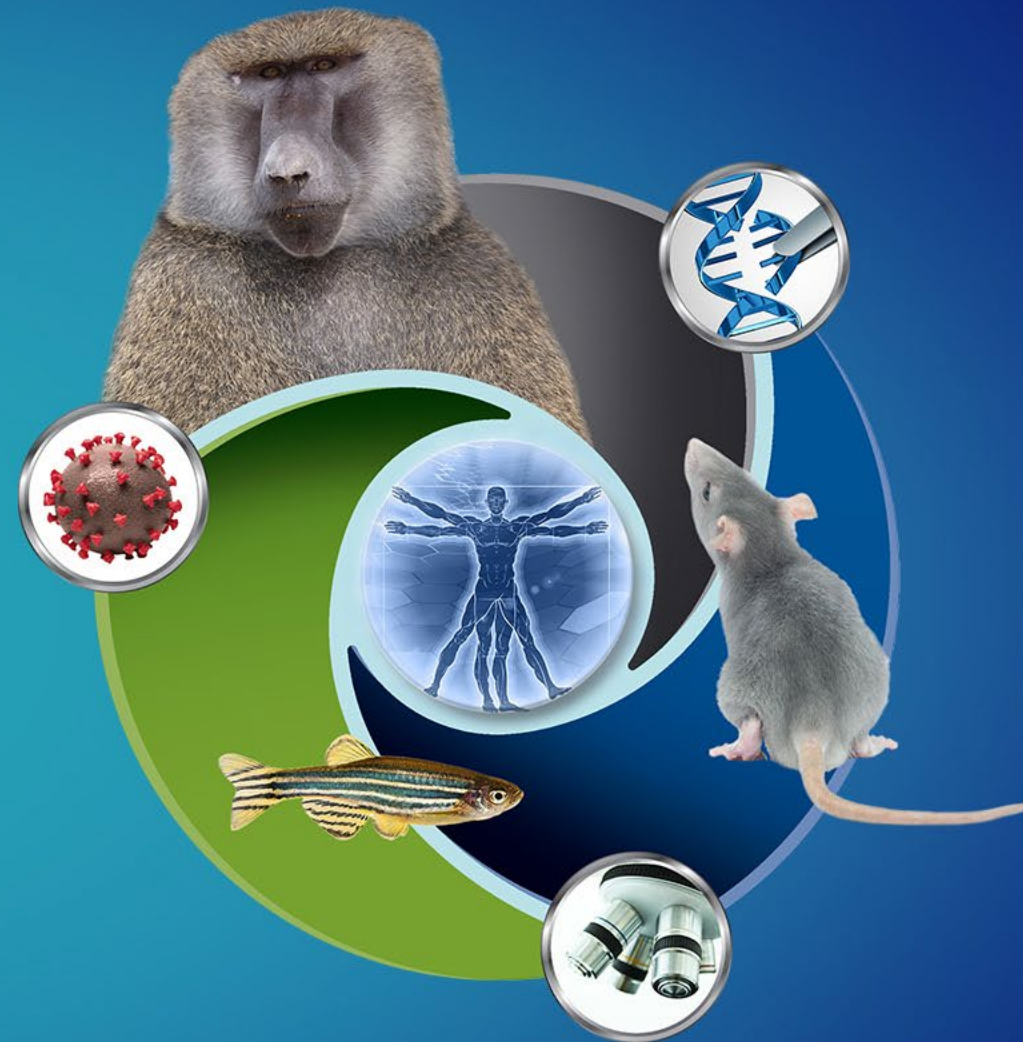


# Concept Clearance Reissue: Shared Instrumentation Program

Xiang-Ning Li, Ph.D.

Director, Division of Construction and  
Instruments, ORIP

Council of Councils



# ORIP

**Concept Clearance: Reissue**

**Title: Shared Instrumentation Program (S10 Mechanism)**

**Objective: To support the acquisition of state-of-the-art, shared-use scientific instruments**

**Funds Available and Anticipated Number of Awards:**

**Contingent upon NIH appropriations and the submission of meritorious applications**

**Award Project Period: One year**

**Council Action: Vote for approval of reissuing the NIH Shared Instrumentation Program**



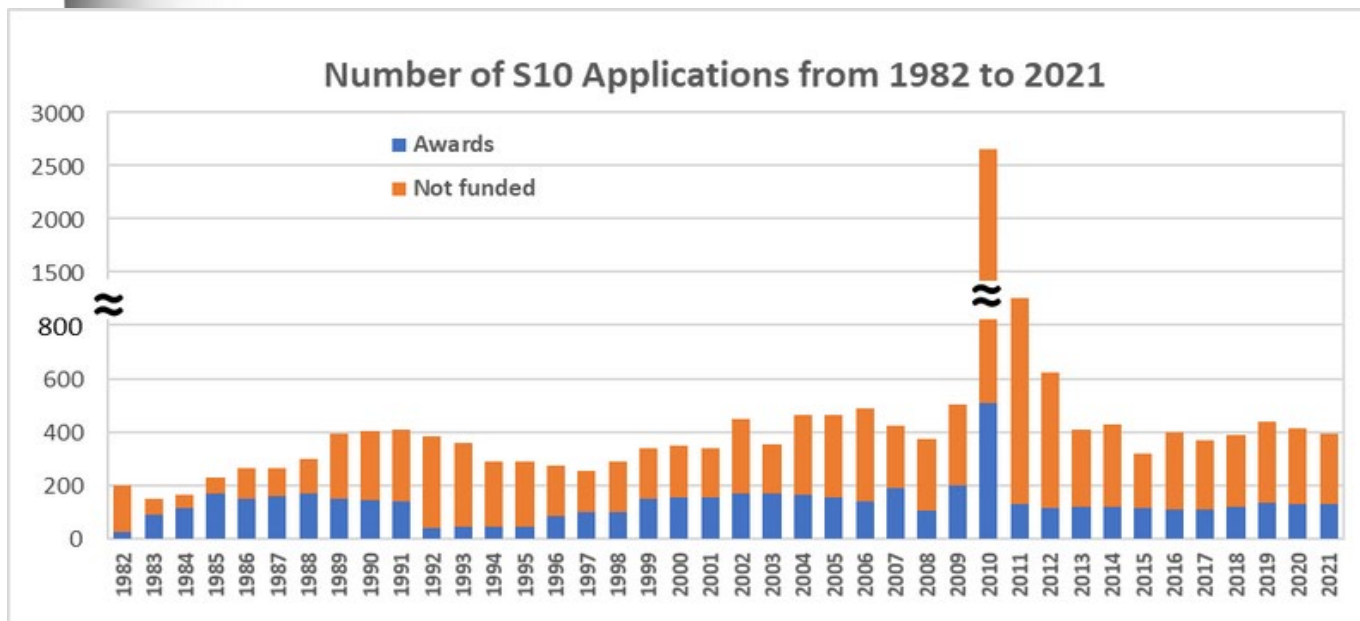
# Background – S10 Established in 1982

NIH established the **Shared Instrumentation Grant (SIG)** Program in 1982, initiating the S10 mechanism to support the purchase of scientific instruments for shared use. Over 5,700 S10 grants have been awarded since 1982.

To fund the shared instrumentation grant program, which will begin in FY 1982, program administrators requested \$3.7 million. The program is being established to enable research institutions to meet the longstanding need to cope with the rapid technological advances in instrumentation and the parallel rapid obsolescence of existing equipment. The program will provide BRS grantee institutions with a large base of NIH extramural research grants to purchase costly (at least \$75,000) instruments to be shared by a large number of investigators. Only one application for a single instrument can be submitted by an eligible institution each year, and the maximum amount of the request is limited to \$250,000. In contrast to the shared-instrumentation program of the National Institute of General Medical Sciences (NIGMS), which is primarily for NIGMS grantees, the BRS equipment program is intended for a broader community of NIH-supported investigators.

30

## FY 1982 S10 Shared Instrument Grant Program Announcement



S10 applications & awards from FY 1982 to FY 2021 (spike shows ARRA in 2010)



# Background – S10 Requirements

- **ORIP's Shared Instrumentation Program (S10) supports acquisition of**
  - ✓ **state-of-the-art**
  - ✓ **commercially available**
  - ✓ **costly**
- **scientific instruments**
  - ✓ **to be used on a shared basis**
  - ✓ **to enhance NIH-funded research.**
- **Awards issued for one year to**
  - ✓ **purchase**
  - ✓ **install and**
  - ✓ **make the instrument available to the users**
- **NIH mandates institutional support and internal advisory committee's oversight**
- **ORIP manages S10 awards for 5 years**



[ORIP S10 Instrumentation Programs – Overview](#)



# Ongoing ORIP S10 Activities

**PAR-22-079:**      **High-End Instrumentation (HEI)  
Grant Program (\$750,001 - \$2,000,000)**

**PAR-22-080:**      **Shared Instrumentation Grant (SIG)  
Program (\$50,000 - \$750,000)**

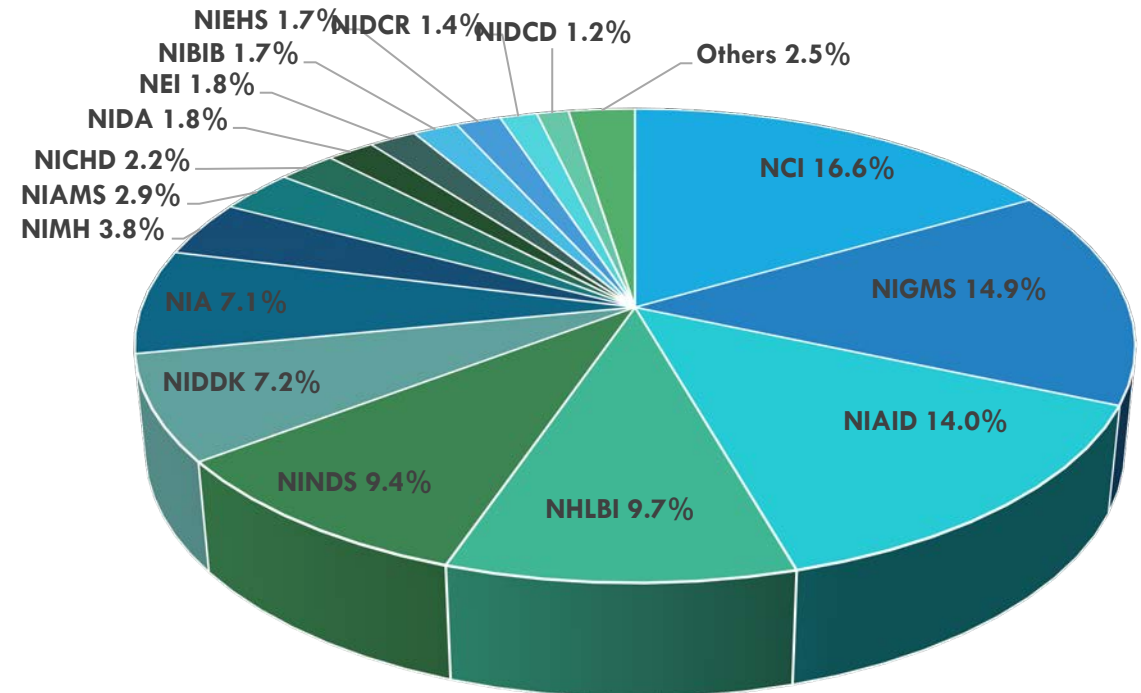
**PAR-22-081:**      **Basic Instrumentation Grant (BIG)  
Program (\$25,000 - \$350,000)**



# Program Benefits almost all NIH ICOs

- **Benefiting research funded by nearly all NIH ICOs.**
- Supporting research in nearly all U.S. states.
- Each S10 awarded instrument supports an average 17+ NIH research grants.
- Enabling myriad areas of research for thousands of investigators in hundreds of institutions nationwide.
- Generating data for tens of thousands of high-profile publications.

FY21-FY23: S10 Supported Grants by NIH ICs



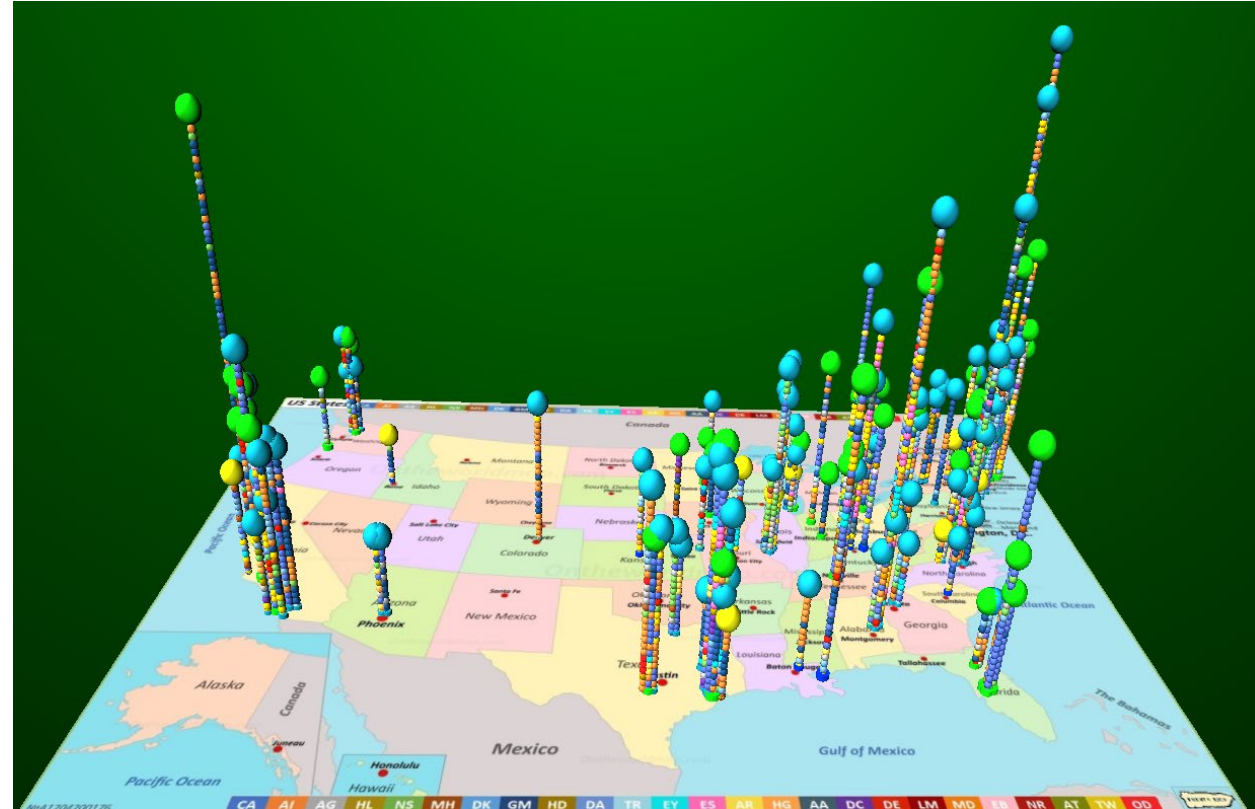
Others: NIAAA, OD, NCCIH, NHGRI, NCATS, NIMHD, NLM, NINR, FIC

**S10 Awards supported almost all NIH IC grants**



# Program Impacts Nearly all States

- Benefiting research funded by nearly all NIH ICs.
- Supporting research in nearly all U.S. states.
- Each S10 awarded instrument supports an average 17+ NIH research grants.
- Enabling myriad areas of research for thousands of investigators in hundreds of institutions nationwide.
- Generating data for tens of thousands of high-profile publications.



**FY22 S10 awards supported ~2,700 NIH funded research projects.**

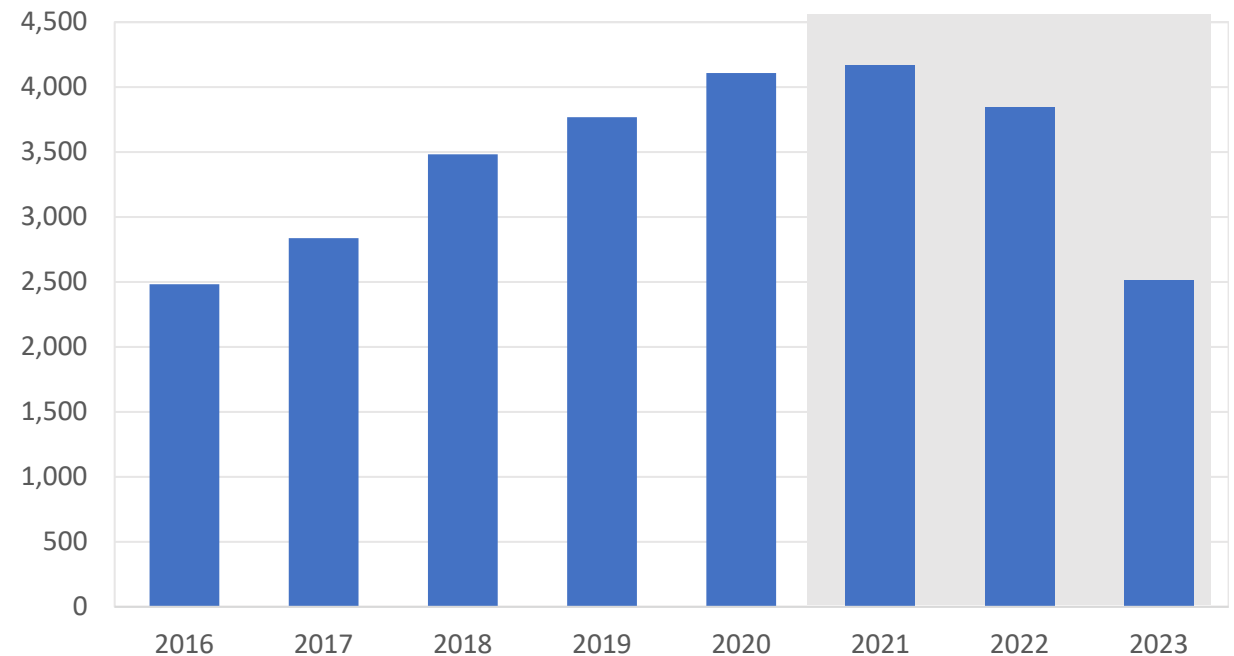






# Program Enables Many Publications

- **Benefiting research funded by nearly all NIH ICs.**
- **Supporting research in nearly all U.S. states.**
- **Each S10 awarded instrument supports an average 17+ NIH research grants.**
- **Enabling myriad areas of research for thousands of investigators in hundreds of institutions nationwide.**
- **Generating data for tens of thousands of high-profile publications.**



Strategy Plan 2016-2020

Strategy Plan 2021-2025

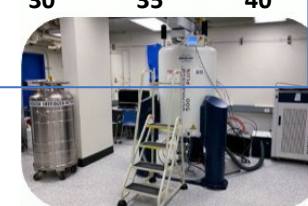
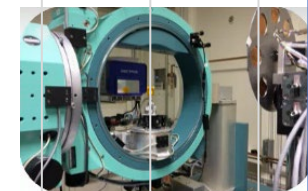
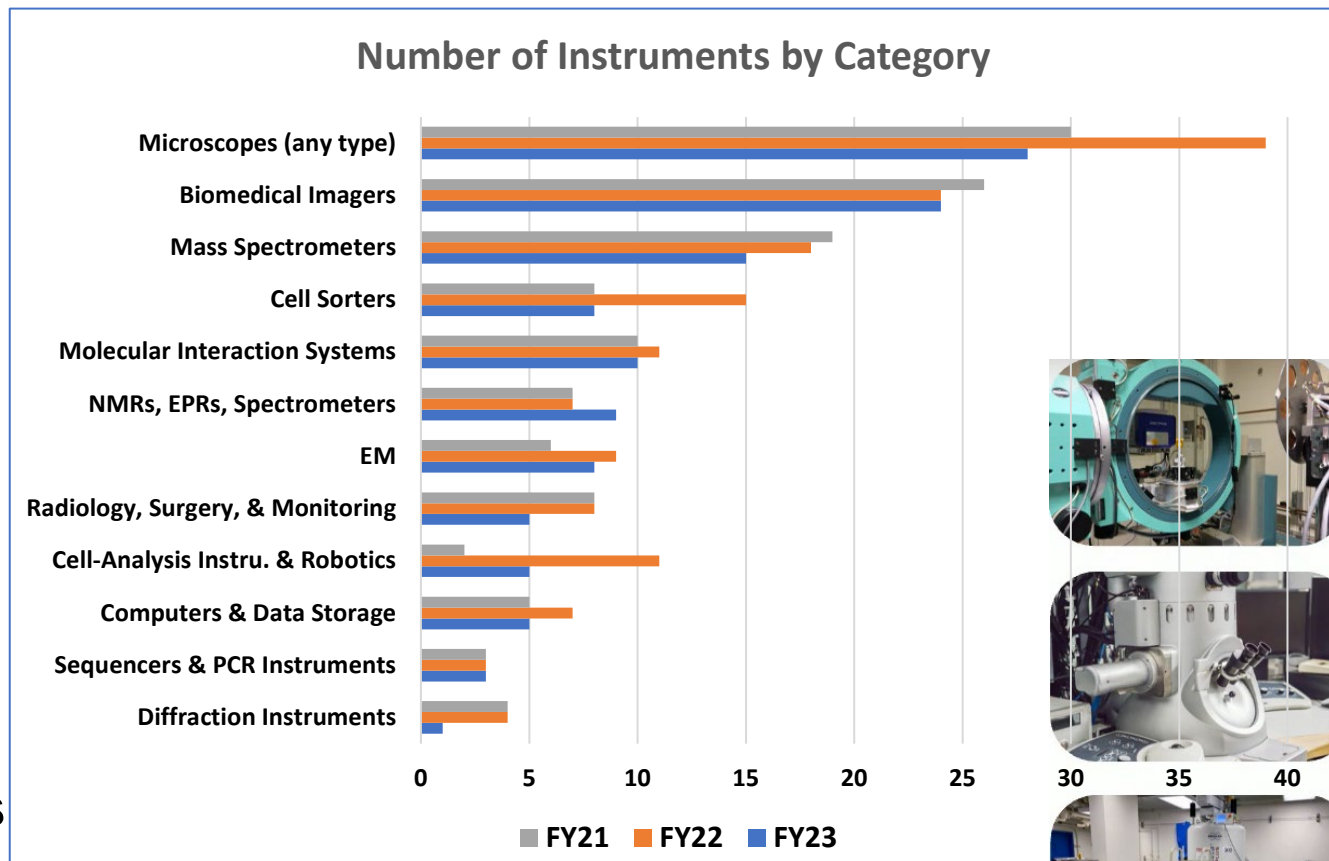
**25,000 publications acknowledging S10 Awards  
between FY16 and FY23**



# S10 Supports All Types of Instruments

Funding state-of-the-art instruments with advanced technologies, used in all areas of research. Examples are

- Microscopes (any type)
- Biomedical imagers (MRI, CT, PET, SPECT)
- Mass spectrometers
- NMR, EPR spectrometers
- Ultrasound & Photoacoustic imaging systems
- Flow cytometers
- High performance Computers
- Protein and DNA sequencers
- X-ray irradiators



# Recent Program Statistics

**In FY19 – FY23 the Shared Instrumentation Program**

- **Received about 410 applications per year (averaged over 5 years)**
- **Funded 132 awards per year (averaged over 5 years), supported**
  - ✓ **> 200 unique academic and research institutions,**
  - ✓ **in 47 states (except AK, SD and WY), and DC, PR**
- **Annual ORIP budget about \$80M in recent years**

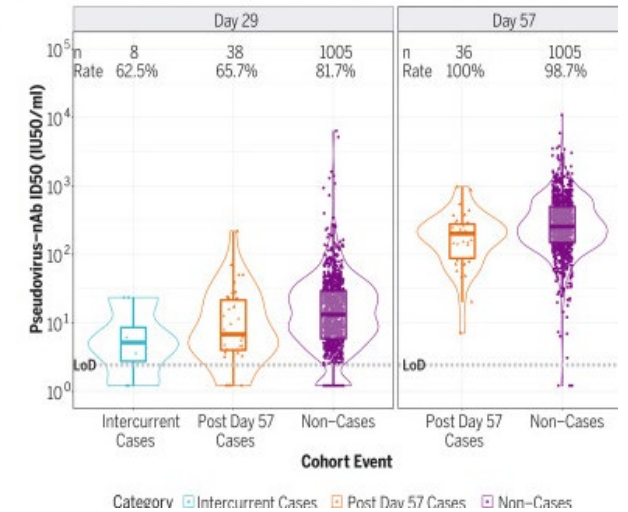
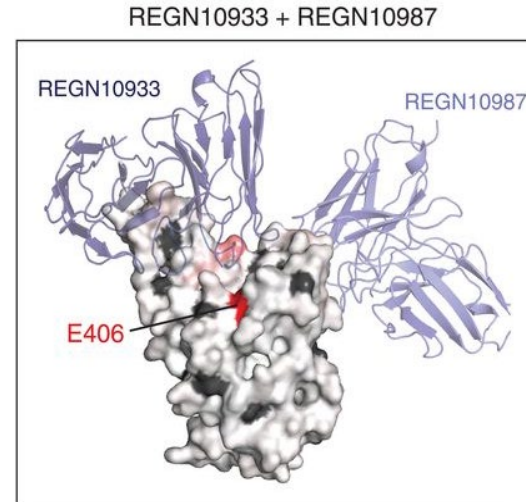
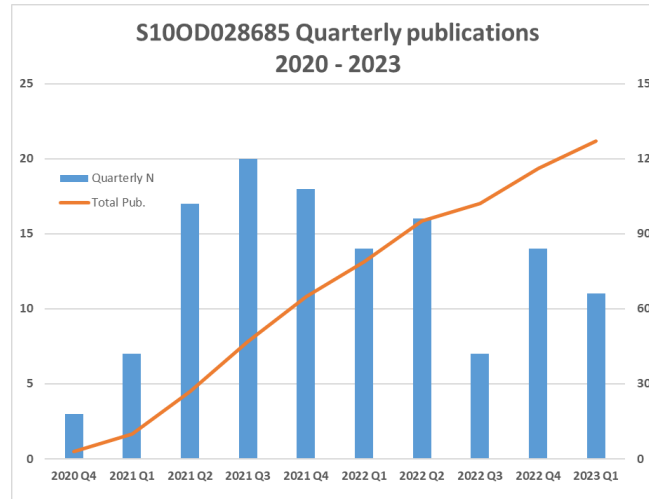


# Concept Clearance

***Vote for approval of reissuing the NIH  
Shared Instrumentation Program***



# S10 Impact



- [High-Performance Computing Cluster for Comprehensive Cancer and Infectious Diseases Research](#)
- PI: Bradley, Philip
- Fred Hutchinson Cancer Research Center
- Total Award: \$2,000,000
- 7000 CPUs, 200 GPUs and 143,000 GB of memory

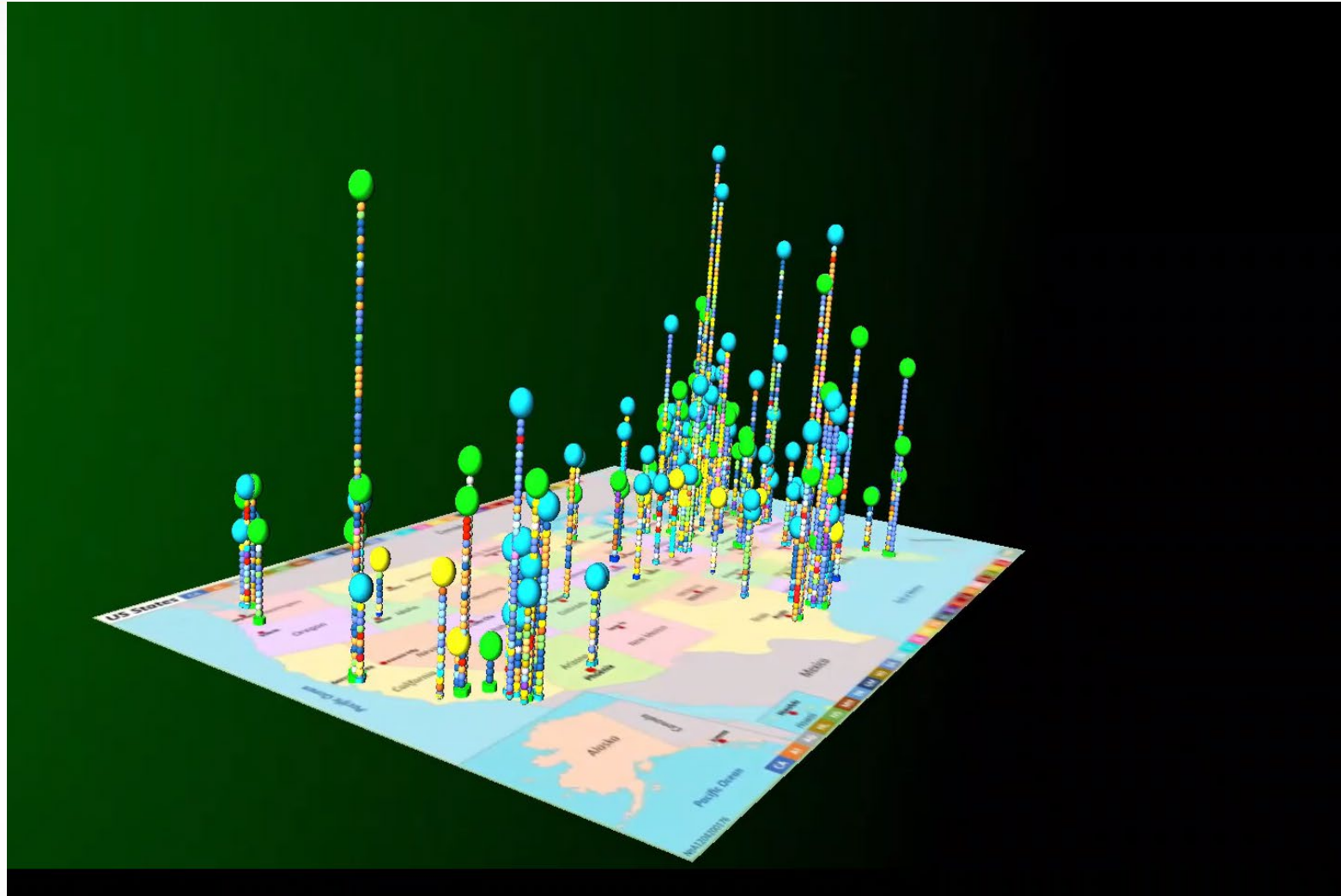
- Funded in 2020 (03/19/2020)
- Installed/operational 4/1/2021
- Supported 75 research projects (Major 32, Minor 43), over 130 scientists (2021)
- [148 Publications](#) (by 10/31/23) acknowledged 1S10OD028685

- [Prospective mapping of viral mutations that escape antibodies used to treat COVID-19](#)
- Science 2021
- RCR: 66.13
- [S10OD028685](#), High performance computing (HPC) cluster

- [Immune correlates analysis of the mRNA-1273 COVID-19 vaccine efficacy clinical trial](#)
- Science 2022
- RCR: 208.48
- [S10 OD028685](#), High performance computing (HPC) cluster



# S10 Broad Impact



# Secondary S10 Impact: Publications Mentioned on Social Media

Report for Altmetric Mentions for 24,912 Publications Related to S10 Programs Managed by NIH Office of Research Infrastructure Programs (ORIP) (from 2016-2023, for Xiang-Ning Li, MD, PhD)

## REPORT OVERVIEW

Total mentions  
**655,617**

Total number of mentions for research outputs in this report

Research outputs  
**17,983**

Total number of research outputs in this report, including those without mentions

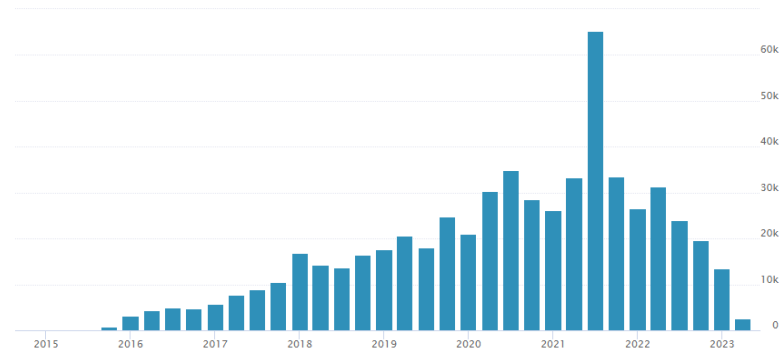
Outputs with mentions  
**16,979**

Total number of research outputs in this report that have Altmetric mentions

Sources of attention  
**13**

Number of attention sources that mention research outputs in this report

This chart shows all **Twitter mentions** for research outputs in your report.



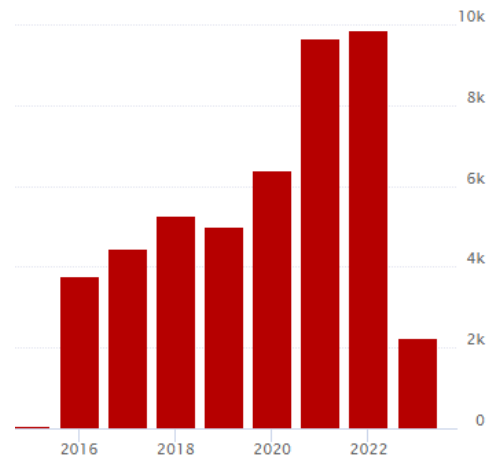
The information in this report was last updated at 00:00AM UTC on 2023-05-04.

This report was produced by the Altmetric Explorer. For more information about Altmetric, visit [www.altmetric.com](http://www.altmetric.com).

The number of mentions from each source that Altmetric has tracked for the research outputs in this report.



## News Mentions



Rank	Mentions	Publication Title	Journal	Date
#1	8988	SARS-CoV-2 immune evasion by the B.1.427/B.1.429 variant of concern	Science	August 2021
#2	4987	Restoration of brain circulation and cellular functions hours post-mortem	Nature	April 2019
#3	4979	Resurgence of SARS-CoV-2 Infection in a Highly Vaccinated Health System Workforce	New England Journal of Medicine	September 2021
#4	4543	SARS-CoV-2 infection protects against rechallenge in rhesus macaques	Science	May 2020
#5	4198	Coupled electrophysiological, hemodynamic, and cerebrospinal fluid oscillations in human sleep	Science	November 2019
#18	1771	Immune correlates analysis of the mRNA-1273 COVID-19 vaccine efficacy clinical trial	Science	January 2022

## Publications of Top Attentions

**Highlights: 24,912 publications cited S10 Grants from 2016-2023, resulted in 655,617 total mentions in social media.**

**X/Twitter is the largest source of social media mentioning publications.**

Data from Altmetric.com



# Potential Outcomes

S10 Awards Went to 42 States from FY21 – FT23  
29 Awarded to IDeA Institutions

