
Oak Ridge National Laboratory - Development and Testing Quantum Algorithms Using Programmable Quantum Simulators	81.RD		4000171155	95,139	-
Iowa State University - EFRC: Center for the Advancement of Topological Semimetals	81.RD		SC-19-488	388,975	-
Massachusetts Institute of Technology - Micro-mechanically guided high-throughput alloy design exploration towards metastability-induced hydrogen embrittlement resistance Technical	81.RD		S5045	106,742	-
Lawrence Berkeley National Lab - Operation of the Harvard Forest Core Site in the AmeriFlux Network Management Project (ANMP)	81.RD		7086573	72,313	-
Lawrence Berkeley National Lab - Operation of the Harvard Forest Core Site in the AmeriFlux Network Management Project (ANMP)	81.RD		7549117	194,316	-
Oak Ridge National Laboratory - Quantum Science Center	81.RD		4000187220	20,308	-
Pacific Northwest National Laboratory - SODALITE (DARPA RTML) collaboration	81.RD		488872 Modification 2	185,323	-
Oak Ridge National Laboratory - Understanding and Controlling Entangled and Correlated Quantum States in Confined Solid-state Systems Created via Atomic Scale Manipulation	81.RD		4000169326	130,241	-
Stanford Linear Accelerator Center - Maintaining International Leadership of BES Research in a Globalized World	81.RD		206122	71,307	-
Total for CFDA 81.RD				1,267,199	
Total for Department of Energy Subaward Received R&D Cluster				2,727,216	
Department of Housing & Urban Development					
The German Marshall Fund of the United States - Shared Housing: What can the United States learn from the Federal Republic of Germany's Shared Multigenerational Housing Model	14.506		No Award Number	9,163	-
Total for CFDA 14.506				9,163	
George Washington University - The impact of housing assistance on residential environmental exposures	14.906		20-M01	16,366	-
Total for CFDA 14.906				16,366	
Total for Department of Housing & Urban Development Subaward Received R&D Cluster				25,530	
Department of Justice					
University of Massachusetts - Lowell - Research and Evaluation on Prevention and Mitigation of Domestic Pathways to Terrorism	16.560		S5100000040709	102,137	-
Total for CFDA 16.560				102,137	
Total for Department of Justice Subaward Received R&D Cluster				102,137	
Department of State					
George Mason University - Membership in the Spatiotemporal Innovation Center in services in support of COVID Mitigation Mapping Events and Research.	19.RD		E2053291	11,923	-
Total for CFDA 19.RD				11,923	
Total for Department of State Subaward Received R&D Cluster				11,923	
DHHS					
Jos University Teaching Hospital - Reaching 90 percent target of HIV viral suppression: The role of point of care VL monitoring in resources constrained settings	93.067		SPH	42,609	-
Total for CFDA 93.067				42,609	
Silent Spring Institute - Assessment of PFAS exposures and health effects in two Massachusetts communities with PFAS drinking water contamination	93.070		7101-HSPH-Y1	106,396	-
Total for CFDA 93.070				106,396	
University of Utah - Modeling and Simulation to Support Antibiotic Stewardship and Epidemiological Decision-Making in Healthcare Settings	93.084		10044546-01	16,702	-
University of Utah - Modeling and Simulation to Support Epidemiological Decision-Making in Healthcare Settings	93.084		10056438-01	32,877	-
Stanford University - Prevention Policy Modeling Lab	93.084		62380390-148206	210,348	-
Total for CFDA 93.084				259,927	
Icahn School of Medicine at Mount Sinai - Developmental exposure to perfluoroalkyl substances and cardiometabolic outcomes in adulthood: Potential links via the plasma metabolome	93.113		0255-C831-4609	49,829	-
Board of Trustees of the University of Illinois - Phthalate and Hot Flashes in Women	93.113		086885-16438	118,185	-
Beth Israel Deaconess Medical Center - A Randomized Controlled Trial of Home Air Purification for Eosinophilic COPD	93.113		1062311	49,634	-
Columbia University - Air Pollution and Pregnancy Loss	93.113		3(GG017459-01)	17,827	-
Columbia University - Air Pollution Exposure and Risk of Amyotrophic Lateral Sclerosis (ALS)	93.113		1(GG013011-01)	11,974	-
Children's Hospital Boston - Arsenic related cystic fibrosis (administrative supplement)	93.113		GENFD0001797027	19,396	-
Children's Hospital Boston - Arsenic-related cystic fibrosis.	93.113		GENFD0002016483	23,912	-
University of Texas - Causal Inference with Interference for Evaluating Air Quality Policies	93.113		UTA19-000141	92,505	-
Columbia University - Circulating microRNAs in Extracellular Vesicles, Air Particulate Pollution, and Lung Function in an Aging Cohort	93.113		1(GG010691-01)	122,160	-
Boston University School of Public Health - Development and testing of response surface methods for investigating the epidemiology of exposure to mixtures	93.113		4500002635	107,974	-
Children's Hospital Boston - Does Arsenic Increase Risk of Neural Tube Defect in a Highly-exposed Population	93.113		GENFD0001833170	11,694	-
Brigham and Women's Hospital, Inc - Early Life Exposure to the Natural Built and Social Environments and Incident Hypertension	93.113		121157	196,253	-
Columbia University - Effect of Early-Life Exposure to Metal Mixtures on Lung Function and Mitochondrial DNA in Children	93.113		3(GG015212-01)	15,781	-
Boston University School of Public Health - Evidence to improve heat warning effectiveness in reducing morbidity and mortality	93.113		4500003573	24,587	-
Children's Hospital Boston - Examining tissue-specific DNA methylation after prenatal exposure to arsenic among infants with spina bifida	93.113		GENFD0002048061	14,724	-
Children's Hospital Boston - Indoor Air Quality and Respiratory Morbidity in School-Aged Children with Bronchopulmonary Dysplasia	93.113		GENFD0001957675	130,536	-

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Columbia University - Integrating air pollution prediction models: Uncertainty quantification and propagation in health studies	93.113		1(GG014961-01)	215,307	-
Harvard Pilgrim Health Care, Inc - Longitudinal Associations of PFCs with Obesity Diabetes, and Metabolic Syndrome	93.113		PH000552E	74,369	-
Beth Israel Deaconess Medical Center - Maternal organophosphate pesticide exposure, low birth weight and placental injury	93.113		1060906	43,456	-
Icahn School of Medicine at Mount Sinai - Methods for data integration and risk assessment for environmental mixtures	93.113		0255-A401-4609	117,482	-
Icahn School of Medicine at Mount Sinai - Neurologic Function in Children Exposed to Ambient Manganese	93.113		0255-0182-4609	27,574	-
Mount Sinai Medical Center - Novel Biomarker to Identify Critical Windows of Susceptibility to Metal Mixtures: Resubmission	93.113		0255-1871-4609	30,625	-
University of Massachusetts - Amherst - Paternal preconception phthalates and reproductive health - potential mediation through sperm DNA methylation	93.113		19-010627-A03	48,926	-
Icahn School of Medicine at Mount Sinai - Prenatal metal mixtures and neurodevelopment: Role of placental extracellular microRNAs	93.113		0255-B981-4609	221,953	-
Yale University - Statistical Methods to Account for Exposure Uncertainty in Environmental Epidemiology	93.113		GR104702 (CON-80001508)	338,909	-
Icahn School of Medicine at Mount Sinai - Stress-Chemical Interactions and Neurobehavior in School Age Children	93.113		0255-5545-4609	46,151	-
Brigham and Women's Hospital, Inc - The effects of environmental exposures on semen quality and the sperm epigenome	93.113		118582	153,893	-
University of Southern California - The role of air pollution in emotional neurodevelopment and risk for psychiatric disorders	93.113		138940130	26,123	-
Washington State University - The UGT2A and 3A Metabolizing Enzymes and Tobacco-Related Cancer Risk	93.113		124336G003759	(388)	-
University of Southern California - Urban air pollution and neurobehavioral trajectories in the ABCD study	93.113		138940268	6,516	-
Total for CFDA 93.113				2,357,865	
Kaiser Foundation Research Institute - Particulate Air Pollution, Cardiovascular Events, and Susceptibility Factors (PACES)	93.117		RNG209805-HSPH-01	35,188	-
Total for CFDA 93.117				35,188	
The Forsyth Institute - Bayesian multivariate image analysis for studying oral microbiome biogeography	93.121		HSPH026872-2625	(2,155)	-
Virginia Commonwealth University - Epigenetic Regulation of Periodontal Inflammation	93.121		FP00010440 SA003	9,668	-
Regents of the University of Michigan - Michigan-Pittsburgh-Wyss Regenerative Medicine Resource Center: Advancing Dental, Oral, and Craniofacial Regeneration to Clinical Trial Initiation	93.121		SUBK00011418	273,326	-
Regents of the University of Michigan - Michigan-Pittsburgh-Wyss Regenerative Medicine Resource Center: Advancing Dental, Oral, and Craniofacial Regeneration to Clinical Trial Initiation	93.121		SUBK00014058	3,012	-
Regents of the University of Michigan - Michigan-Pittsburgh-Wyss Resource Center: Supporting Regenerative Medicine in Dental Oral and Craniofacial Technologies	93.121		3004400289	6,266	-
Physical Sciences Inc. - Optical Probe for real-time assessment of periodontal health status	93.121		SC 82527-1976-46	25,920	-
Regents of the University of California - Los Angeles - Personalized Digital Behavior Change Interventions to Promote Oral Health	93.121		1350 G YC882	56,221	-
The Forsyth Institute - Regulatory B cells in periodontal disease	93.121		HSDM025255-2550	9,854	-
University of South Florida - The Oral Microbiome in Type 1 Diabetes and Sub-Clinical Cardiovascular Disease	93.121		6403-1081-00-A	30,188	-
Total for CFDA 93.121				412,299	
Henry M. Jackson Fdn for the Advancement of Military Med - : Firearm Behavioral Practices and Suicide Risk in U.S. Army Soldiers and Veterans	93.136		5485	5,205	-
Total for CFDA 93.136				5,205	
University of Rhode Island - Impacts of geochemistry and transport on PFAS exposures from drinking water and fish	93.143		0006745-11317	275,988	24,464
University of Rhode Island - Sources, Transport, Exposure and Effects of Perfluoroalkyl Substances (STEEP) Center	93.143		0006660-11117	16,880	-
University of Rhode Island - Sources, Transport, Exposure and Effects of Perfluoroalkyl Substances (STEEP) Center	93.143		0006746-11217	391,472	196,477
Total for CFDA 93.143				684,341	220,941
The Broad Institute - A Catalog of Cell Types and Genomic Elements in Tissues, Organoids and Disease	93.172		5000314-5500000958	47,291	-
California Institute of Technology - Alliance Central: A platform for sustainable development of next generation genome knowledgebases	93.172		S454486	607,574	-
Johns Hopkins University - Direct nanopore detection of modified RNA to probe structure and dynamics	93.172		2004249613	165,328	-
Brigham and Women's Hospital, Inc - eMERGE Phase IV Clinical Center at Partners HealthCare	93.172		123339	27,620	-
Brigham and Women's Hospital, Inc - Integrated pathogenicity assessment of clinically actionable genetic variants	93.172		120308	150,136	-
Regents of the University of California - Los Angeles - Integrative approaches for mapping the genetic risk of complex traits	93.172		1625GUE724	72,738	-
Ontario Institute for Cancer Research - Scaling up structured biological pathway knowledge acquisition at Reactome using text mining and crowdsourcing	93.172		P2017-0001	164,767	-
Lawrence Berkeley National Lab - Systematic, Genome-Scale Functional Characterization of Conserved smORFs	93.172		7374618	225,234	-
Total for CFDA 93.172				1,460,687	
Massachusetts Eye and Ear Infirmary - Cochlear Synaptopathy: Prevalence, Diagnosis and Functional Consequences	93.173		530045	91,085	-
Massachusetts General Hospital - Enhanced gene delivery for CNS and Sensory Disorders	93.173		234217	40,695	-
San Diego State University Research Foundation - The Association of Perinatal HIV Infection and Hearing Loss in Children of Cape Town, South Africa	93.173		SA0000594	59,659	-
Brandeis University - Towards molecular mechanisms of invertebrate Gustatory Receptors	93.173		GR403926	122,369	-
Total for CFDA 93.173				313,808	
Carnegie Mellon University - Delphi Influenza Forecasting Center of Excellence	93.185		1090628-425284	68,460	-
Total for CFDA 93.185				68,460	
Brigham and Women's Hospital, Inc - Contribution of phytochemicals to gut symbiont colonization and synthesis of immunomodulatory sphingolipids	93.213		120907	24,696	-
Emory University - Mechanistic studies on analgesic effects of terpene enriched extracts from hops	93.213		A395377	158,543	-
Total for CFDA 93.213				183,239	
Trustees of Dartmouth College - Accelerating the Use of Evidence-based Innovation in Healthcare Systems	93.226		R1472	122,268	-
Trustees of Dartmouth College - Accelerating the Use of Evidence-based Innovations in Healthcare Systems	93.226		R817	14,652	-
Yale University - Consumer Assessment of Healthcare Providers and Systems (CAHPS V)	93.226		GR111681 (CON-80002815)	112,651	-
Harvard Pilgrim Health Care, Inc - Decision Making Challenges and Needs for Health Insurance Exchange Enrollees	93.226		No Award Number	(15,621)	-
University of Chicago - Effects of Ambulance, Transport Distance, and Hospital Destination on Health Outcomes of Out of Hospital Medical Emergencies	93.226		FP066242	107,413	-
Brigham and Women's Hospital, Inc - Identifying Cascades of Low-Value Care and the Organizational Practices that Prevent them	93.226		117961	14,777	-
Children's Hospital Boston - Improving Child Health and Healthcare through Dissemination and Implementation of Pediatric Quality Measures	93.226		GENFD0001969172	21,440	-
National Bureau of Economic Research - Measuring the Clinical and Economic Outcomes Associated with Delivery Systems	93.226		41610.05.33.00- HMS	915,018	-
Massachusetts General Hospital - Medicaid Payment Policy and Access to Care for Dual-Eligible Beneficiaries	93.226		229188	40,597	-
Regents of the University of Minnesota - Medical reversals: De-implementing ineffective and unsafe treatments	93.226		P006920953	9,482	-
National Bureau of Economic Research - The Impact of Direct-to-Consumer, Video Telehealth	93.226		41740	5,158	-
Rand Corporation - Understanding the role of physician group organizational capabilities and integration in PCOR implementation and outcomes	93.226		SCON-00000261	22,675	-
Total for CFDA 93.226				1,370,509	
Beth Israel Deaconess Medical Center - Mechanisms of Arousal in Sleep Apnea	93.233		1061584	82,388	-

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Beth Israel Deaconess Medical Center - Mechanisms of arousal in sleep apnea	93.233		1062471	192,798	-
Total for CFDA 93.233				275,185	
Children's Hospital Boston - 1/2 Somatic mosaicism and autism spectrum disorder	93.242		GENFD0001619202	77,780	-
Massachusetts General Hospital - 2/7 Psychiatric Genomics Consortium: Finding actionable variation	93.242		228900	18,257	-
Cold Spring Harbor Laboratory - A Comprehensive Center for Mouse Brain Cell Atlas	93.242		64580521 / 64580529	2,170,341	-
Allen Institute for Brain Science - A comprehensive whole-brain atlas of cell types in the mouse	93.242		2017-0570	696,943	-
Massachusetts Institute of Technology - A Molecular and Cellular Atlas of the Marmoset Brain	93.242		S4495 PO 483547	599,248	260,674
Beth Israel Deaconess Medical Center - A Psychobiological Follow-up Study of Transition from Prodrome to Early Psychosis	93.242		1029400	96,154	-
Yale University - A Unified Intervention for young gay and bisexual men's minority stress, mental health, and HIV risk	93.242		GR111895 (CON-80002858)	5,306	-
Children's Hospital Boston - Admin Core: Complement regulation and critical periods in diverse CNS cell types	93.242		GENFD0001873789	33,332	-
Children's Hospital Boston - Complement regulation and critical periods in diverse CNS cell types	93.242		GENFD0001873481	329,445	-
National Institute of Psychiatry Ramon de la Fuente Muniz - Computerized detection and internet-based treatment of common mental disorders among college students in two Latin American LMICs	93.242		DUA20-0831	251,601	-
Desmond Tutu HIV Foundation - Design and delivery of combination HIV prevention in young South African women	93.242		NIH-3P-HC-04	(1,683)	-
University of North Carolina - Chapel Hill - Do dimensions of adversity differentially predict neural development and psychopathology in young children	93.242		5112038	54,783	-
The McLean Hospital Corporation - Dysregulation of Appetitive and Aversive Amygdala Circuits in Bipolar Disorder	93.242		401677	61,770	-
University of Maryland, College Park - Effects of Early Psychosocial deprivation on mental health in early adulthood	93.242		85120-Z0264204	39,805	-
San Diego State University - Enhanced Linkage to HIV Care and Treatment following Home-Based HIV testing in Rural Uganda	93.242		SA0000486	28,357	-
Regents of the University of California - San Francisco - Exploring the Impact of Organizational Readiness and Inner Setting on Implementation of HIV Programming in South African Health Clinics	93.242		12340sc	20,319	-
Massachusetts General Hospital - Fostering diversity in the next generation of HIV researchers to improve the HIV continuum of care.	93.242		237315	62,500	-
The Broad Institute - From genetic risk variants to convergent protein networks: an integrative approach to elucidate the protein-protein interactions that are impaired in schizophrenia	93.242		5000259-5500001414	13,693	-
The Broad Institute - Genetic neuroscience: How human genes and alleles shape neuronal phenotypes	93.242		5000484-5500001075	592,955	-
The Broad Institute - Genetic neuroscience: How human genes and alleles shape neuronal phenotypes	93.242		5000484-5500001103	592,201	-
Purdue University - High-throughput, ultra-high resolution, multiplexed single molecule nanscopy and functional characterization of impaired neural circuits in mouse models of autism	93.242		11001055-012	113,982	-
University of Washington - HIV self-testing and PrEP to increase testing and prevention uptake among male partners and improve postpartum ART use in PMTCT B+ programs in Uganda	93.242		UWSC10153	111,379	-
University of Pittsburgh Medical Center - Imaging the Suicidal Mind using Neurosemantics Signatures of Suicidal State	93.242		CNVA00059460 (131200-2)	20,655	-
Massachusetts General Hospital - Improved multifactorial prediction of suicidal behavior through integration of multiple datasets	93.242		233187	6,156	-
Rand Corporation - Improving Value of Publicly Funded Mental Health Care	93.242		SCON-00000267	201,427	-
Brigham and Women's Hospital, Inc - In-utero exposure to psychotropic medications and the risk of neurodevelopmental disorders	93.242		119487	39,849	-
University of Washington - Integrated PrEP and ART delivered in Ugandan public health clinics to improve HIV and ART outcomes for HIV serodiscordant couples	93.242		UWSC10102	119,888	-
University of Maryland, Baltimore - Internal Dynamics of the Postsynaptic Density	93.242		F301577-3	73,761	-
Regents of the University of California - Los Angeles - Joint Genomic and Statistical Analyses of Schizophrenia and Bipolar to Decipher Genetic Susceptibility	93.242		2000GVR227	193,177	-
The McLean Hospital Corporation - Laboratory for Early Psychosis Research (LEAP) - Methods Core	93.242		401567	135,725	-
The McLean Hospital Corporation - Laboratory for Early Psychosis Research (LEAP) - Project 3	93.242		401659	43,275	-
The McLean Hospital Corporation - Laboratory for Early Psychosis Research (LEAP) - Admin Core	93.242		401568	19,593	-
University of North Carolina - Chapel Hill - Longitudinal Assessment of Post-traumatic Syndromes	93.242		5119130	626,658	-
University of North Carolina - Chapel Hill - Longitudinal Assessment of Post-traumatic Syndromes	93.242		5119131	69,425	-
Massachusetts General Hospital - Machine Learning for Data-driven Subtyping in Depression	93.242		233133	(22,475)	-
Cambridge Health Alliance - Medicaid Value Based Payment Models and Healthcare Equity for Adults with Serious Mental Illnesses	93.242		3304-2- NYS	67,584	-
Trustees of Dartmouth College - Mental Health Care Under New Payment Strategies	93.242		R1350	39,723	-
Massachusetts Institute of Technology - Multiplexed Nanoscale Protein Mapping Through Expansion Microscopy and Immuno-SABER	93.242		S5212	243,356	-
Massachusetts Institute of Technology - Network-based prediction and validation of causal schizophrenia genes and variants	93.242		S4614	80,733	-
Massachusetts Institute of Technology - Network-based prediction and validation of causal schizophrenia genes and variants	93.242		S4616	16,114	-
Children's Hospital Boston - Neural-immune mechanisms and synaptic connectivity in psychiatric illness	93.242		GENFD0001873480	107,781	-
University of Rochester - Neurocircuitry of OCD: Effects of Modulation - Core C and Project 3	93.242		416629-G/ UR FAO GR510948	126,047	-
Children's Hospital Boston - Novel epigenetic mechanisms in neuronal development and cognitive function	93.242		GENFD0001837683	160,339	-
Dartmouth-Hitchcock Medical Center - Peer Support and Mobile Technology Targeting Cardiometabolic Risk Reduction in Young Adults with SMI	93.242		GC10036-02-05	17,228	-
The McLean Hospital Corporation - Predicting the onset of depression in at-risk adolescents from endophenotype profiles	93.242		401500	18,953	-
Regents of the University of California - San Diego - Psychiatric Genomics Consortium for PTSD	93.242		78931958	(2,534)	-
Regents of the University of California - San Diego - Psychiatric Genomics Consortium for PTSD	93.242		123557538	77,724	-
The Broad Institute - Psychosis Genetics Research in Africa: Building Capacity by Investing in People	93.242		5000702-5500001338	157,469	-
Brigham and Women's Hospital, Inc - Rare and common variants in complex disease	93.242		117943	158,448	-
Rutgers University - New Brunswick - Real-time Intervention for Reducing Suicide Risk	93.242		942	21,006	-
Children's Hospital Boston - Research Support Core: Complement regulation and critical periods in diverse CNS cell types	93.242		GENFD0001873482	116,196	-
Trustees of Boston University - SCH: INT: Collaborative Research: Passive sensing of social isolation and loneliness: A digital phenotyping approach	93.242		4500003257	193,944	-
Massachusetts General Hospital - Sex Differences in Major Depression: Impact of Prenatal Stress-Immune and Autonomic Dysregulation	93.242		236501	56,493	-
Stanford University - Sex hormones and post-traumatic stress disorder (PTSD)	93.242		62477243-141397	38,295	-
The Broad Institute - Statistical methods to localize disease heritability and identify biological mechanisms	93.242		5001510-5500001234	73,183	-
Case Western Reserve University - The Brainstorm Project: A Collaborative Approach to Developing the Neuroethics of Bioengineered Brain Modeling Research	93.242		RES514724	66,016	-
University of California, San Diego - Toward a human adult brain cell atlas with single-cell technologies	93.242		111911793 (S9002169)	325,097	-
Regents of the University of California - Irvine - Understanding neural circuits for associative memory in the lateral entorhinal cortex	93.242		2019-3822	34,377	-
Trustees of Boston University - Using Causal Inference and Machine Learning Methods to Predict Cognitive Behavioral Treatment Response	93.242		4500003098	37,407	-
The Broad Institute - Statistical methods to localize disease heritability and identify biological mechanisms	93.242		5000747-5500001474	148,374	-
Washington University - Mapping the Human Connectome During Typical Development	93.242		WU-19-438	574,465	-
Total for CFDA 93.242				10,449,402	260,674
University of Massachusetts Medical School - DATA Waiver Training for Massachusetts Students	93.243		OSP29147-02	8,100	-

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RTI International - Mental Disorders Prevalence Study (MDPS)	93.243		888-20-07-03	113,868	-
Total for CFDA 93.243				121,968	
International Agency for Research on Cancer - A pooling project on alcohol use and risk of cancers with inconsistent prior evidence, with an emphasis in non-smokers	93.273		CRA/NMB/2019/2	24,748	-
San Diego State University Research Foundation - Administrative Core of the CIFASD (U24)	93.273		SA0000604	40,136	-
University of North Carolina - Greensboro - Alcohol consumption and related comorbid conditions: health state utilities for economic evaluation	93.273		20190410.1	80,381	-
Washington University - Alcohol, Gut Dysbiosis, Endotoxemia, and Colorectal Cancer □	93.273		WU-20-396	35,789	-
Total for CFDA 93.273				181,053	
Rand Corporation - Center to Advance Research Excellence (OPTIC Supplement)	93.279		SCON-00000214	3,773	-
Brandeis University - Center to Improve System Performance of Substance Use Disorder Treatment: Administrative Core	93.279		403772	8,917	-
Brandeis University - Center to Improve System Performance of Substance Use Disorder Treatment: Research Core	93.279		403773	129,042	-
Johns Hopkins University - Consumer-Directed Health Plans and Substance Use Disorder Treatment	93.279		2004055395	100,537	-
Rand Corporation - Developing Plans for State Use of Opioid Settlement Funds	93.279		SCON-00000304	11,297	-
The Pennsylvania State University - NIDA Innovative Methods for Constructing Just-In-Time Adaptive Interventions	93.279		5692-HU-DHHS-9838	201,471	-
Trustees of Dartmouth College - Stemming the Tide: The Role of Payment and Delivery System Reform in Combating the Opioid Epidemic	93.279		R1468	97,183	-
Brigham and Women's Hospital, Inc - The Comparative Effectiveness and Safety of Pharmacotherapies for the Treatment of Opioid Use Disorder in Pregnancy	93.279		123125	39,254	-
Massachusetts General Hospital - The Impact of Medicaid Plans on Access to and Quality of SUD Treatment	93.279		232747	171,649	16,228
Brigham and Women's Hospital, Inc - The Impact of Prescription Opioid Use on Pregnancy Outcomes	93.279		117817	49,309	-
Total for CFDA 93.279				812,433	16,228
Massachusetts General Hospital - Connectome 2.0: Developing the next generation human MRI scanner for bridging studies of the micro-meso-and macro-connectome	93.286		233327	47,059	-
The University of Memphis - mHealth Resource Center for Discovery, Optimization, and Translations (mDOT)	93.286		5-40926	116,767	-
Columbia University - Multi-tissue platform for modeling systemic pathologies	93.286		4(GG015644-04)	165,078	-
Aptitude Medical Systems, Inc. - Topical Delivery of Therapeutic Aptamer	93.286		No Award Number	23,541	-
Massachusetts General Hospital - Vascularized kidney organoids on chip for efficacy and toxicity testing of somatic genome editing	93.286		238776	306,696	-
Total for CFDA 93.286				659,141	
Regents of the University of California - Irvine - Culturally Adapted Multilevel Decision Support Navigation Trial to Reduce Colorectal Cancer Disparity Among At-Risk Asian American Primary Care Patients	93.307		2021-1451	25,864	-
Brigham and Women's Hospital, Inc - Enhanced measurement and causal modeling of sleep electrophysiology to better understand sleep disparities	93.307		122194	15,159	-
Yale University - Environmental Health Disparities in an Older Population	93.307		GR101389 (CON-80001010)	51,246	-
University of South Florida - Epigenomic Predictors of PTSD and Traumatic Stress in an African American Cohort	93.307		6408-1117-00-C	35,579	-
Fundacion de Investigacion - Food access, social connectedness, and allostatic load after a natural disaster: a mixed-methods study	93.307		R21MD013650	4,817	-
Columbia University - Impact of Social Cohesion and Social Capital in PrEP Uptake and Adherence Among Transwomen of Color	93.307		2(GG014329-01)	41,005	-
Rand Corporation - Improving Minority Health by Monitoring Medicaid Quality, Disparities and Value	93.307		SCON-00000365	353,153	-
Massachusetts General Hospital - Medicare Policy Effects on Mental Health Disparities	93.307		230084	50,901	-
Massachusetts General Hospital - Racial disparities in police use of deadly force as a cause of racial disparities in sleep health across the life course	93.307		236743	8,788	-
Regents of the University of California - San Francisco - Reducing Oral Health Disparities in Children: Assessing the Multilevel Impact of a Standardized	93.307		11566sc	65,550	-
Total for CFDA 93.307				652,063	
University of Massachusetts Medical School - Center for 3D Structure and Physics of the Genome	93.310		OSP33133-01	24,552	-
University of California, San Diego - Center for Integrated Multi-modal and Multi-scale Nucleome Research	93.310		704233	68,634	-
UC San Diego School of Medicine - Center for Integrated Multi-modal and Multi-scale Nucleome Research	93.310		KR 704234	32,159	-
Harvard Pilgrim Health Care, Inc - Common and distinct early environmental influences on cardiometabolic and respiratory health: Mechanisms and methods	93.310		PH000615E	233,610	-
University of Massachusetts Medical School - Constructing multi-omics regulatory networks for functional variant annotation	93.310		OSP33015-00	33,682	-
Massachusetts General Hospital - Designer probiotics for the treatment of intestinal infection and inflammation	93.310		229595	107,264	-
Icahn School of Medicine at Mount Sinai - ECHO Consortium on Perinatal Programming of Neurodevelopment	93.310		0255-2298-4609	29,348	-
Carnegie Mellon University - Flexible Hybrid Cloud Infrastructure for Seamless Management of HuBMAP Resources	93.310		1090580- 443689	4,380	-
University of North Carolina - Chapel Hill - Illuminating Function of the Understudied Druggable Kinome	93.310		5118750	607,283	-
Regents of the University of California - San Diego - KULMAP: Human Kidney, urinary tract and lung mapping center	93.310		117273558 (S9002339)	260,966	-
Regents of the University of California - Irvine - Making antibody generation rapid, scalable, and democratic through machine learning and continuous evolution	93.310		2020-1392	728,347	-
Brigham and Women's Hospital, Inc - Multi-omic approaches to mechanisms of vitamin D, environmental influences, and the microbiome on asthma	93.310		119919	14,543	-
Carnegie Mellon University - Multi-Scale Analysis of 4D Nucleome Structure and Function by Comprehensive Multimodal Data Integration	93.310		1090661-437142	27,474	-
Brigham and Women's Hospital, Inc - New approaches to optimizing the application and measuring the impact of community-based tuberculosis interventions	93.310		122469	14,827	-
Scripps Research Institute - Technology to Empower Changes in Health (TECH) Network Participant Technologies Center - S4S YR4	93.310		5-54464	1,653,550	-
Board of Regents of the University of Wisconsin System - U.S. Childhood Respiratory and Environment Workgroup (CREW)	93.310		908	223,279	-
Brandeis University - Ubiquitin-independent targeted protein degradation	93.310		GR404054	6,876	-
Total for CFDA 93.310				4,070,776	
Massachusetts Institute of Technology - Cartilage-Bone-Synovium MPS: Musculoskeletal Disease Biology in Space	93.350		S4428 PO 453162	51,381	-
Children's Hospital Boston - Instrumenting the Delivery System for a Genomics Research Information Commons	93.350		GENFD0001910602	314,816	-
Brigham and Women's Hospital, Inc - Kidney Microphysiological Analysis Platforms (MAP) to Optimize Function and Model Disease	93.350		122148	161,668	-
Children's Hospital Boston - Tissue chips for precision treatment of catecholaminergic polymorphic ventricular tachycardia (UG3)	93.350		GENFD0001939379	91,609	-
University of Pittsburgh Medical Center - ACT Supplement	93.350		AWD00000243 (134445-2)	415,980	-
Total for CFDA 93.350				1,035,454	
Ramona Optics, Inc. - High-resolution, parallelized imaging of freely swimming zebrafish with a gigapixel microscope	93.351		2R44OD024879-02	15,661	-
Brigham and Women's Hospital, Inc - A Community Zebrafish Resource for Modeling GWAS Biology	93.351		119850	210,864	-
The Jackson Laboratory - Teaching the Genome Generation: Professional Development for Genomics Instruction in Rural and Urban High Schools	93.351		210239-0121-02	6,561	-
Total for CFDA 93.351				233,086	
Oregon Health and Science University - Omic and Multidimensional Spatial Atlas of Metastatic Breast and Prostate Cancers	93.353		1013337 HARVARD	510,852	-
Oregon Health and Science University - Omic and Multidimensional Spatial Atlas of Metastatic Breast and Prostate Cancers: TNP OMS Atlas Funds	93.353		1013337HARVARDB6	22,134	-

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Beckman Research Institute of City of Hope - Technology-Enabled Activation of Skin Cancer Screening for Hematopoietic Cell Transplantation Survivors and their Primary Care Providers	93.353		62014.2008301.669301	128,764	-
Dana-Farber Cancer Institute - The Cellular Geography of Therapeutic Resistance in Cancer	93.353		1206303	258,394	-
Regents of the University of California - Davis - University of California Minority Patient-Derived Xenograft (PDX) Development and Trial Center UCaMP) to Reduce Cancer Health Disparities	93.353		A19-0791-S007	109,967	-
Total for CFDA 93.353				1,030,112	
Dana-Farber Cancer Institute - Passive Data to Improve Outcomes in Advanced Cancer	93.361		1169302	99,010	-
Total for CFDA 93.361				99,010	
University of Texas - Dallas - A Bayesian Meta-Analysis Approach for Estimation of Penetrance and its Application to PALB2 gene for Breast Cancer Risk	93.393		1907701	4,436	-
Dana-Farber Cancer Institute - A functional genomic approach to identification and interpretation of germline-tumor genetic interactions	93.393		1201304	72,255	-
Brigham and Women's Hospital, Inc - Accelerating Transdisciplinary Epidemiology of Colorectal Cancer	93.393		121840	107,383	-
Dana-Farber Cancer Institute - Adapting and evaluating a brief advice tobacco intervention in high-reach, low-resource settings in India	93.393		1311502	54,576	-
Columbia University - Breast Cancer Family Cohort	93.393		6(GG013725-07)	28,619	-
Memorial Sloan Kettering Cancer Center - Characterizing the role of glucosamine and chondroitin supplements in the prevention of colorectal tumors	93.393		BD523707B	4,173	-
Brigham and Women's Hospital, Inc - Comprehensive characterization of prostate stromal gene expression and association with lethal prostate cancer	93.393		118830	34,862	-
Health Research, Inc. - Consortium on Methods Evaluating Tobacco (COMET): Filter Ventilation and Product Standards	93.393		289-01	41,709	-
Dimagi, Inc - COOPE: A Digital Health System to Facilitate Financial Navigation of Out-of-Pocket Cancer Costs	93.393		No Award Number	10,313	-
Vanderbilt University Medical Center - Effects of Expanded Coverage on Access, Health Care and Health in the South	93.393		VUMC56386	137,820	-
Stanford University - Evaluation of genetic, clinical, and environmental risk factors to establish effective screening strategies for second primary lung cancer	93.393		61958611-130956	36,435	-
Research Foundation of CUNY (City University of New York) - Exploiting public metagenomic data to uncover cancer/microbiome relationships	93.393		CM00005126-00	12,531	-
Dana-Farber Cancer Institute - Individualizing Surveillance Mammography for Older Breast Cancer Survivors	93.393		1170602	15,427	-
Massachusetts General Hospital - Inflammation and Colorectal Neoplasia	93.393		226172	(328)	-
Baylor College of Medicine - Integrative Analysis of Lung Cancer Etiology and Risk	93.393		7000000921	115,301	-
Indiana University - Integrative functional characterization of genetic loci for cutaneous basal cell carcinoma	93.393		8766	4,931	-
University of Washington - Leveraging cross-cancer shared heritability to better understand the genetic architecture of cancer	93.393		UWSC11959	164,252	-
Regents of the University of Michigan - New Statistical Methods for Modelling Cancer Outcomes	93.393		SUBK00012669	4,190	-
Baylor College of Medicine - Predictors of Early Stage Lung Cancer Recurrence	93.393		7000000918	29,754	-
Region Hovedstaden - Prenatal Exposure to Endocrine Disrupting Chemicals and Risk of Testicular Cancer	93.393		A236816	20,376	-
Ohio State University - Pro-inflammatory and Hyper-insulinemic Dietary Patterns and Colorectal Cancer Risk: Role of the Metabolome	93.393		60075663	58,762	-
University of Pennsylvania - PROJECT RESIST: Increasing Resistance to Tobacco Marketing Among Young Adult Sexual Minority Women Using Inoculation Message Approaches	93.393		580371	58,033	-
University of Washington - Quantifying and Characterizing the shared genetic contribution to common cancers	93.393		UWSC9239	21,081	-
Mayo Clinic - Role of RBBP4/p300 in recovery from therapy induced DNA damage in glioblastoma	93.393		HAR-273993-01	23,915	-
St. Jude Children's Research Hospital - Role of the SWI/SNF complex in tumor suppression	93.393		112260090-7951146	93,734	-
Lawrence Berkeley National Lab - Structural Cell Biology of DNA Repair Machines	93.393		7337766	35,894	-
Memorial Sloan Kettering Cancer Center - The Impact of DNA Damage Repair Abnormalities in Prostate Cancer	93.393		BD526699	105,951	-
Eastern Virginia Medical School - Using Differences in Perceived Legitimacy and Resident Compliance to Promote Fair and Effective Implementation of Smoke Free Housing	93.393		S100601-1	26,559	-
Total for CFDA 93.393				1,322,941	
Dana-Farber Cancer Institute - Circulating Biomarker Consortium for Pancreatic Cancer Early Detection	93.394		1283205	43,315	-
Emory University - Emory, Harvard and Univ. of Washington Prostate Cancer Biomarker Center	93.394		A352661	26,310	-
RareCyt, Inc. - Rapid highly multi-plexed immuno-profiling of solid tumors by SpectralEdge imaging	93.394		2R44CA224503-02SUB	153,421	-
Fred Hutchinson Cancer Research Center - Statistical Methods for Prospective Evaluation of Biomarkers	93.394		1033750	62,588	-
University of Massachusetts Medical School - Weight Management Counseling in Medical School: A Randomized Controlled Trial	93.394		OSP2016161	22,995	-
Total for CFDA 93.394				308,629	
Massachusetts General Hospital - Abbreviated Targeted Therapy to Improve Anti-PD-1 Inhibitor Efficacy in Melanoma	93.395		232616	336,466	-
Massachusetts General Hospital - Dietary sulfur, the gut microbiome, and colorectal cancer	93.395		227950	197,744	-
Brigham and Women's Hospital, Inc - Evaluation of an implantable microdevice for rapid cancer drug screening directly in T cell lymphoma patients	93.395		123466	110,511	-
Dana-Farber Cancer Institute - NOVEL RANDOMIZED CONTROLLED TRIALS OF VITAMIN D SUPPLEMENTATION IN PATIENTS WITH COLORECTAL CANCER: IMPACT ON SURVIVAL AND BIOLOGY	93.395		1299505	44,883	-
Regents of the University of Michigan - Novel use of mHealth data to identify states of vulnerability and receptivity to JITAs	93.395		SUBK00008226	56,326	-
Brigham and Women's Hospital, Inc - Project 2: Combining Immune Checkpoint Blockade with T cell Activation	93.395		124415	121,600	-
Massachusetts General Hospital - Strategies to Overcome Immune Resistance in Head and Neck Cancers	93.395		235469	17,925	-
Dana-Farber Cancer Institute - The molecular basis of IMiD induced neo-substrate recruitment to the CRL4CRBN ubiquitin E3 ligase	93.395		1300005	18,877	-
Massachusetts General Hospital - Transcriptional mechanisms and melanoma - Project 2	93.395		235351	372,184	-
Total for CFDA 93.395				1,276,515	
Children's Hospital Boston - Advanced Microscopy Tools for Ultra-High Throughput Spatially Resolved Single-Cell Transcriptomics	93.396		GENFD0001829879	407	-
Regents of the University of California - Davis - Biological implications of breast cancer protective variants in Latin American women with high Indigenous American ancestry	93.396		A21-2136-S001	3,830	-
Dana-Farber Cancer Institute - Developing Informatics Technologies to Model Cancer Gene Regulation	93.396		1170703	166,157	-
Brigham and Women's Hospital, Inc - Identifying new therapeutic avenues to selectively target tumors with uncontrolled mTORC1 activation	93.396		120102	359,623	-
Memorial Sloan Kettering Cancer Center - Interrogating the Evolutionary Dynamics of Cancer for Clinical Benefit and Actionability	93.396		BD523873C	(102,620)	-
Brigham and Women's Hospital, Inc - Molecular Pathogenesis of the Hamartoma Syndromes P01 Project 1: Identifying new therapeutic avenues to selectively target tumors with uncontrolled mTORC1 activation	93.396		120102	284,913	-
University of Pittsburgh - Pathogenesis of Cancer - Role of EGF Receptor Endocytosis	93.396		AWD00001291 (133630-1)	42,483	-
Massachusetts General Hospital - Prebiotic effect of eicosapentaenoic acid treatment for colorectal cancer	93.396		236707	183,939	-
Massachusetts General Hospital - Reverse transcriptase inhibitor effects on the mobilome of colon cancer	93.396		234829	92,632	-
Stanford University - SCH: INT: Collaborative Research: Intelligent Information Sharing: Advancing Teamwork in Complex Care	93.396		62023614-137827	11,168	-
Total for CFDA 93.396				1,042,532	
Dana-Farber Cancer Institute - 2/2 The UMB-DF/HCC U54 Comprehensive Partnership for Cancer Disparities Research	93.397		1217810	53,778	-

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Dana-Farber Cancer Institute - A National Evaluation of Cancer Centers' Use of Evidence-Based Interventions in Community Outreach and Engagement	93.397		1311057	41,318	-
Dana-Farber Cancer Institute - Adaptation of an evidence-based HPV prevention program for community- and faith-based organizations serving low socioeconomic status and racial/ethnic minority populations.	93.397		1300956	3,748	-
Dana-Farber Cancer Institute - Cancer Center Support Grant	93.397		HSPH-56	411,247	-
Dana-Farber Cancer Institute - Dana Farber/ Harvard Cancer Center SPORE in Gastrointestinal Cancer	93.397		1132212	34,201	-
Dana-Farber Cancer Institute - Dana-Farber/Harvard Cancer Center Ovarian Cancer SPORE Grant	93.397		1316301	70,123	-
Dana-Farber Cancer Institute - Dana-Farber/Harvard Cancer Center SPORE in Breast Cancer	93.397		1230007	8,939	-
Dana-Farber Cancer Institute - Dana-Farber/Harvard Cancer Center Support Grant	93.397		HMS-56	879,853	-
Beth Israel Deaconess Medical Center - DF/HCC Kidney Cancer SPORE	93.397		1062106	14,020	-
Beth Israel Deaconess Medical Center - DF/HCC Kidney Cancer SPORE: Development Research Project Identification and Validation of Immune Targets to Augment PD-1/VEGFR2 Directed Therapy	93.397		1063009	50,119	-
Dana-Farber Cancer Institute - DF/HCC SPORE in Gastrointestinal Cancer	93.397		1132412	163,167	-
Fox Chase Cancer Center - Incorporating Sexual Minority Populations into HPV Transmission Modeling	93.397		12301-56	4,099	-
Dana-Farber Cancer Institute - New measures and professional development opportunities to promote evidence-based cancer prevention and control in underserved communities	93.397		1189711	37,540	-
Dana-Farber Cancer Institute - Rapid Cycle Quality Improvement (RCQI) Approaches for Developing the Capacity of Community-Based Organizations to Address COVID-19 and Cancer Disparities in Latinx Communities	93.397		1189810	2,810	-
Dana-Farber Cancer Institute - Understanding Integration in Oncology Care and Impact on Quality and Outcomes	93.397		1311657	21,439	-
Total for CFDA 93.397				1,796,400	
Syracuse University - Employment Policy Research and Resource Center (EPRRC)	93.433		31838-05703-S01	124,837	-
Rehabilitation Institute of Chicago - Rehabilitation Engineering Research Centers (RERC) on Strategies, Techniques, and Interventions	93.433		7247	29,404	-
Total for CFDA 93.433				154,240	
Massachusetts General Hospital - MA/Region 1 Partnership for Regional Health Disaster Response	93.817		233381	76,164	-
University of Nebraska Medical Center - Nebraska/Region 7 Partnership for Regional Health Disaster Response	93.817		1003054-Harvard YR1	29,611	-
Total for CFDA 93.817				105,775	
Brigham and Women's Hospital, Inc - Adipose Dependent Mechanisms of Dietary Protein Restriction Protective Effects on Vein Graft	93.837		115081	(2,071)	-
Cincinnati Children's Hospital Medical Center - Administrative Coordinating Center: Cardiovascular Development and Pediatric Cardiac Genomics Consortia.	93.837		138275	18,926	-
Cincinnati Children's Hospital Medical Center - Administrative Coordinating Center: Cardiovascular Development and Pediatric Cardiac Genomics Consortia. CHD Genes and iPSC Protocols Downs Syndrome Supplement	93.837		FP00001653 PCGC CHD Genes/iPSC	1,374	-
Beth Israel Deaconess Medical Center - Altered Cell-Cell Coupling in Arrhythmogenic Cardiomyopathy	93.837		1060872	151,431	-
Brigham and Women's Hospital, Inc - Boston Biomedical Innovation Center	93.837		114756	46,109	-
Harvard Pilgrim Health Care, Inc - Built Environment Assessment through Computer vision (BEACON): Applying Deep Learning to Street-Level and Satellite Images to Estimate Built Environment Effects on Cardiovascular Health	93.837		AH000766	41,513	-
Brigham and Women's Hospital, Inc - Cardiac exosomes in myocardial ischemic injury	93.837		123168	10,310	-
University at Buffalo (State University of New York) - Cardiac Toxicity in Perinatally HIV-Infected Adolescents and Young Adults, a Longitudinal Study	93.837		R1186469	13,520	-
Board of Regents of the University of Wisconsin System - Effects of HIV Infection and HIV Disease Measures on Arterial Function	93.837		866K445	6,847	-
Massachusetts General Hospital - Identifying novel cardiopulmonary disease intervention targets among people with HIV in rural sub-Saharan Africa	93.837		232954	7,910	-
Massachusetts General Hospital - Impact of cardiovascular disease on proliferation and genetic diversity of hematopoietic stem cells (Project 4)	93.837		235112	(5,818)	-
Icahn School of Medicine at Mount Sinai - Influence of prenatal air pollutant and stress exposures on sleep outcomes in urban preschool-aged children	93.837		0255-C312-4609	15,781	-
Massachusetts General Hospital - Mechanisms of Cardiac Dysfunction in HIV and the Effect of Statins	93.837		230744	(146)	-
Duke University - Mechanisms of Maladaptation in Heart Failure	93.837		A032119	50,516	-
Beth Israel Deaconess Medical Center - Mechanisms of Prosthetic Arterial Graft Failure	93.837		1029633	137,043	-
Joslin Diabetes Center - Metabolic Pathways of Increased Cardiovascular Risk in Type 2 Diabetes	93.837		100026	39,282	-
Duke University - Novel Mechanisms and Therapies in Heart Failure	93.837		A031557	11,315	-
Vanderbilt University - Outcome Dependent Sampling Studies of Longitudinal Data: Design and Analysis	93.837		VUMC58615	54,555	-
University of Massachusetts Medical School - Pediatric Practice-based Obesity Intervention to Support Families: FITLINE	93.837		OSP2017060	39,065	-
Columbia University - Phosphorylation-dependent regulation of calcium channels by macromolecular complexes	93.837		1(GG015807-01)	43,999	-
Brigham and Women's Hospital, Inc - Pre-DETERMINE: Biologic Markers and MRI SCD Cohort Study	93.837		116706	(6,906)	-
Stanford University - Precision Medicine by Harmonizing Real World Evidence and RCT Data	93.837		62356619-44738	82,290	-
Massachusetts General Hospital - Primary prevention of vascular events in HIV	93.837		224846	(15,598)	-
Massachusetts General Hospital - Reducing Arterial Inflammation and Improving Metabolic Health by Dual CCR2 and CCR5 Antagonism in People Living with HIV	93.837		237424	15,925	-
Massachusetts General Hospital - REPRIEVE CCC	93.837		236575	415,633	-
Brigham and Women's Hospital, Inc - Risk Factors for Ischemic Stroke in Women	93.837		113892	1,774	-
Brigham and Women's Hospital, Inc - Risk Factors of CVD in Women	93.837		120938	25,025	-
Washington University School of Medicine - Statistical Methods to understand dietary exposure patterns among understudied populations	93.837		WU-21-366	6,859	-
Washington University School of Medicine - The Impact of Bundled Payments for Cardiopulmonary Disease on High-Risk Populations	93.837		WU-20-85	127,581	-
Beth Israel Deaconess Medical Center - Use of Registries, Claims and Health System Data to Enhance the Evaluation of Cardiovascular Therapies in Clinical Trials	93.837		1062494	4,007	-
Emory University - Worksite lifestyle program for reducing diabetes and CVD risk in India	93.837		A177305	25,684	-
Tufts University - Cost-Effectiveness of Health System and State-Level Strategies to Improve Diet and Reduce Cardiometabolic Diseases	93.837		NH0001	39,635	-
Total for CFDA 93.837				1,403,371	
University of Pennsylvania - CEBPD - Medicated Mechanisms of Glucocorticoid Insensitivity in Severe Asthma	93.838		571226	135,760	-
Children's Hospital Boston - Cell-cell interactions governing lung epithelial progenitor cells	93.838		GENFD0002010490	104,722	-
Children's Hospital Boston - Environmental Risk Factors for Pediatric Sleep Disordered Breathing	93.838		GENFD0001858748	47,286	-
Brigham and Women's Hospital, Inc - Genetic and Genomic Characterization of the Occurrence and Progression of Interstitial Lung Abnormalities	93.838		117432	52,770	-
Brigham and Women's Hospital, Inc - Genetic Epidemiology of COPD (2 of 2)	93.838		117868	337,921	-
Emory University - Household air pollution and health: a multi-country LPG intervention trial	93.838		A345848	28,060	-
Brigham and Women's Hospital, Inc - Interstitial Lung Abnormalities: Defining the Phenotype, Causes, and Consequences	93.838		120957	82,014	-
Brigham and Women's Hospital, Inc - Manipulating Tissue Strain in Surgical Repair	93.838		120026	(365)	-
Brigham and Women's Hospital, Inc - Systems Biology of Airway Disease	93.838		115975	52,163	-
Brigham and Women's Hospital, Inc - Therapeutic modulation of zinc for lung injury and mechanobiology	93.838		121004	81,814	-

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Brigham and Women's Hospital, Inc - Wood Smoke and Chronic Mucous Hypersecretion	93.838		122957	84,694	-
COPD Foundation - Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC) - INSIGHT Study	93.838		001-Amend5	20,352	-
Total for CFDA 93.838				1,027,192	-
Brigham and Women's Hospital, Inc - Cytoskeletal Mechanisms of Platelet Formation	93.839		116938	3,881	-
Massachusetts General Hospital - Functional dissection of clonal hematopoiesis	93.839		230441	549,644	-
University of Massachusetts Medical School - Novel Growth Factor Regulators of Early Erythropoiesis	93.839		OSP2018073	312,288	-
Case Western Reserve University - Platelet-inspired Delivery System for Targeted Thrombolytic Therapy	93.839		RES512743	(248)	-
University of Maryland, College Park - Relationship of ambient air pollution exposures with vaso-occlusive pain crises in sickle cell disease	93.839		66027-Z0155201	10,739	-
University of Pennsylvania - Vascular delivery of nanocarriers by erythrocytes	93.839		574882	150,016	-
Total for CFDA 93.839				1,026,320	-
University of Massachusetts Medical School - PR-OUTLOOK: PR Young Adults Stress, Contextual, Behavioral and Cardiometabolic Risk	93.840		OSP29967-02	13,117	-
Total for CFDA 93.840				13,117	-
Brigham and Women's Hospital, Inc - Acid-Base Status as a Novel Risk Factor for Fractures	93.846		121220	70,956	-
Children's Hospital Boston - Cfp1 Action in Cartilage Development	93.846		GENFD0001296348	16,915	-
Children's Hospital Boston - Defining the human articular chondrocyte lineage	93.846		GENFD0002003828	11,729	-
Brigham and Women's Hospital, Inc - Development of enthesopathy in the mouse model of X-linked hypophosphatemia	93.846		124725	16,261	-
Massachusetts General Hospital - Investigating the direct reprogramming of fibroblasts into skeletal muscle progenitors	93.846		237246	33,881	-
Regents of the University of California - San Diego - Leveraging comparative genomics to elucidate the genetic determinants of limb skeletal proportion	93.846		121580600-001 (MP S 9002390)	79,922	-
Massachusetts General Hospital - Posttranscriptional control of epidermal progenitors senescence	93.846		234150	128,411	-
Brigham and Women's Hospital, Inc - Sociodemographic Disparities in SLE Incidence: Behavioral and Psychosocial Factors	93.846		113176	9,764	-
Hebrew SeniorLife - The Gut Microbiome and Bone Microarchitecture	93.846		90094	34,959	-
Brigham and Women's Hospital, Inc - VERITY: Value and Evidence in Rheumatology using bioInformatiCs, and advanced analytics	93.846		118064	46,512	-
Total for CFDA 93.846				449,312	-
Brigham and Women's Hospital, Inc - Health effects of substituting sugar-sweetened beverages with non-caloric beverages in adults with overweight and obesity	93.847		123666	8,628	-
The Broad Institute - A comprehensive platform for novel therapy development from the microbiome	93.847		5000472-5500001054	470,415	-
University of Pennsylvania - A Large Scale Long-Term Randomized Trial of Nutrition Labeling Interventions	93.847		574745	11,106	-
Brigham and Women's Hospital, Inc - A microbiome-dependent bile acid metabolite improves type 2 diabetes	93.847		124675	85,332	-
Massachusetts General Hospital - A Prospective Study of Lifestyle, the Gut Microbiome, and Diverticulitis	93.847		235385	126,084	-
Children's Hospital Boston - Assessing the relationship between environmental enteric dysfunction and poor growth via a newly developed 11-plex array	93.847		GENFD0001888578	11,982	-
Boston Medical Center - Boston Obesity Nutrition Research Center	93.847		6750	114,926	-
Joslin Diabetes Center - Can technology improve self-care in youth with type-1 diabetes	93.847		P30DK036836-31 Dassau Harvard	18,959	18,959
Massachusetts General Hospital - Center for the Study of Inflammatory Bowel Disease at Massachusetts General Hospital	93.847		238644	22,076	-
Boston Nutrition Obesity Research Center - Chronic Inflammation and Obesity: Genetic Susceptibility and the Role of Diet	93.847		7072	12,921	-
Brigham and Women's Hospital, Inc - Circulating plasma metabolites, diet, and risk of type 2 diabetes	93.847		118780	91,247	-
Children's Hospital Boston - Customized stem cells for clinical applications in blood disorders	93.847		GENFD0001552720	41,837	-
Yale University - Data and Biostatistics Core : Amazon Center of Excellence in Malaria Research	93.847		GR109235(CON-80002353)	58,796	-
Massachusetts General Hospital - Deconvoluting the hematopoietic niche under stress	93.847		227794	(732)	-
Augusta University - Development of a targeted DNA methylation sequencing assay for the assessment of metabolic disease progression	93.847		35235-9	51,928	-
Regents of the University of California - Irvine - Development of Silk Fibroin Grafts for Reconstruction of Esophageal Defects	93.847		2020-1336	24,923	-
University of Alabama - Effect of Pitavastatin on Kidney Function in HIV-infected Persons	93.847		000509533-005	12,588	-
Boston College - Empowerment as a mechanism for change in childhood obesity prevention	93.847		5108631-4	3,108	-
Beth Israel Deaconess Medical Center - Generation of a Cellular Atlas of Adipose Tissue in Mouse and Man	93.847		1060496	392,038	-
University of Massachusetts Medical School - Humanized Mouse Avatars for T1D	93.847		OSP30522-03	215,533	-
Brown University - Impact of Medicaid Expansion on Racial and Socioeconomic Disparities in ESRD	93.847		1181	25,444	-
Massachusetts General Hospital - Infant Sleep Characteristics and Accelerated Growth Trajectories from Birth to 24 months	93.847		227074	38,052	-
Beth Israel Deaconess Medical Center - Leveraging the Rich Genetic Diversity of Vagal Motor Neurons to Decode Brain-to-Gut Communication	93.847		1061842	325,233	-
Jaeb Center for Health Research Foundation, Inc - MD-PSCH Clinical Acceptance of the Artificial Pancreas: The International Diabetes Closed Loop (IDCL) Trial	93.847		DCLP4	198,056	-
Jaeb Center for Health Research Foundation, Inc - MD-PSCH Clinical Acceptance of the Artificial Pancreas: The International Diabetes Closed Loop (IDCL) Trial	93.847		GB10282 151300	(48,572)	-
Children's Hospital Boston - Mechanism of action for the epithelial-specific ER stress sensor IRE1β in regulating intestinal homeostasis and host defense	93.847		GENFD0001992890	7,557	-
Children's Hospital Boston - Mechanisms and Markers of Small Intestinal Epithelial Injury	93.847		GENFD0001828649	6,149	-
Boston Nutrition Obesity Research Center - Mediterranean Diet, Gut Microbiome and Cardiac Structure and Function	93.847		7521	357	-
Albert Einstein College of Medicine - Metabolomics signatures underlying diet, lifestyle and gut microbiota for diabetes	93.847		311433	100,240	-
Duke University - Microbial regulation of host nutrient metabolism	93.847		A031623	(2,384)	-
Children's Hospital Boston - Molecular Circuits in the Hematopoietic Stem Cell Niche	93.847		GENFD0001889841	344,123	-
Harvard Pilgrim Health Care, Inc - New Insights into the Federal Calorie Labeling Law	93.847		PH000668C	242,849	-
Brigham and Women's Hospital, Inc - Novel Pathways for Kidney Stone Formation	93.847		120966	24,994	-
Tulane University - Nutrigenetics and Nutrigenomics for Precision Weight-Loss Diet Interventions	93.847		TUL-HSC-556076-17-18	44,842	-
Tulane University - Obesity Genes, Energy Regulation in Response to Weight-Loss Diets	93.847		TUL-HSC-556619-18/19	45,136	-
Yale University - On-body ecosystem for automated insulin delivery in type 1 diabetes	93.847		GR100945 (CON-80000948)	109,826	-
Massachusetts General Hospital - Psychological, cognitive, and genetic factors in a behavioral intervention to prevent weight gain	93.847		231761	5,045	-
Rand Corporation - Robust Statistical Methods to Identify and Use Surrogate Markers in Diabetes	93.847		SCON-00000161	47,067	-
University of Kansas Medical Center - Role of claudin-2 in calcium homeostasis and kidney stone disease	93.847		ZAY00030	35,347	-
Johns Hopkins University - Sleep Apnea Treatment with Positive Airway Pressure for Prevention of Diabetes Mellitus	93.847		2004175483	626	-
Children's Hospital Boston - The neuropilin 2 axis in smooth muscle contractility	93.847		GENFD0001688159	49,427	-
Regents of the University of California - San Francisco - Vegetarian dietary patterns and erectile dysfunction in Health Professionals Followup Study"	93.847		11677sc	(86)	-
Tulane University - Weight-Loss Diet Intervention on Cardiometabolic Factors of Gut Microbiota	93.847		TUL-HSC-558086-19-20	61,576	-
Total for CFDA 93.847				3,434,600	18,959
Brigham and Women's Hospital, Inc - Identification of Presenilin downstream targets in neuronal survival	93.853		116846	173,770	-
University of Massachusetts - Amherst - A 5-dimensional connectomics approach to the neural basis of behavior	93.853		19-010728 C03 Revised	207,629	-
California Institute of Technology - A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior	93.853		S397744	476,491	300,223

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Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
Stanford University - Automated Phenotyping in Epilepsy	93.853		62389164-143494	147,422	-
University of North Carolina - Bcl-xL-regulated apoptosis in cerebellar development and medulloblastoma treatment	93.853		5110620	14,160	-
Brigham and Women's Hospital, Inc - Cell and Molecular Consequences of Alzheimer's Disease Genetic Variants on BBB Integrity and Function	93.853		124009	49,795	-
Children's Hospital Boston - Cell Identity Determination In Human Brain: Somatic mutation and cell lineage	93.853		GENFD0001910478	167,524	-
Lawrence Berkeley National Lab - Chemical Fingerprinting: cell-type specific DNA repair in the brain	93.853		7527795	101,329	-
University of Miami - Clinical Research in ALS and related disorders for Therapeutic Development (CReATe)	93.853		SPC-001460	21,804	-
The Feinstein Institute for Medical Research - Comparative Effectiveness of Imaging Strategies in Acute Ischemic Stroke Based on Patient Profiles	93.853		AWD00001281-Harvard College	57,222	-
California Institute of Technology - Comprehensive Analysis of a Decision Circuit	93.853		S447071	405,718	-
Columbia University - CRCNS: Refining computational models of motor sequence learning and execution	93.853		1(GG012952-01)	130,607	-
New York University School of Medicine - Development and Function of 5HT3aR-Expressing Cortical GABAergic Interneurons (Project 1)	93.853		18-A1-00-008334	209,586	-
Tufts Medical Center - Discovery of the Biomarker Signature for Neuropathic Corneal Pain	93.853		5017155-SERV	217,117	-
Johns Hopkins School of Medicine - Gene expression underlying serotonin axon regrowth in the adult mammalian brain	93.853		2003998519	18,007	-
University of Pittsburgh - Integrating EHR and Genomics to Predict Multiple Sclerosis Drug Response	93.853		AWD00002658 (135057-1)	75,457	-
New York University - Mechanisms of synaptic dopamine signaling in the control of behavior	93.853		20-A0-00-1004068	97,361	-
Massachusetts General Hospital - Micro-Coil Implants for Cortical Activation	93.853		229585	(68,516)	-
Massachusetts General Hospital - mRNA Splicing Modulation in Familial Dysautonomia	93.853		228844	4	-
California Institute of Technology - Neural representation of mating partners by male C. elegans	93.853		S447423	244,343	-
Regents of the University of California - San Diego - Next generation all-optical toolkits for functional analysis of neuropeptide dynamics in neural circuits	93.853		122333935	288,904	-
Columbia University - Project 2 - Neural Basis of Motor Pattern Loops	93.853		1(GG012999-04)	132,793	-
Stanford University - Project 3- Neural Basis of Sensory-Guided Actions	93.853		61745076-130506	87,122	-
New York University Langone Medical Center - Project 3: Cracking the Olfactory Code	93.853		19-A0-00-1002081	163,874	-
New York University Langone Medical Center - Project 4: Cracking the Olfactory Code	93.853		19-A0-00-1002081	324,748	-
NF Bio, Inc - Salmonella typhimurium-based Bacteriotherapy for Orphan Benign Tumors: Neurofibromatosis Type II (NF2)	93.853		NFB002JM	138,091	-
Regents of the University of California - Berkeley - Specifying the constraints on cerebellar dependent sensorimotor adaptation	93.853		9885	(11,493)	-
Regents of the University of California - Berkeley - Specifying the constraints on cerebellar dependent sensorimotor adaptation (R35)	93.853		10431	108,978	-
Beth Israel Deaconess Medical Center - The functional neuroanatomy of the human physiological stress response	93.853		1061570	14,961	-
University of Massachusetts - Lowell - The Gut Microbiome In Parkinson Disease	93.853		S51110000036435	66,559	-
University of Rochester - U19 Data Science Core	93.853		417832G	44,998	-
University of Rochester - U19 Project A (theory project)	93.853		417833G / UR FAO GR511107	42,658	-
Brigham and Women's Hospital, Inc - α -synuclein membrane vs. cytosol excess: two different pathways to synucleinopathy	93.853		125138	5,056	-
Total for CFDA 93.853				4,154,078	300,223
Global Alliance for TB Drug Development - Discovery of inhibitors that target the Mtb ClpP1P2 protease	93.855		2115	403,649	-
Wellcome Trust Sanger Institute - Large-scale systematic prioritisation of Plasmodium vivax blood stage vaccine antigens	93.855		R01A137154-SPH	(4,882)	-
Northeastern University - A general mechanism of persister formation	93.855		500637-78050	411,173	-
University of Maryland, Baltimore - A Genomics Based Investigation of the Determinants of Polymicrobial Infectious Disease Outcomes	93.855		1400685A	65,670	-
Brigham and Women's Hospital, Inc - A Pilot Clinical Trial for HIV-1 Eradication	93.855		114094	10,539	-
COVID-19: Regents of the University of California - Los Angeles - A5395: Leadership and Operations Center (LOC), AIDS Clinical Trials Group (ACTG)	93.855		COVID-19 A5395-1560GXC835	105,809	-
Beth Israel Deaconess Medical Center - Ad26 Based Therapeutic Vaccines for HIV	93.855		1062434	6,023	-
The Broad Institute - Advancing Genomic Technologies to Combat Infectious Disease: Mapping Dynamics within Single Cells, Individual Hosts, and Global Populations	93.855		5000559-5500001280	136,351	-
The Broad Institute - Advancing Genomic Technologies to Combat Infectious Disease: Mapping Dynamics within Single Cells, Individual Hosts, and Global Populations	93.855		5000561-5500001281	15,607	-
Massachusetts General Hospital - Assessing measures to eliminate transmission of cholera in Haiti	93.855		232975	45,679	-
University of California, San Diego - Automation and Evaluation of Real-Time Transmission Network-Based HIV Prevention Services in New York City	93.855		99689314	53,570	-
Stanford University - Big Data Analysis of HIV Risk and Epidemiology in Sub-Saharan Africa	93.855		61499525-123298	252,908	-
Dana-Farber Cancer Institute - Biology and structure of pMHC receptors functioning as mechanosensors in the ab T-cell lineage	93.855		1313702	138,492	-
Brigham and Women's Hospital, Inc - Brush cell sensing of aeroallergen-elicited stress signals promotes epithelial cell activation	93.855		125040	3,990	-
Massachusetts General Hospital - Cardiovascular Disease Risk in HIV-infected Women: Sex-Specific Mechanisms of Risk and Risk Reduction among REPRIEVE Trial Participants	93.855		227111	30,308	-
Regents of the University of California - San Diego - Center for AIDS Research, Biostatistics and Modeling (BAM) Core	93.855		104237211-003	27,474	-
Beth Israel Deaconess Medical Center - Combined Immunologic Approaches to Cure HIV-1	93.855		1062516	22,901	-
Massachusetts Eye and Ear Infirmary - Compounds and Strategies for Treating MRSA and VRE	93.855		530539	423,235	-
University of Pittsburgh - Conditionally replicating BCG for alternative vaccination routes	93.855		CNVA000062617 (132386-1)	183,160	-
Weill Medical College of Cornell University - Conditionally replicating Mycobacterium tuberculosis vaccines	93.855		204405	397,159	-
Brigham and Women's Hospital, Inc - Core A: Metabolic factors that control the spectrum of human tuberculosis [TBRU]	93.855		111846	19,061	-
Brigham and Women's Hospital, Inc - Core B: Metabolic factors that control the spectrum of human tuberculosis [TBRU]	93.855		111896	16,822	-
University of Pittsburgh - Core D: Synergies among Inhibitory Receptors in Tolerance Cancer and Antiviral Immunity	93.855		9011704 (126208-1)	(338)	-
Massachusetts General Hospital - Cost Effectiveness of Preventing HIV Complications	93.855		226292	4,767	-
Massachusetts General Hospital - Cost Effectiveness of Preventing HIV Complications	93.855		236800	58,780	-
Yale University - Costimulatory Mechanisms of Autoimmunity (Composite)	93.855		GR100959 (CON-80001032)	714,730	-
COVID-19: FHI Development 360 - COVID: HPTN Unanticipated Clinical Trials Costs	93.855		PO20002144	59,681	59,681
COVID-19: FHI Development 360 - CoVPN 5001: A prospective study of acute immune responses to SARSCoV-2 infection	93.855		PO20002344	65,271	50,396
Children's Hospital Boston - Decidual NK response to infection	93.855		GENFD0001833771	256,466	-
Massachusetts General Hospital - Development of a point of care urine tenofovir immunoassay to distinguish adherence versus resistance-based HIV treatment failure	93.855		234351	11,454	-
Regents of the University of California - San Francisco - Duration Randomized Anti-MDR-TB and Tailored Intervention Clinical Trial	93.855		12461sc	17,403	-
Yale University - Enhancing surveillance systems to slow the spread of antimicrobial-resistant gonorrhea in the United States	93.855		GR109897(CON-80002440)	43,384	-
Yale University - Evaluating health and economic effects of targeted strategies in TB/HIV	93.855		GK000461 (CON-80000341)	46,125	-
Rutgers, The State University of New Jersey - Feasibility of Novel Diagnostics for TB in Endemic Countries (FEND for TB)	93.855		1557	73,028	-
Western University of Health Sciences - Identifying schistosomiasis resistance genes of snail vectors in hotspot transmission zones: Translating from laboratory models to the field.	93.855		20150-Steinauer-HTHCHAN	29,772	-
University of Miami - Immune correlates of LTBI in HIV-exposed infants	93.855		OS00000564	22,465	-
Children's Hospital Boston - Immunobiology of Influenza Virus-related Critical Illness in Young Hosts	93.855		GENFD0001903584	56,351	-
University of Pittsburgh - Influence of SIV replication on TB progression and immunity	93.855		CNVA00056912 (131728-1)	86,460	-

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Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
The Broad Institute - Innovative technologies to transform antibiotic discovery	93.855		5000427-5500001346	126,742	-
Yale University - Integrating genomic and spatial approaches for targeted control of HIV-associated tuberculosis epidemics	93.855		GR110925 (CON-80002721)	2,509	-
FHI Development 360 - Intimate Partner Violence, Social Support, and Substance Use among Black men who have sex with men (BMSM) in the United States	93.855		P021000817	24,402	-
Johns Hopkins University - Johns Hopkins University Kampala-Nanning Clinical Trial Unit	93.855		2003732848	11,633	-
Johns Hopkins University - Johns Hopkins University Kampala-Nanning Clinical Trial Unit	93.855		UM1AI069530	17,381	-
University of Cambridge - Large-scale systematic prioritisation of Plasmodium vivax blood stage vaccine antigens	93.855		R01AI137154-SPH	240,175	-
Health Research, Inc. - Latitudinal Landscape Genomics and Ecology of Anopheles darlingi	93.855		6511-01	18,332	-
Johns Hopkins University - LDR 08	93.855		2004781034	2,844	-
Regents of the University of California - Los Angeles - Leadership and Operations Center (LOC), AIDS Clinical Trials Group (ACTG)	93.855		1560GWB420	147,824	-
Regents of the University of California - Los Angeles - Leadership and Operations Center (LOC), AIDS Clinical Trials Group (ACTG)	93.855		1560GWB421	26,733	-
Regents of the University of California - Los Angeles - Leadership and Operations Center (LOC), AIDS Clinical Trials Group (ACTG)	93.855		1560GWB426	30,846	-
Regents of the University of California - Los Angeles - Leadership and Operations Center (LOC), AIDS Clinical Trials Group (ACTG)	93.855		1560GYC332	197,810	-
Regents of the University of California - Los Angeles - Leadership and Operations Center (LOC), AIDS Clinical Trials Group (ACTG)	93.855		1560GYC333	63,846	-
University of Washington - Malaria Evolution in South Asia	93.855		UWSC9952	216,733	-
University of Pittsburgh - Manipulation of innate immunity by Polyomavirus T antigens	93.855		AWD00002474 (134727-1)	60,739	-
Tufts Cummings School of Veterinary Medicine - Myeloid-Derived Suppressor Cells in Tuberculosis Granuloma Structure and Function	93.855		103539-00001	36,403	-
Harvard Pilgrim Health Care, Inc - Network modeling and robust estimation of the intraclass correlation coefficient to inform the design and analysis of cluster randomized trials for infectious diseases	93.855		AH000680	14,728	-
University of Pennsylvania - NEXT GENERATION MISSING DATA METHODS IN HIV RESEARCH	93.855		574360	114,245	-
Board of Regents of the University of Wisconsin System - Novel antimicrobials targeting MDR pathogens from animal microbial symbionts	93.855		1268	118,016	-
Board of Regents of the University of Wisconsin System - Novel antimicrobials targeting MDR pathogens from animal microbial symbionts	93.855		1269	418,361	-
Massachusetts General Hospital - Novel Methods to Inform HIV/TB Clinical Trial Development	93.855		226434	5,480	-
Massachusetts General Hospital - Novel Methods to Inform HIV/TB Clinical Trial Development	93.855		237011	31,473	-
Massachusetts General Hospital - Optimizing HIV Care in Less Developed Countries	93.855		233034	55,219	-
Weill Medical College of Cornell University - Pathway Analysis in Tuberculosis (Project 3)	93.855		200543-3	173,983	-
Weill Medical College of Cornell University - Pathway Analysis in Tuberculosis (Project 4)	93.855		200543-5	270,167	-
COVID-19: Johns Hopkins University - Pharmacokinetics and Safety of Remdesivir for Treatment of COVID-19 in Pregnant Women in the US	93.855		2004846184	37,641	-
University of California, San Diego - Primary Infection Resource Consortium (PIRC)	93.855		93599352	16,355	-
Brigham and Women's Hospital, Inc - Project 1: Metabolic Factors that control the spectrum of Human Tuberculosis [TBRU]	93.855		111899	148,323	-
University of Pittsburgh - Project 1: Synergies among Inhibitory Receptors in Tolerance Cancer and Antiviral Immunity	93.855		AWD00002849 (135388-2)	495,106	-
Brigham and Women's Hospital, Inc - Project 3: Metabolic factors that control the spectrum of human tuberculosis [TBRU]	93.855		111903	18,626	-
Brigham and Women's Hospital, Inc - Protection of organ transplant from ischemia reperfusion injuries	93.855		115242	13,709	-
Regents of the University of California - San Diego - Quantitative Methods Research Project	93.855		93420631	82,076	-
Case Western Reserve University - Resetting Immune Homeostasis: A Non-Invasive Approach Towards HIV Eradication	93.855		RES515590	4,628	-
Children's Hospital Boston - School Inner-City Asthma Intervention Study	93.855		GENFD0001578883	34,502	-
Tufts University - Single-cell factors of tuberculosis drug tolerance during adaptation to environmental stressors	93.855		103346	69,303	-
Yale University - Structural analysis of inner membrane platform in the type 2 secretion system	93.855		GR111608 (CON-80002811)	2,367	-
Children's Hospital Boston - Structural Basis of Coreceptor Recognition by HIV-1 Envelope Spike	93.855		GENFD0002046751	67,944	-
Texas A&M Research Foundation - Structure-based Discovery of Critical Vulnerabilities of Mycobacteria	93.855		M1803704	209,334	-
Children's Hospital Boston - Structure-function analysis of infection- and vaccine-induced B-cell repertoires	93.855		GENFD0001885120	201,575	-
Children's Hospital Boston - Structure-function studies of the membrane-interacting domains of HIV-1 Env spike	93.855		GENFD0001822009	339,088	-
University of Massachusetts Medical School - Systems Genetics of Tuberculosis	93.855		OSP2018035	409,912	-
ICahn School of Medicine at Mount Sinai - The Immune Cell Atlas - A Robust Framework to Map the Entire Human Immune System	93.855		0255-B131-4609	1,502	-
Brandeis University - The molecular and cellular basis of short-range host cue sensing in mosquito vectors	93.855		GR404087	58,666	-
Brigham and Women's Hospital, Inc - TIM Family of Genes: Role in T Cell Immunity and Tolerance (Core C)	93.855		112676	(310)	-
University of Massachusetts Medical School - Tuberculosis and T cell recognition	93.855		OSP2016182	148,618	-
Brandeis University - Unraveling the polymodal behavior of sensory transduction receptors	93.855		403164	65,667	-
Beth Israel Deaconess Medical Center - Viral dynamics of rebound and control following early treatment of HIV/SIV	93.855		1061735	6,642	-
Beth Israel Deaconess Medical Center - Viral dynamics of rebound and control following early treatment of HIV/SIV	93.855		1062673	19,558	-
Total for CFDA 93.855				9,187,950	110,077
Baylor College of Medicine - A Comprehensive Resource for Manipulating the Drosophila Genome	93.859		7000000999	349,893	-
Rockefeller University - A minimally invasive synthetic biology-driven approach for natural products discovery	93.859		5U01GM110714-05	8	-
Regents of the University of Michigan - Accounting for Hidden Bias in Vaccine Studies: A Negative Control Framework	93.859		SUBK00012743	3,287	-
University of Georgia - Collaborative Research: Statistical Approaches for Deciphering the Regulatory Role of Small RNAs on Alternative Splicing	93.859		SUB00001241	61,830	-
Massachusetts General Hospital - Competitive Antagonists for General Anesthetics: Novel Drugs for Improving Patient Care and Advancing Scientific Research	93.859		230354	(10,354)	-
Massachusetts General Hospital - Core C: Protein Chemistry	93.859		224991	(990)	-
University of North Carolina - Chapel Hill - Epigenetic control of metazoan transcription and pre-mRNA processing by histone PTMs	93.859		5111066	(1,517)	-
Rensselaer Polytechnic Institute - Membrane Protein Structure Using Evolutionary Couplings and Sparse NMR Data	93.859		A20-0061-S001	91,261	-
Massachusetts General Hospital - Project 1: Locating General Anesthetic Binding Sites in GABAA and Glycine Receptors	93.859		224993	2,282	-
Northwestern University - Regulation and Function of Intermediate Filaments in Cell Mechanics	93.859		60051124 HU	219,077	-
University of Washington - Ribosomal DNA copy number variation as a source of missing heritability in complex traits	93.859		UWSC10049	59,925	-
Northwestern University - SCISIPBio: Understanding and Assembling Dream Teams to Conduct Clinical and Translational Science.	93.859		60055246 HU	40,810	-
University of Cincinnati - Structural insight into the signaling and regulation of GDF8 and GDF11	93.859		011843-003	8,387	-
Rosalind Franklin University of Medicine and Science - Structure and mechanism of the mitochondrial ATP synthase and Batten Disease gene product, Cln3p	93.859		212160 Mueller	120,698	-
Virginia Institute of Marine Science - The impacts of host vaccination and selective breeding for disease resistance on pathogen transmission and ecology in freshwater aquaculture	93.859		718792-712683	1,953	-
Brandeis University - Thermosensory integration and behavior in Drosophila larva	93.859		403758	185,309	-
Regents of the University of Michigan - Translational frameshifting and U5-PBS:tRNA ^{Lys} interaction	93.859		3004633964	205,941	-
Total for CFDA 93.859				1,337,800	-
Johns Hopkins University - Preterm Birth, Maternal and Cord Blood Metabolome, and Child Metabolic Risk	93.865		2003250340	99,105	-

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Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
Johns Hopkins University - Determining Bone Loss and Bone Mineral Density Recovery following Repeat Pregnancy/Lactation among HIV Infected women on ART	93.865		2004010614	14,507	-
Harvard Pilgrim Health Care, Inc - A lifecourse approach to women's cardiometabolic and bone health: from fertility to perimenopause.	93.865		PH000730A	33,848	-
Massachusetts General Hospital - Adolescent Medicine Trials Network for HIV/AIDS Intervention (ATN) Coordinating Center	93.865		231478	53,288	-
Regents of the University of Michigan - Adolescent Medicine Trials Network for HIV/AIDS Interventions (ATN) Coordinating Center	93.865		SUBK00013937	131,167	-
University of Pittsburgh - Alliance for Regenerative Rehabilitation Research and Training (AR3T) -Robotic actuator for in vivo muscle stimulation	93.865		AWD00002588 (135108-16)	29,856	-
Institut de Recherche pour le Developpement - Antiviral prophylaxis and infant vaccination to prevent perinatal hepatitis B infection.	93.865		307848/02	19,772	-
Brigham and Women's Hospital, Inc - Causes and consequences of mitochondrial dysfunction in oocytes and cumulus cells	93.865		117986	117,412	-
Stellenbosch University, Faculty of Medicine and Health Sciences - Children HIV Exposed Uninfected Research to Inform Survival and Health	93.865		S006905-01	14,940	-
Tulane University - Disparities in Recovery from Hurricane Katrina: NOLA@10	93.865		TUL-HSC-557488-19/20	162,232	86,178
Brown University - Effect of Increased Payment for Immediate Postpartum Long-Acting Reversible Contraception on birth spacing and health outcomes: Evidence from South Carolina's Medicaid Policy Change	93.865		1598	25,443	-
Johns Hopkins School of Public Health - Evaluating a Healthy Default Kids' Beverage Ordinance	93.865		2004546640	34,721	-
Children's Hospital Boston - Examining neural mechanisms of developmental dyslexia from infancy to school-age	93.865		GENFD0001970225	157,728	-
Massachusetts General Hospital - FLOURISH – Following Longitudinal Outcomes to Understand, Report, Intervene and Sustain Health of Infants, Children and Adolescents who are HIV Exposed Uninfected	93.865		237245	3,597	-
Trustees of Boston University - HPV vaccination efficacy for cervical cancer prevention in young women with perinatal HIV infection	93.865		4500003130	42,467	-
Michigan State University - Infertility history and chronic disease profile	93.865		RC110679Harvard	70,141	-
Massachusetts General Hospital - Innovation across the spectrum of pediatric HIV care	93.865		235202	43,612	-
Arizona State University - Innovative Family Prevention with Latino Siblings in Disadvantaged Settings	93.865		ASUB00000124	5,485	-
Johns Hopkins University - Inter-generational Link of Cardio-Metabolic Risk: Integrate Multi-OMICs with Birth Cohort	93.865		2004406421	208,776	-
Massachusetts General Hospital - Long-term Impact of Fertility Treatments (LIFT) Study	93.865		231263	139,588	-
Massachusetts General Hospital - Maternal obesity and inflammation as drivers of maternal morbidity in COVID-19	93.865		237358	8,458	-
Brigham and Women's Hospital, Inc - Mechanics of Vertebrate Embryo Elongation	93.865		119812	91,229	-
Brigham and Women's Hospital, Inc - Mechanistic pathways of the effects of human-animal interaction on depression and psychosocial stress	93.865		123005	67,918	-
Boston College - Paternal influence on children's weight outcomes	93.865		5108651-4	47,175	-
Harvard Pilgrim Health Care, Inc - Pre- and Peri- Natal Predictors of Childhood Health and Obesity	93.865		AH000630	28,756	-
The Pennsylvania State University - Residential characteristics and child health and well-being	93.865		S001409-DHHS	31,600	-
University of Illinois at Urbana - Champaign - RNA Pol II pausing is critical for spermatogenesis and fertility	93.865		092758-17182	78,153	-
Emory University - Spatial Uncertainty in Small Area Population Inference from Survey and Administrative Data	93.865		A110121	102,938	-
Children's Hospital Corporation - The Hippocampus and Brainstem in the Sudden Infant Death Syndrome	93.865		GENFD0002012950	118,391	-
Brigham and Women's Hospital, Inc - TRANSLATING NEW INSIGHTS FROM AXOLOTL LIMB REGENERATION INTO MICE	93.865		120755	44,540	-
Total for CFDA 93.865				2,026,843	86,178
Regents of the University of California - San Francisco - Advancing Psychosocial and Biobehavioral Approaches to Improve Emotional Well-Being	93.866		12669sc	5,920	-
Brown University - Alzheimer's Disease and Related Disorders Treatment and Outcomes in America: Changing Policies and Systems	93.866		1647	51,286	-
Brown University - Alzheimer's Disease and Related Disorders Treatment and Outcomes in America: Changing Policies and Systems - Project 2	93.866		1668	51,328	-
Massachusetts General Hospital - Alzheimer's Disease and Related Dementia Care within the Medicare Program	93.866		233402	213,312	-
Regents of the University of New Mexico - Biodemography of Aging in Wild Chimpanzees	93.866		045446-87D7	13,252	-
Brigham and Women's Hospital, Inc - Boston OAIC: A Translational Approach to Function Promoting Anabolic Therapies	93.866		115900	12,931	-
Trustees of Dartmouth College - Causes and Consequences of Healthcare Efficiency	93.866		R1341	52,002	-
Trustees of Dartmouth College - Causes and Consequences of Healthcare Efficiency - Project 3	93.866		R1033	60,306	-
Trustees of Dartmouth College - Causes and Consequences of Healthcare Efficiency - Project 4	93.866		R1034	9,661	-
Brigham and Women's Hospital, Inc - Center for Stress and Neural Regulation of Reproductive Aging Health Outcomes	93.866		123406	29,474	-
Regents of the University of California - San Francisco - Closing the gap between observational research and randomized trials for prevention of Alzheimer's Disease and dementia	93.866		11206sc	88,178	-
Indiana University - Cumulative socioeconomic exposures, cash transfer interventions, and later-life cognitive decline and dementia risk in a low-income region of South Africa	93.866		8731-HU	69,303	-
Rand Corporation - Data Fusion for Long-Term Impacts	93.866		SCON-00000180	5,306	-
Dana-Farber Cancer Institute - Defining the Landscape and Mechanisms of Protein Redox Regulation during Aging	93.866		1318301	1,735	-
Brown University - Delirium, Dementia and the Vulnerable Brain: An Integrated Approach (Project 4: Defining Phenotype of Complicated Delirium)	93.866		1317	3,943	-
University of Massachusetts - Amherst - Development and Application of a Metabonomic Profile of Chronic Distress to Diseases of Aging	93.866		18-010151 B04	106,333	-
University of Southern California - Dietary Restriction, GH-IGF-1 and Mechanisms of Differential Cellular Protection	93.866		101993163	82,200	-
Rutgers, The State University of New Jersey - Disease Outcomes in Older adults under extreme Heat, Air pollution and Medication use (DO-NO-HARM)	93.866		1299	86,860	-
Syracuse University - Educational Attainment, Geography, and U.S. Adult Mortality Risk	93.866		29218-04806-S04	18,842	-
University of Southern California - Harmonized Diagnostic Assessment of Dementia (DAD) for Longitudinal Aging Study of India	93.866		66924119	26,725	-
University of Southern California - Harmonized Diagnostic Assessment of Dementia (DAD) for Longitudinal Aging Study of India (LASI)	93.866		137887989	2,405	-
University of Southern California - Harmonized Diagnostic Assessment of Dementia (DAD) for Longitudinal Aging Study of India (LASI)-Genomic study	93.866		135974887	25,475	-
Massachusetts General Hospital - Harnessing Diverse Bioinformatic Approaches to Repurpose Drugs for Alzheimer's Disease	93.866		233405	252,747	-
Massachusetts Institute of Technology - HCdI: Why Does Diversity Matter for Health	93.866		S5196	74,999	-
Arizona State University - Identification of the genetic and transcriptomic networks of cognitive and neuropathological resilience to Alzheimer's disease associated viruses	93.866		ASUB00000190	114,739	-
National Bureau of Economic Research - Improving Health Outcomes for an Aging Population	93.866		4135G.30.12.HMS	135,570	-
National Bureau of Economic Research - Improving Health Outcomes for an Aging Population	93.866		4135G.30.16.HKS	139,109	-
University of Wisconsin - Integrative Pathways to Health and Illness Project 1 - Psychosocial Contributors	93.866		782	37,491	-
Stanford University - Link between epigenetic and fat metabolism	93.866		61396029-122992	71,493	-
Rush University Medical Center - MIND Diet Intervention to Prevent Alzheimers Disease	93.866		15052004-Sub05	1,032,221	-
Abdul Latif Jameel Poverty Action Lab - MIT Roybal Center for Translational Research to Improve Healthcare for the Aging	93.866		S5140	8,216	-
National Opinion Research Center - National Social Life and Aging Project: Wave 4	93.866		G160MONK1	98,846	-
Ohio State University - Neuroimaging and Molecular Markers of AD and Neurodegenerative Disease after Concussion.	93.866		60070050	39,336	-
Tufts Medical Center - Pathogenesis of Cardiopulmonary Fibrosis Associated with Heart Failure in the Elderly	93.866		5017484-SERV	73,971	-
University of Colorado Denver - Pitavastatin to Reduce Physical Function Impairment and Frailty in HIV (PREPARE)	93.866		2-5-A4588	11,995	-
Northwestern University - Proteostasis in Aging and Neurodegenerative Disease (Core C)	93.866		60052292 HARVARD	188,275	-
Northwestern University - Proteostasis in Aging and Neurodegenerative Disease (Project 2)	93.866		60057525 HARV	560,155	-
Hebrew Rehabilitation Center for Aged - Restricted Mean Survival Time to Interpret Clinical Trials for Treatment Decision-Making in Older Adults	93.866		90089	38,653	-

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Mayo Clinic - Selective autophagy in Alzheimer's disease and related dementias	93.866		HMS-256910	46,142	-
Columbia University - Short and long-term consequences of wildfires for Alzheimer's disease and related dementias	93.866		1(GG017519-01)	11,110	-
National Bureau of Economic Research - Socioeconomic Status, Mortality, and Morbidity in Older Americans	93.866		41810.Harvard	59,693	-
Massachusetts General Hospital - The CHARMED model: a multimorbidity simulation model for people aging with HIV	93.866		238631	4,188	-
Columbia University - The Effect of De-Prescribing Antipsychotics on Clinical Quality for People with Alzheimer's Disease and Dementia	93.866		1(GG013824-01)	7,516	-
Brown University - Which Post Acute Care Setting is best for Patients' Outcomes	93.866		1165	76,391	-
Rush University Medical Center - The Alzheimer's Gut Microbiome Project	93.866		18091006-Sub01	127,811	-
Total for CFDA 93.866				4,227,441	-
University of Rochester - Accelerating vision restoration through in-vivo cellular imaging of inner and outer retina	93.867		416635-G	(200)	-
Children's Hospital Corporation - Cell type-specific promoters of retinal ganglion cell survival and axonal regeneration identified through an unbiased CRISPR screen of transcriptional regulators	93.867		GENFD0002036542	285,381	-
University of Rochester - CRCNS Research Proposal: Perceptual decision-making in a probabilistic inference framework	93.867		417154G/UR FAO GR510693	80	-
Massachusetts General Hospital - Lithium Niobate on Insulator (LNOI) Photonic Circuit Lasers for High-Speed, Widefield OCT	93.867		237203	40,635	-
Massachusetts Eye and Ear Infirmary - Metabolomics a novel tool for investigating the pathogenesis of Age-related Macular Degeneration	93.867		530812	23,627	-
Northwestern University - The Mechanical Basis of Primary Open Angle Glaucoma	93.867		SP0028943-PROJ0007599	(1,113)	-
Total for CFDA 93.867				348,409	-
College of Medicine of the University of Lagos - Building Research And Innovation in Nigeria's Science - (BRAINS)	93.989		Harvard-TW010134	128,788	-
Children's Hospital Boston - International Bioethics Research Trailing (IBRTI - Central Asia Network)	93.989		GENFD0001950842	10,698	-
University of Jos - Support of Training and Mentoring in Nigeria for Academics [STAMINA]	93.989		UJHVD-STAMINA-Y5	122,350	-
University of Ibadan - University of Ibadan MEPI Junior Faculty Research Training Program (UI-MEPI-J)	93.989		Harvard-TW010140	11,079	-
Total for CFDA 93.989				272,915	-
University of North Carolina - Chapel Hill - A Powerful And Resource-Efficient Rare Variant Meta-Analysis Workflow For Large-Scale Multi-Ethnic Sequencing Association Studies Using Summary Statistics And Functional Annotations	93.RD		5116791	52,275	-
Children's Hospital Boston - Adjuvant Discovery Program (DHHS Federal Contract Subcontract)	93.RD		GENFD0001945480	179,639	-
Brigham and Women's Hospital, Inc - Developing the Capability of Using National Medicaid data for FDA Post-Marketing Surveillance to Assess Medication Safety During Pregnancy	93.RD		118120	37,057	-
Stanford University - ELSI.hub: National Center for ELSI Resources and Analysis	93.RD		62424230-139696	79,625	-
Brigham and Women's Hospital, Inc - eMERGE Phase IV Clinical Center at Partners HealthCare	93.RD		124080	646,613	-
Abt Associates, Inc. - Evaluation of the Oncology Care Model	93.RD		46244	195,818	-
The Broad Institute - Human Tumor Atlas Pilot Project (HTAPP)	93.RD		5101211-5500001184	69,920	-
Rand Corporation - Implementation of the Medicare PDP and MA Plan disenrollment Reasons Survey	93.RD		9920180022	(288)	-
Stanford University - Molecular mechanism of mitochondrial ion transport	93.RD		62411169-165937	116,768	-
Rand Corporation - National Implementation of Medicare Advantage and Prescription Drug Plan CAHPS Surveys	93.RD		SCON-00000070	261,260	11,667
Westat Corporation - NICHD International and Domestic Pediatric and Maternal HIV and Other High Priority Infectious Diseases Data Coordinating Center	93.RD		6579-S42	110,933	-
Vanderbilt University Medical Center - Opioid Use in Nursing Homes	93.RD		VUMC63498	111,814	-
Westat Corporation - Prospective Cohort Study of HIV and Zika in Infants and Pregnancy Study (HIV-ZIPS)	93.RD		6579-S42	217,886	-
University of North Carolina - Chapel Hill - Scalable statistical and computational methods for integrating functional data in rare variant analysis of large whole genome sequencing data	93.RD		5116786	56,734	-
Seven Bridges Genomics - The development and integration of advanced cyberinfrastructure, leading-edge tools, and FAIR data to accelerate discovery by the NHLBI research community	93.RD		No Award Number	3,668	-
Brown University - Asprosin, Body Weight, and Risk of Type 2 Diabetes in Men and Women	93.RD		1627	43,244	-
Total for CFDA 93.RD				2,182,966	11,667
Total for DHHS Subaward Received R&D Cluster				64,019,565	1,024,945
EPA					
Health Effects Institute - Assessing Adverse Health Effects of Long-Term Exposure to Low Levels of Ambient Air Pollution	66.511		4953-RFA14-3/16-4-4	156,006	7,185
Health Effects Institute - Chemical and Physical Characterization of Non-Tailpipe and Tailpipe Emissions at 100 Locations near Major Roads in the Greater Boston Area	66.511		4948-RFPA14-1-15-2	(503)	-
Total for CFDA 66.511				155,503	7,185
Total for EPA Subaward Received R&D Cluster				155,503	7,185
Institute of Museum and Library Services					
Simmons University - Retooling the Librarian Workforce: Innovative Post-Master's Certificate Program for Developing Inter-Professional Informationalists (IPI)	45.313		S400019HMS	41,452	-
Total for CFDA 45.313				41,452	-
Total for Institute of Museum and Library Services Subaward Received R&D Cluster				41,452	-
Millennium Challenge Corporation					
Massachusetts Institute of Technology - The J-PAL and EPoD Employment Lab	85.RD		S5123	378,742	-
Total for CFDA 85.RD				378,742	-
Total for Millennium Challenge Corporation Subaward Received R&D Cluster				378,742	-
NASA					
Georgetown University - Agnostic Biosignatures for Extant Life	43.001		AWD7773186-GR205803	1,150	-
Planetary Science Institute - An Integrated Atmospheric and Subsurface Investigation of the Evolution of the Early Martian Hydrosphere: Implications for the Occurrence and Duration of Potentially Habitable Liquid Water Environmen	43.001		1599	769	-
WGBH Educational Foundation - Bringing the Universe to America's Classroom	43.001		K190080	13,565	-
Washington University - Development of the High Performance Version of GEOS-Chem (GCHP) to enable broad community access to high-resolution atmospheric composition modeling and chemical data assimilation	43.001		WU-20-334-MOD-2	84,111	-
University of Texas - Austin - Evolution of Mercury's Core Dynamo	43.001		UTA19-000492	50,045	-
Woods Hole Oceanographic Institution - Exploring Ocean Worlds: Ocean System Science to Support the Search for Life	43.001		23142700	171,669	-
California Institute of Technology - Global Mapping at High-Resolution of Glacial Units on Mars: Calculating Constraints on the Long-Term Evolution of the Martian Climate	43.001		S482775	45,142	-
University of Chicago - Ocean and cryosphere dynamics and the habitable zone: through thick and thin ice	43.001		FP062796-A	29,979	-
University of Southern California - Source-differentiated air quality system to safeguard the respiratory health of US military personnel deployed in Southwest Asia, Djibouti, and Afghanistan	43.001		117990936	148,181	-

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University of Washington - The Virtual Planetary Laboratory: Advancing the Search for Life Beyond the Solar System	43.001		UWSC10439	40,557	-
Smithsonian Astrophysical Observatory - Rapid Observations of Short-Duration Gamma-Ray Bursts: Accurate Positions Hold the Key to the Progenitor Population (Proposal No. 21500089)	43.001		GO0-21050X	33,744	-
Smithsonian Astrophysical Observatory - A Comprehensive Search for X-ray Emission from the Coolest Magnetically Active Brown Dwarfs	43.001		GO8-19005X	50,286	-
Smithsonian Astrophysical Observatory - Continued X-ray Monitoring of a Tidal Disruption Event in an AGN Host Galaxy	43.001		GO0-21105B	11,680	-
Smithsonian Astrophysical Observatory - Late-time X-ray and Radio Observations of the Unique Relativistic TDE Sw 1644+57	43.001		GO8-19087X	18,299	-
Smithsonian Astrophysical Observatory - Periodic Self-Lensing from Accreting Supermassive Black Hole Binaries	43.001		GO9-20037X	10,612	-
Smithsonian Astrophysical Observatory - Rapid Observations of Short-Duration Gamma-Ray Bursts: Accurate Positions Hold the Key to the Progenitor Population	43.001		GO9-20050X	34,176	-
Smithsonian Astrophysical Observatory - Testing the Origin of the First Radio Source Associated with a Superluminous Supernova Using Chandra	43.001		GO0-21053X	8,738	-
Smithsonian Astrophysical Observatory - The First X-ray Study of NGC 2243, One of the Most Metal-Poor Galactic Open Star Clusters	43.001		GO7-18083X	27,962	-
Smithsonian Astrophysical Observatory - Tidal Disruption Events Unveiled: Directly Probing the Accretion Disks Through Late-Time Chandra Observations	43.001		GO9-20092A	27,462	-
Smithsonian Astrophysical Observatory - Towards a Complete Understanding of Stellar Feedback in Massive Star Formation	43.001		PF7-180166	35,209	-
Smithsonian Astrophysical Observatory - X-Ray Observations of a Peculiar Flaring AGN Observed By Kepler: A Supermassive Black Hole Binary Hypothesis	43.001		GO0-21087X	13,707	-
Total for CFDA 43.001				857,044	
Massachusetts Institute of Technology - Autonomous Robot Swarms for Lunar Orbit Servicing and Space Asset Assembly	43.012		S5274	16,765	-
Purdue University - Resilient ExtraTerrestrial Habitats institute (RETHi)	43.012		12000295-027	474,361	-
Total for CFDA 43.012				491,126	
Trustees of Boston University - Calibration and validation of XCO2 and SIF for urban targets	43.RD		4500003755	77,694	-
Radiation Monitoring Devices, Inc. - High Efficiency, Hybridized Semiconductor Array Modules for Hard X-Ray Imaging	43.RD		C21-20	29,432	-
California Institute of Technology - Impacts of Droughts on Carbon Stocks and Fluxes of Amazonian Forest Ecosystems	43.RD		1598815	49,600	-
Southwest Research Institute - Juno Project	43.RD		699042X	411,474	-
Arizona Board of Regents - JWST Near Infrared Camera (NIRCam)	43.RD		152977	158,132	-
Jet Propulsion Laboratory - Measuring the fracture toughness and adhesion of metallization layers to thermoelectric substrates	43.RD		1636472	14,371	-
Smithsonian Astrophysical Observatory - Participation in the Transiting Exoplanet Survey Satellite (TESS) Mission	43.RD		SV9-89017	166,282	-
Massachusetts Institute of Technology - REXIS for OSIRIS-Rex Mission Phase E	43.RD		5923-009	79,951	-
Total for CFDA 43.RD				986,936	
Total for NASA Subaward Received R&D Cluster				2,335,105	
National Science Foundation					
Massachusetts Institute of Technology - DMREF: Computational Design of Next-generation Nanoscale DNA-based Materials	47.041		74850	107,431	-
Massachusetts Institute of Technology - EFRI ACQUIRE: Scalable Quantum Networks with Error-Corrected Semiconductor Qubits	47.041		5710004174	(1,810)	-
University of Illinois at Urbana - Champaign - EFRI C3 SoRo: An integrated approach towards the computational design, fabrication and understanding of bio-hybrid soft architectures capable of adaptive behavior	47.041		093088-17158	50,926	-
Massachusetts Institute of Technology - EFRI C3 SoRo: Soft, Strong, and Safe Configurable Robots for Diverse Manipulation Tasks	47.041		S4649 - PO 217699	387,705	-
Trustees of Boston University - Nanosystems Engineering Research Center for Directed Multiscale Assembly of Cellular Metamaterials with Nanoscale Precision: CELL-MET	47.041		4500003734	188,331	-
Trustees of Boston University - Nanosystems Engineering Research Center for Directed Multiscale Assembly of Cellular Metamaterials with Nanoscale Precision: CELL-MET	47.041		4500003735	167,518	-
University of Rhode Island - NCS-FO: SOUND: Understanding the Functional Neural Dynamics Underpinning Auditory Processing Dysfunctions through a Multiscale Recording-Stimulation Framework	47.041		0008544/11122020	10,432	-
Stanford University - RAISE TAQS: Engineering high quality, practical qubits in diamond	47.041		62035117-137164	151,195	-
Georgia Institute of Technology/Georgia Tech Research Corporation - NNCI COORDINATING OFFICE AT GEORGIA TECH	47.041		AWD-100868-G6	30,000	-
Total for CFDA 47.041				1,091,728	
University of Colorado at Boulder - QLCI-CI: Enhanced Sensing and Distribution Using Quantum States	47.049		1559522	78,920	-
Yale University - ACME III: Advanced Cold Molecule Electron Electric Dipole Moment Search	47.049		GR107173(CON-80001858)	369,901	-
Massachusetts Institute of Technology - AI Institute: The Center for Artificial Intelligence and Fundamental Interactions	47.049		S5206, PO 560825	317,210	-
Massachusetts Institute of Technology - Characterizing and Utilizing 2D van der Waals Materials with Superconducting Qubits	47.049		S4874 - PO 382989	59,491	-
Columbia University - Columbia MRSEC	47.049		2(GG008600-13)	1,169	-
Stanford University - MSIP: Innovation to Achieve the Full Science Reach of the BICEP Array Stage 3 CMB Polarization Experiment	47.049		61941274-134448	519,505	-
National Radio Astronomy Observatory - NRAO Student Observing Support Award to Tarraneh Eftekhari	47.049		SOSPA7-002	9,809	-
Massachusetts Institute of Technology - NSF PFC Center for Ultracold Atoms Renewal	47.049		S4528 - PO 128237	757,317	-
Purdue University - RAISE-TAQS: Multifunctional Hybrid Quantum Systems for Spin-Based Quantum Control and Metrology	47.049		10001431-011	85,239	-
Northwestern University - Surfaces of Secondary Organic Aerosol Particles	47.049		SP0036066-PROJ0009763	7,752	-
Navajo Technical University - VENTURES - Vision for Excellence at Navajo Technical University in Research and Education in STEM	47.049		42766-00-1174	9,953	-
Total for CFDA 47.049				2,216,267	
University of Massachusetts - Lowell - Collaborative Project: Magnitude and pathways of gaseous atmospheric mercury deposition in forests	47.050		S52100000041358	9,101	-
California Institute of Technology - MRI: Development of a 150 GHz Receiver for the BICEP Array CMB Polarimeter	47.050		S386502	78,597	-
Southern California Earthquake Center - SCECS NSF Research Collaboration at Harvard University	47.050		118062181	96,585	-
Columbia University - U.S. Science Support Program Office associated with the International Ocean Discovery Program (USSSP-IODP)	47.050		89(GG009393)	44,125	-
Total for CFDA 47.050				228,408	
University of Delaware - NRI: INT: COLLAB: Anthropomorphic Robotic Ankle Prosthesis with Programmable Materials	47.070		57023	70,643	-
Massachusetts Institute of Technology - A Center for Brains, Minds, and Machines: The Science and the Technology of Intelligence	47.070		S3409	421,297	-
Trustees of Boston University - CIF21 DIBBs: El: North East Storage Exchange,	47.070		4500002550	232,910	-
Cornell University - Collaborative Research: CompSustNet: Expanding the Horizons of Computational Sustainability	47.070		72954-20858	60,000	-
Computing Research Association - Computing Innovation Fellows 2020 Project	47.070		CIF2020-HU-37	106,566	-
Computing Research Association - Computing Innovation Fellows 2020 Project	47.070		CIF2020-HU-52	50,619	-
Boston University School of Public Health - SCH: INT: Distributed Analytics for Enhancing Fertility in Families	47.070		4500003418	16,192	-
Total for CFDA 47.070				958,226	
Yale University - Analysis of transient nuclear ruptures during development	47.074		GR105087(CON-80001599)	69,886	-
Northern Arizona University - Collaborative Proposal: MSB-FRA: Improved Understanding of Feedbacks between Ecosystem Phenology and the Weather-Climate Nexus at Local-to-Continental Scales	47.074		1003392-01	3,079	-

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Northern Arizona University - Collaborative Proposal: NSFDEB-NEERC: Addressing the plant growth source-sink debate through observations, experiment, and modeling.	47.074		1003391-01	3,139	-
Regents of the University of California - Santa Barbara - IDBR TYPE A: Definitive Chemical Analysis of Microbial Volatile Mixtures via Microwave Spectroscopy	47.074		KK1874	16,692	-
Yale University - NEURONEX: The fabric of the primate neocortex and the origin of mental representations. From transcriptomics to single neurons and neuronal networks.	47.074		GR110627 (CON-80002601)	105,178	-
Regents of the University of California - Berkeley - Synthetic biology for yeast	47.074		8319	(191)	-
Simmons University - Unraveling the developmental genetics that underlie anuran limb initiation	47.074		S400036HMS	8,643	-
Regents of the University of California - Davis - VISABLI, an RCN-UBE for Visualizations, Interactive Simulations, and Animations for Biology Learning and Instruction	47.074		A19-0888-S001	39,553	-
Texas A and M University - Digitization TCN: Collaborative: American Crossroads: Digitizing the vascular flora of the south-central United States	47.074		M1903686	38,149	-
Total for CFDA 47.074				284,127	-
Tufts University - 2020 Cooperative Congressional Election Study	47.075		SF0085	41,760	-
Northeastern University - CRISP Type 2: Interdependent Network-based Quantification of Infrastructure Resilience (INQUIRE)	47.075		502536-78051	49,726	-
Regents of the University of California - Irvine - Multidimensionality of Race and Social Networks	47.075		2019-3781	12,799	-
American Political Science Association - Women, Power, and Networks: The Gendered Politics of Economic Empowerment	47.075		No Award Number	6,900	-
Total for CFDA 47.075				111,185	-
Carnegie Mellon University - Collaborative Research: Using Educational Data Mining Techniques to Uncover How and Why Students Learn from Erroneous Examples	47.076		1122530-383320	7,754	-
North Carolina State University - Using Animated Contrasting Cases to Improve Procedural and Conceptual Knowledge in Geometry	47.076		2019-1219-01	27,595	-
Total for CFDA 47.076				35,349	-
CRDF Global - Are TB neighborhoods a high risk population for active intervention	47.079		OISE-9531011	14,786	-
Columbia University - Columbia University MRSEC on Precision-Assembled Quantum Materials	47.079		2(GG015783-06)	64,160	-
Arizona Board of Regents - PIRE: Black-Hole Astrophysics in the Era of Distributed Resources and Expertise	47.079		438295	136,192	-
University of Chicago - PIRE: International Partnership for Cirrus Studies	47.079		FP065300-A	30,497	-
Total for CFDA 47.079				245,635	-
University of Utah - Functional analyses of the vocal central pattern generators of African clawed frogs	47.RD		10053591	51,121	-
California Institute of Technology - Powering the Planet: A CCI Center for the Direct Conversion of Sunlight into Chemical Fuel	47.RD		68D-1094592	(87)	-
Smithsonian Astrophysical Observatory - The Event Horizon Telescope Experiment (MSIP)	47.RD		SV5-85010	5,398	-
Smithsonian Astrophysical Observatory - The Spectrum Laboratory: Toward Authentic Inquiry for All	47.RD		SV8-88015	57,910	-
Columbia University - Towards Life with a Reduced Protein Alphabet	47.RD		1(GG016822-01)	21,748	-
Total for CFDA 47.RD				136,090	-
Total for National Science Foundation Subaward Received R&D Cluster				5,307,015	-
Office of the Director of National Intelligence					
Charles Stark Draper Laboratory, Inc. - Draper Team Felix Proposal	12.RD		SC001-0000001214	150,069	-
The Broad Institute - Molecular Encoding Technologies for Archiving	12.RD		5012031-5500001336	882,315	-
Oak Ridge Institute For Science And Education - On-Chip Optical Downconversion for Quantum Radar	12.RD		SAWD-WD-00851	4,856	-
Total for CFDA 12.RD				1,037,240	-
Total for Office of the Director of National Intelligence Subaward Received R&D Cluster				1,037,240	-
Social Security Administration					
University of Wisconsin-Madison - Spending on Health Among Older Adults Before and After Mortgage Payoff	96.007		1148	51,957	-
National Bureau of Economic Research - The Effect of Health Insurance Affordability on the Employment of People with Disabilities	96.007		51460.03:R-DRCNB21-13-HMS	28,052	-
National Bureau of Economic Research - Understanding Variation in Occupational Requirements	96.007		51460.03:R-DRCNB21-07-HMS	27,606	-
Total for CFDA 96.007				107,614	-
Total for Social Security Administration Subaward Received R&D Cluster				107,614	-
Total for Research and Development Cluster Subaward Received				92,386,975	2,242,306
Total for Research and Development Cluster				621,907,332	118,835,412
Student Financial Assistance					
Direct Awards					
Department of Education					
Federal SEOG Grant 2020-2021	84.007	P007A201874		3,613,119	-
Total for CFDA 84.007				3,613,119	-
Federal Work-Study Program (On Campus)	84.033	P033A201874		717,111	-
Federal Work-Study Program (Off Campus)	84.033	P033A201874		666,873	-
Total for CFDA 84.033				1,383,984	-
Federal Pell Grant 2019-2020	84.063	P063P190187		3,281	-
Federal Pell Grant 2020-2021	84.063	P063P200187		6,182,113	-
Total for CFDA 84.063				6,185,394	-
Federal Perkins Loans					
Outstanding Loans as of July 1, 2020	84.038			26,809,075	-
New Loans Issued During 2020-2021	84.038			-	-
Administrative Cost Allowance	84.038			-	-
Total for CFDA 84.038				26,809,075	-
Federal Direct Student Loans					
Federal Direct Student Loans 2019-2020	84.268			421,360	-
Federal Direct Student Loans 2020-2021	84.268			89,240,453	-
Total for CFDA 84.268				89,661,813	-
Total for Department of Education Direct Awards Student Financial Assistance				127,653,385	-
DHHS					
Health Professions Student Loans, Primary Care Loans and Loans for Disadvantaged Students (HPSL/PCL/LDS)	93.342				
Outstanding Loans as of July 1, 2020				12,197,355	-
New Loans Issued During 2020-2021				1,115,864	-

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Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
Administrative Cost Allowance				-	-
Total for CFDA 93.342				13,313,219	-
Total for DHHS Direct Awards Student Financial Assistance				13,313,219	-
Total for Direct Awards Student Financial Assistance				140,966,604	-
Total for Student Financial Assistance Cluster				140,966,604	-
Other Programs					
Direct Awards					
Department of Education					
National Resource Centers: Center for African Studies	84.015A	P015A180138		175,061	-
National Resource Centers: Davis Center for Russian and Eurasian Studies	84.015A	P015A180078		245,456	-
Total for CFDA 84.015A				420,517	-
Foreign Language and Area Studies (FLAS): Davis Center for Russian and Eurasian Studies	84.015B	P015B180078		351,697	-
Foreign Languages and Area Studies (FLAS) - Center for African Studies	84.015B	P015B180138 - 21		251,380	-
Total for CFDA 84.015B				603,077	-
Total for Department of Education Direct Awards Other Programs				1,023,594	-
Department of Energy					
ATLAS NSW Front-end Electronics Commissioning and Maintenance	81.U02	394993		7,957	-
IC Fellowship (Loren Alegria) Research Advisor Stipend, Travel, and Lab Allowance	81.U03	No Award Number		17,585	-
Total for CFDA 81.000				25,542	-
Total for Department of Energy Direct Awards Other Programs				25,542	-
Department of Homeland Security					
Blue Campaign Program Evaluation and Violence Prevention	97.108	21STFRG00012-01-00		96,986	-
Evaluation of the Greater Boston Countering Violent Extremism (CVE) Pilot Program	97.108	15STFRG00005-01-03		195,207	-
Total for CFDA 97.108				292,193	-
Total for Department of Homeland Security Direct Awards Other Programs				292,193	-
Department of Housing & Urban Development					
Achieving Excellence in Community Development	14.U01	No Award Number		65,814	-
Total for CFDA 14.U01				65,814	-
THE EDWARD M. GRAMLICH FELLOWSHIP IN COMMUNITY AND ECONOMIC DEVELOPMENT SUMMER FELLOWSHIP PROGRAM - Summer 2020	14.U02	No Award Number		27,000	-
Total for CFDA 14.U02				27,000	-
THE EDWARD M. GRAMLICH FELLOWSHIP IN COMMUNITY AND ECONOMIC DEVELOPMENT SUMMER FELLOWSHIP PROGRAM - Summer 2021	14.U03	No Award Number		10,000	-
Total for CFDA 14.U03				10,000	-
Total for Department of Homeland Security Direct Awards Other Programs				102,814	-
Department of State					
Recollections of Service: An Oral History Project	19.040	SVM70020GR0039		10,498	-
Total for CFDA 19.040				10,498	-
Disability Civil Society, Human Rights, and Law in China	19.345	S-LMAQM-17-GR-1102		(249,083)	-
Total for CFDA 19.345				(249,083)	-
Total for Department of State Direct Awards Other Programs				(238,585)	-
Department of the Treasury					
Low Income Taxpayers Clinic	21.008	21-LITC0393-03-00		99,829	-
Total for CFDA 21.008				99,829	-
Total for Department of the Treasury Direct Awards Other Programs				99,829	-
DHHS					
Prevention Policy Modeling Lab	93.084	6NU38PS004644-05-04		(204)	-
Total for CFDA 93.084				(204)	-
Equitable Care For Elders	93.129	6 U30CS30788 03 03		440,999	(22,950)
Total for CFDA 93.129				440,999	(22,950)
Dental Reimbursement Program	93.924	1T22HA396340100		21,173	-
Total for CFDA 93.924				21,173	-
Total for DHHS Direct Awards Other Programs				461,967	(22,950)
Institute of Museum and Library Services					
Hear Me Out: Expanding Hispanic engagement through collaboration	45.301	MA-245652-OMS-20		32,066	-
Marshall Family Archives Digitization Project	45.301	MA-245387-OMS-20		89,378	-
Next generation sample curation of a Historic Meteorite Collection	45.301	MA-30-19-0516-19		9,751	-
Opening Up Digital Collections: Learning Resources for Middle School	45.301	MA-10-18-0311-18		39,492	-
Reimagining, reinventing and conserving the Earth Archive in a digital age	45.301	MA-30-18-0310-18		12,696	-
Total for CFDA 45.301				183,383	-
Building for Tomorrow: Collaborative Development of Sustainable Infrastructure for Architectural and Design Documentation	45.312	LG-73-17-0004-17		38,789	-
Total for CFDA 45.312				38,789	-
Total for Institute of Museum and Library Services Direct Awards Other Programs				222,172	-
National Endowment for the Humanities					
Imperia: An Information Ecosystem for Russian History	45.169	HAA-266553-19		6,671	-
Mapping Color in History (MCH)	45.169	HAA-269007-20		76,277	-
Total for CFDA 45.169				82,948	-
Total for National Endowment for the Humanities Direct Awards Other Programs				82,948	-
Total for Other Programs Cluster Direct Awards				2,072,474	(22,950)
Other Programs					
Subaward Received					
Department of Education					
United Way Massachusetts Bay, Inc. (UWMB) - BoSTEM Initiative with MEDscience	84.411	No Award Number		23,110	-

Harvard University
Schedule of Expenditures of Federal Awards
Year Ended June 30, 2021

Federal Grantor/Pass-through Grantor/Program or Cluster Title	CFDA Number	Award Number	Pass-through Entity Identification Number	Federal Expenditures	Passed to Sub-Recipients
Total for CFDA 84.411				23,110	
Tennessee Department of Education - Setting Students Up for Success: Research, Evaluation, and Guidance on College Going Interventions	84.372		33145-02720	176,390	-
Total for CFDA 84.372				176,390	
Total for Department of Education Subaward Received Other Programs				199,500	-
Department of Justice					
Brockton Public Schools - SAVE (Solutions to Averting Violence in Education)	16.U01		BJA-2020-17313	11,474	-
Total for CFDA 16.U01				11,474	
Total for Department of Justice Subaward Received R&D Cluster Other Programs				11,474	
Department of State					
Trust for University Innovation in Vietnam - Development for Fulbright University Vietnam	19.U01		100004-0076-1	(6,438)	-
Total for CFDA 19.000				(6,438)	
New America Foundation - A blockchain-based indexing system for factories	19.345		SLMAQM18GR2203	14,339	-
Total for CFDA 19.345				14,339	
Trust for University Innovation in Vietnam - Open Policy Dialogue and Academic Collaboration with Fulbright University Vietnam	19.451		100005-0076-1	300,000	-
Total for CFDA 19.451				300,000	
Total for Department of State Subaward Received R&D Cluster Other Programs				307,901	-
DHHS					
AIDS Prevention Initiative in Nigeria, Ltd/Gte. - Engaging Indigenous Organizations to Sustain and Enhance Comprehensive Clinical Services for the Prevention, Care and Treatment of HIV/AIDS in Nigeria under PEPFAR	93.067		HSPH-GH002098	332,789	-
Total for CFDA 93.067				332,789	
Trustees of Boston University - Improving HIV Health Outcomes through the Coordination of Supportive Employment and Housing Services	93.928		4500003402	4,997	-
Total for CFDA 93.928				4,997	
Total for DHHS Subaward Received R&D Cluster Other Programs				337,786	-
NASA					
Trustees of Boston University - Calibration and Validation of XCO2 and SIF for Urban Targets	43.U01		4500003143	6,781	-
Total for CFDA 43.U01				6,781	
Total for NASA Subaward Received R&D Cluster Other Programs				6,781	
Total for Subaward Received Other Programs				863,443	-
Total for Other Programs				2,935,917	(22,950)
Total Expenditures of Federal Awards				\$ 765,809,853	\$ 118,812,462

Harvard University

Notes to Schedule of Expenditures of Federal Awards

Year Ended June 30, 2021

1. Basis of Presentation and Summary of Significant Accounting Policies

The accompanying Schedule of Expenditures of Federal Awards (the "Schedule") summarizes the expenditures of Harvard University (the "University") under programs of the federal government for the year ended June 30, 2021. The information in this Schedule is presented in accordance with the Title 2 U.S. *Code of Federal Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Therefore, some amounts presented in this schedule may differ from amounts presented in, or used in the preparation of, the basic financial statements of the University. Negative amounts represent adjustments or credits to amounts reported as expenditures in prior years in the normal course of business. Assistance Listing Numbers and pass-through numbers are provided when available.

For purposes of the Schedule, Federal awards include all grants, contracts and similar agreements entered into directly between the University and agencies and departments of the Federal government and all subawards to the University by nonfederal or organizations pursuant to Federal grants, contracts and similar agreements.

Expenditures reported in the Schedule are reported on the accrual basis of accounting. Such expenditures are recognized following the cost principles contained in the Uniform Guidance, as applicable, wherein certain types of expenditures are not allowable or are limited to reimbursement.

2. Facilities and Administrative Costs

The University 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 the Uniform Guidance. The University recovers facilities and administrative costs associated with sponsored agreements pursuant to separate arrangements negotiated with the University's Federal cognizant agency by each of the Medical School, School of Public Health, and the University Area. Predetermined facilities and administrative rates have been established for the University Area and Medical School (including the School of Dental Medicine) through June 30, 2024. The School of Public Health has predetermined rates through June 30, 2023.

3. Federal Student Loan Programs

The Federal student loan programs listed below are administered directly by the University and balances and transactions relating to these programs are included in the University's consolidated financial statements. Loans outstanding at the beginning of the year, the administrative cost allowance and loans made during the year are included in the federal expenditures presented in the Schedule. The balance of loans outstanding at June 30, 2021 consist of:

	CFDA #	Amount
Perkins	84.038	\$ 19,614,996
HPSL/LDS/PCL	93.342	12,140,742
Total Federal Student Loans		\$ 31,755,738

Harvard University

Notes to Schedule of Expenditures of Federal Awards

Year Ended June 30, 2021

Loans made by the University to eligible students under the Federal student loan programs and Federally guaranteed loans issued to students during the year ended June 30, 2021 are summarized as follows:

	CFDA #	Amount
Perkins	84.038	\$ -
Direct Subsidized Stafford	84.268	1,175,814
Direct Unsubsidized Stafford	84.268	57,222,982
Direct PLUS	84.268	2,049,153
Direct Grad PLUS	84.268	29,213,864
HPSL/LDS/PCL	93.342	1,115,864
Total		\$ 90,777,677

Part II
Reports on 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 Joint Committee on Inspection of the Governing Boards of Harvard 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 Harvard University and its subsidiaries which comprise the consolidated balance sheet as of June 30, 2021 and the related consolidated statements of changes in net assets with general operating account detail, changes in net assets of the endowment and of cash flows for the year then ended, and the related notes to the financial statements and have issued our report thereon dated October 13, 2021.

Internal Control Over Financial Reporting

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

Compliance and Other Matters

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



Purpose of this Report

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

PricewaterhouseCoopers LLP

Boston, Massachusetts
October 13, 2021



Report of Independent Auditors on Compliance with Requirements That Could Have a Direct and Material Effect on Each Major Program and on Internal Control Over Compliance in Accordance with the Uniform Guidance

To the Joint Committee on Inspection of the Governing Boards of Harvard University

Report on Compliance for Each Major Federal Program

We have audited Harvard University's (the "University") compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the University's major federal programs for the year ended June 30, 2021. The University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the University's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; 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). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the University's compliance.

Opinion on Each Major Federal Program

In our opinion, the University complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2021.



Report on Internal Control Over Compliance

Management of the University is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the University's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program 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 internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the University's 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 first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

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.

PrincipattrenowCompusUP

Boston, Massachusetts
January 28, 2022

Part III
Audit Findings and Questioned Costs

Harvard University
Schedule of Findings and Questioned Costs
Year Ended June 30, 2021

I. Summary of Auditors' Results

Financial statements

Type of audit report issued Unmodified

Internal control over financial reporting:

- Material weaknesses identified? No
- Significant deficiency(ies) identified that are not considered to be material weaknesses? None reported
- Noncompliance which is material to the financial statements noted? No

Federal awards

Internal control over major programs:

- Material weaknesses 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

CFDA Number

Name of Federal Program or Cluster

Various

Research and Development Cluster

Dollar threshold to distinguish between Type A and Type B programs \$ 3,000,000

Auditee qualifies as a low-risk auditee? Yes

II. Financial Statement Findings

None noted.

III. Findings and Questioned Costs for Federal Awards

None noted.

Harvard University

Summary of Status of Prior Audit Findings

Year Ended June 30, 2021

2020-001 E-Sign Act

Cluster: Student Financial Assistance

Grantor: Department of Education

Award Name: Federal Work Study Program, Federal Direct Student Loans

Award Year: FY2020

CFDA Numbers: 84.033, 84.268

The Electronic Signatures in Global and National Commerce Act (“E-Sign Act”) states that a school must obtain a student’s voluntary consent to participate in electronic transactions.

In examining 170 student records across six schools, PwC noted that the University requires each student annually agree to certain terms and conditions before they accept federal student assistance. A statement prompting the student to voluntarily consent to participate in electronic transactions was not included in the list of terms and conditions for 25 student records inspected (all within Harvard Law School).

PwC recommended that Harvard Law School (HLS) add a statement that the student voluntarily consents to participating in electronic transactions to the list of terms and conditions annually agreed to by students receiving federal student financial assistance.

Current Year Update

The Law School acknowledged that this was an oversight during the transition to a new system, and only new students were presented with the consent to participate in electronic services form. Effective February 11, 2020, a required question was added to the HLS financial aid application regarding voluntarily consent to participate in electronic transactions. This application is accessed via the HLS Student Financial Services Self-Service Portal. In addition, the University Financial Aid Liaison Office offered training to the financial aid community in November 2020 reminding them of their obligation to collect the consent to participate in electronic services.

2020-002 Data Borrower Transmission – Direct Loan Reconciliation

Cluster: Student Financial Assistance

Grantor: Department of Education

Award Name: Federal Direct Student Loans

Award Year: FY2020

CFDA Numbers: 84.268

The Direct Loan reconciliation is a mandatory monthly process, as required under 34 CFR 685.300(b)(5). A School should reconcile all disbursement records (actual disbursements and adjustments) to the information in the Common Origination and Disbursement (COD) System on an ongoing monthly basis.

In examining 18 monthly reconciliation records across six schools, PwC noted that three reconciliations at one school (Harvard Law School) within the University did not perform reconciliations of internal disbursement records to the Common Origination and Disbursement System within the first five months of the fiscal year. These were completed for the subsequent seven months.

PwC recommended Harvard Law School educate their program staff on the formal policies in place to perform and maintain Direct Loan reconciliations to ensure the appropriate Direct Loan requirements are met throughout the year and create a monthly close checklist to ensure required procedures are not omitted.

Harvard University

Summary of Status of Prior Audit Findings

Year Ended June 30, 2021

Current Year Update

The Law School acknowledges that during a time of significant staff turnover the monthly reconciliation was inadvertently not performed. Calendar reminders were created for several staff members, and the reconciliation has been performed on a monthly basis since December 2019. In addition, the University Financial Aid Liaison Office offered training to the financial aid community in November 2020 reminding them of their obligation to perform monthly reconciliation.

2020-003 Participant Support Costs

Cluster: Research and Development

Grantor: National Science Foundation

Award Name: BD Spokes: SPOKE: NORTHEAST: Collaborative Research: Integration of environmental factors and causal reasoning approaches for large-scale observational health research

Award Number: IIS-1636870

Award Year: FY2020

CFDA Title: Computer and Information Science and Engineering

CFDA Number: 47.070

During PwC's direct cost testing that sampled 65 transactions comprising \$539,862 in direct costs, it was discovered that 2 expenditures totaling \$4,000 were unallowable as Participant Support Costs. The University conducted further investigation of Participant Support Costs on the award and as a result, a total of \$25,798 was removed and returned to the National Science Foundation.

Current Year Update

As a result of this finding, the University has performed a compliance review of all active NSF awards with participant support costs and in addition, convened a university-wide committee to develop guidance and procedures for managing awards with participant support costs. We plan to implement a participant support costs flag in our system of record, the Grants Management Application System (GMAS) as a mechanism for tracking and monitoring participant support costs on federal awards.

We intend to publish new Participant Support Cost Guidance and Procedures, updates to GMAS, and train research administrators by the agreed upon Corrective Action Plan completion deadline of June 30, 2022.