



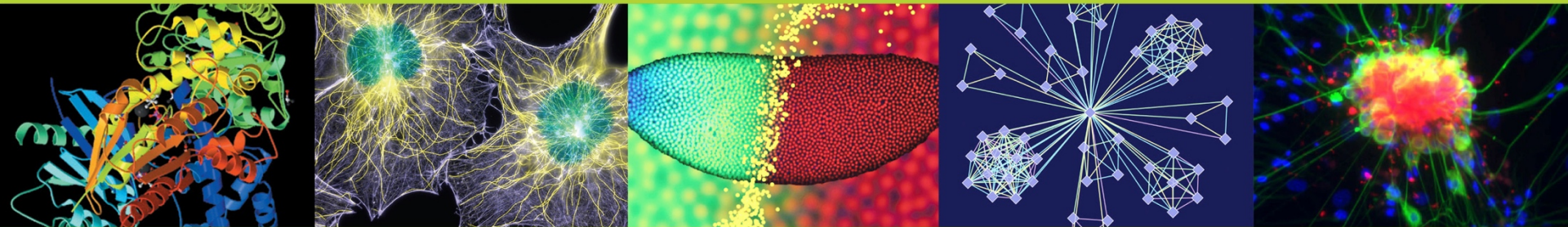
National Institute of
General Medical Sciences



National Advisory General Medical Sciences Council

September 19, 2019

Jon R. Lorsch, Ph.D., Director
National Institute of General Medical Sciences



Retiring Council Members

- **Goldie S. Byrd, Ph.D.**
Maya Angelou Center for Health Equity
Wake Forest School of Medicine
- **William A. Gern, Ph.D.**
Department of Zoology and Physiology
University of Wyoming
- **Kaye Husbands Fealing, Ph.D.**
School of Public Policy
Georgia Institute of Technology
- **Tarun M. Kapoor, Ph.D.**
Selma and Lawrence Ruben Laboratory
of Chemistry and Cell Biology
Rockefeller University
- **Sabeeha Merchant, Ph.D.**
Department of Chemistry and
Biochemistry
Director, Institute for Genomics and
Proteomics
University of California, Los Angeles
- **Larry E. Overman, Ph.D.**
Department of Chemistry
University of California, Irvine

Ad hoc Council Participants

- **Lisa Linnenbrink-Garcia, Ph.D.**
Professor
Department of Counseling, Educational Psychology
and Special Education
Michigan State University
- **Cheryl Quinn, Ph.D.**
Independent Consultant
QnA Pharma Consulting, LLC



Early-Career Investigator *Ad Hoc* Participants

- **Olivia Rissland, D.Phil.**
Assistant Professor
Department of Biochemistry and Molecular Genetics
University of Colorado School of Medicine
- **Sara Van Driest, M.D., Ph.D.**
Associate Professor
Department of Pediatrics
Vanderbilt University School of Medicine



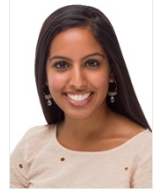
New Hires

- **Behrous Davani, Ph.D.**, Program Director, Division for Research Capacity Building
- **Gary Marlowe**, Health Science Policy Analyst, Division of Extramural Activities
- **Sonia Ortiz-Miranda, Ph.D.**, Scientific Review Officer, Office of Scientific Review
- **Andre Phillips, Ph.D.**, Program Director, Division of Genetics and Molecular, Cellular, and Developmental Biology



New Hires (continued)

- **Christina Rinaldi**, Grants Management Specialist, Grants Administration Branch
- **Jyoti Singh**, Public Affairs Specialist, Office of Communications and Public Liaison



Departures

- **James Deatherage, Ph.D.**, Chief, Cell Biology Branch, Division of Genetics and Molecular, Cellular, and Developmental Biology (retirement)
- **Kristine Willis, Ph.D.**, Program Director, Division of Genetics and Molecular, Cellular, and Developmental Biology

NIH Appointment

Susan K. Gregurick, Ph.D.

- New Associate Director for Data Science and Director, NIH Office of Data Science Strategy
- Has served as a senior advisor to ODSS since November 2018
- Formerly Director, NIGMS Division of Biophysics, Biomedical Technology, and Computational Biosciences
- Ph.D. in Computational Chemistry from the University of Maryland, College Park



NIH Departure

Paul A. Sieving, M.D., Ph.D.

- Long-time Director of the National Eye Institute
- Retired from NIH in July to launch and direct a new Center for Ocular Regenerative Therapy at the University of California, Davis
- Santa Tumminia, Ph.D., serving as acting director



NIGMS Job Vacancies

Division of Pharmacology, Physiology, and Biological Chemistry Job Vacancies

Chief, Biochemistry and Bio-related Chemistry Branch

Chief, Pharmacological and Physiological Sciences Branch

We're recruiting for two accomplished individuals with interest and experience in the scientific areas that comprise the Biochemistry and Bio-related Chemistry (BBC) and the Pharmacological and Physiological Sciences (PPS) Branches of the Division of Pharmacology, Physiology, and Biological Chemistry.

Successful applicants will be responsible for scientific and administrative planning, evaluation, and management of one of the branches, along with supervision of program directors with portfolios of funded research, and small business grants. Each Chief will additionally handle a portfolio of research grants consistent with his/her own scientific background.

<https://hr.nih.gov/jobs/global-recruitment>

Recent Event: NIGMS Research Organism Workshop

- Scientific and operational aspects of choosing the best research organism to study a specific scientific question
- Keynote speaker: Alejandro Sánchez Alvarado, Ph.D. Stowers Institute for Medical Research
- Now available on videocast



The Research Organism Landscape:
Choosing the Best Organism for Your Scientific Question

When:
Thursday, September 12
9:00 a.m. to 4:45 p.m. ET

Where:
<https://videocast.nih.gov>

Photo: Schokraie E, Warnken U, Hotz-Wagenblatt A, Grohme MA, Hengherr S, et al. (2012)

Follow along and share your questions on Twitter using **#ResearchOrganisms** or via email at info@nigms.nih.gov



NIH National Institute of General Medical Sciences

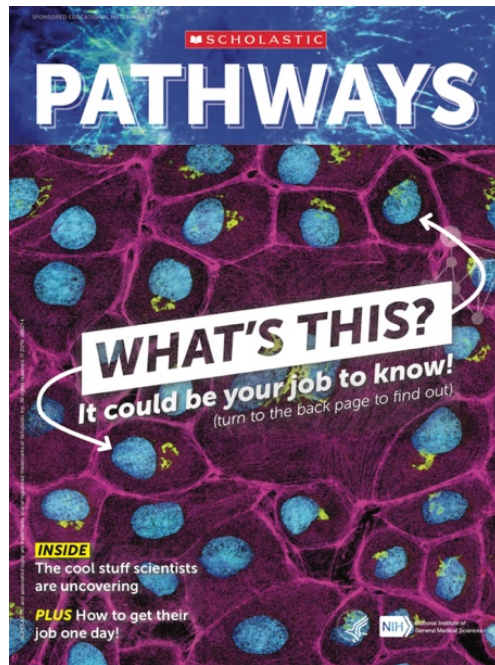
Upcoming Event: NIGMS Stetten Lecture

- Christina Dawn Smolke, Ph.D.
Department of Bioengineering
Stanford University
- “Scalable Platforms for Generating RNA
Sensors and Controllers”
- October 23, 2019
3:00-4:00 p.m. ET
Masur Auditorium, NIH Clinical Center
- Watch remotely (live or later): <https://videocast.nih.gov>



Pathways: NIGMS & Scholastic, Inc.

Inaugural issue launched in March 2019



- Reached an estimated 2.5 million middle and high school students (and 19,000 teachers) across all 50 states
- Student magazine in Scholastic's "Science World"
- Lesson plans for teachers that map to curricular standards
- Online activities and videos featuring NIGMS scientists and research

<http://www.scholastic.com/pathways>

Pathways: What teachers thought...

WHAT TEACHERS THOUGHT

266 teachers took our survey on the Pathways program.

88%

SAID THEY USED OR
planned to use the
Pathways materials.

79%

SAID THEY FOUND
the materials
extremely or very
useful.

97%

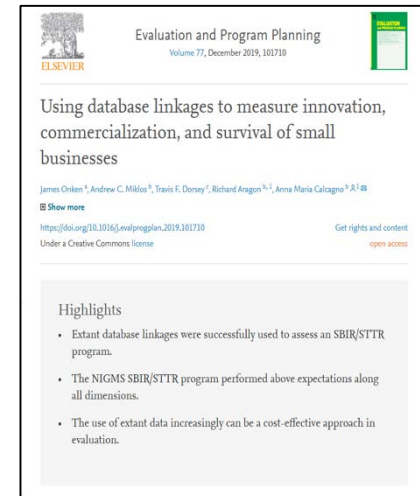
SAID THEY WOULD
like to receive more
programs like this in the
future.

Publications by OPAE Staff



Analyses of NIGMS SBIR/STTR Program Outcomes Published Online in *Evaluation and Program Planning*

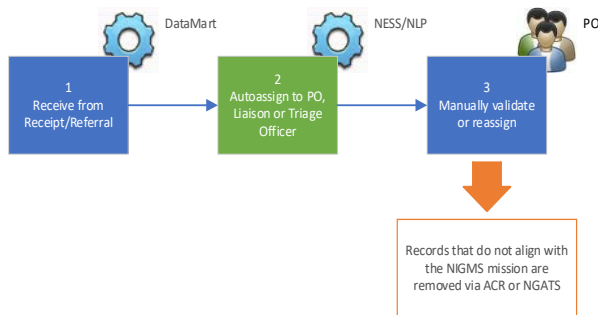
- Geographic distribution of NIGMS' SBIR/STTR funding and relationship to investment outcomes
 - Close proximity between major research universities and small businesses is a positive predictor of SBIR/STTR grant outcomes
- Linked NIGMS-funding records with USPTO data and business intelligence databases to explore innovation, commercialization, and survival for SBIR/STTR grantees
 - NIGMS SBIR/STTR program exceeded baseline expectations along all dimensions



Incorporating Natural Language Processing and Machine Learning into the NIGMS Grant Application Referral Process

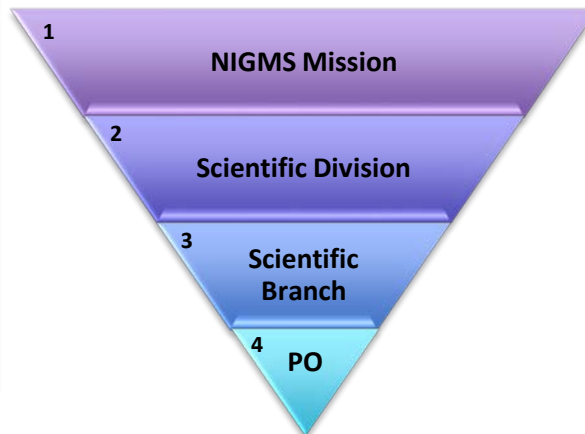
Process

- NLP/ML has been assigning new NIGMS grant applications since January 2019
- NLP/ML auto-assigns applications directly to the most appropriate Program Officer (PO)
- POs validated the assignments



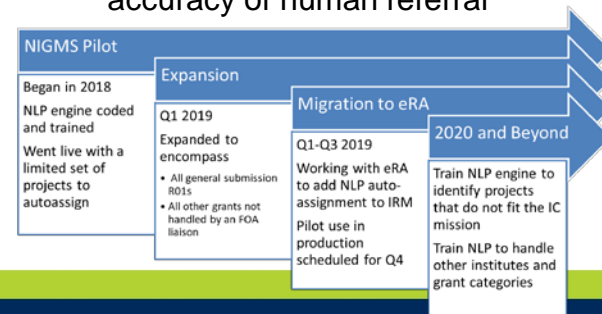
Method

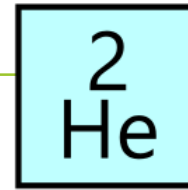
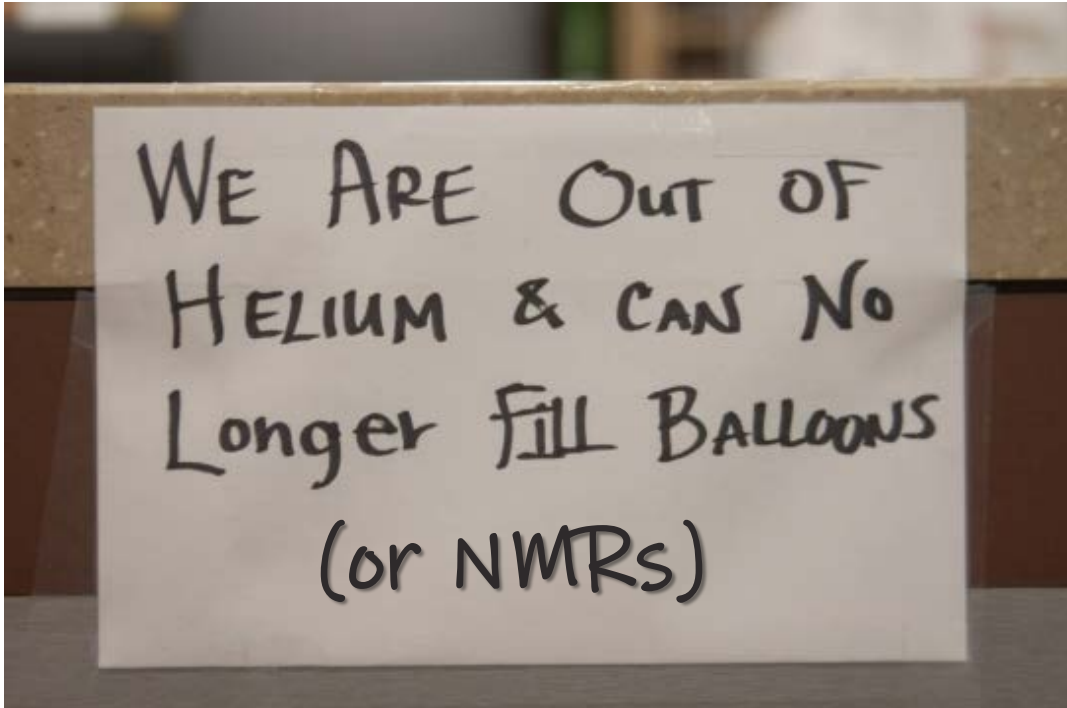
- Algorithm is written in “R”
- Uses non parametric training method
- Compares, ranks and assigns grants refining at multiple levels



Benefits

- Substantial time savings
 - ~20 person days/year
 - Experts free to focus on higher value work
- Additional objectivity and standardization
- Institutional referral knowledge retained after personnel changes
- High level of accuracy
 - 92% of applications referred to the correct scientific division
 - 84% of applications referred to the correct PO, matching accuracy of human referral





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3	Na	Mg											13	Al	14	Si	15	P	16	S	17	Cl	18	Ar																																																																												
4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
5	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og																												
6	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr																																				
7	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr																																								

Helium Demand Is Outpacing the Supply

- Helium is a byproduct of natural gas production
- Non-renewable resource because released He escapes into space
- Industrial demand is increasing (electronics, cryogenics for medical equipment)
- Availability is decreasing
 - Supply problems
 - U.S. law requires the Federal Helium Reserve to cease operation by 2021
- Research prices are rising and delivery schedules are becoming unpredictable

"I'm a small-quantity user. Since 2009, my colleagues and I have had our helium price increase by nearly 250 percent.¹"

"I have no buffer. I've skipped my summer salary so I can pay for helium.¹"

NIGMS Feedback Loop Blog – National Institute of General Medical Sciences

A catalyst for interaction with the scientific community

JULY 11, 2019

NIGMS Administrative Supplements for Helium Recovery Systems

BY DR. MICHELE MCGUIRL

We're offering administrative supplements to NIGMS-funded P20, P30, P41, R01, R35, R37, and RM1 awards for the purchase of helium recovery systems. The deadline for these supplement applications is **August 5, 2019**.

Note that:

- These funds are intended for the purchase of a single system with requested direct costs up to \$250,000.
- The requested supplemental budget cannot exceed the total-year direct cost amount of the parent award. Applications may not include requests for future-year funds.
- For these supplements, we request **one application from an NIGMS grantee on behalf of all active NIGMS-funded researchers at the same institution** whose projects make use of helium-cooled, magnetic resonance instrument(s) (i.e., NMR, EPR, MRI).
- The budget justification should include an equipment quote and a statement regarding the expenditure of currently available unobligated funds for the submitting principal investigator's (PI's) grant.
- Applicants should provide the following information:

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AUTHOR INFO



Dr. Michele McGuirl

Michele, a former associate professor of biochemistry, manages biophysics grants focused on protein folding mechanisms and kinetics; protein aggregation and other protein-protein interactions; phase separations; and the role of structural dynamics in protein function, folding, and allostery.

NIGMS Supplements for He Recovery Systems

- \$5.5 M for 22 new systems and upgrades to 4 extant systems
- Supports NMR, MRI, EPR, CD, Mössbauer, and Mass Spec instruments
- Each site benefits 3 - 10 GM-funded spectroscopists along with researchers funded by other NIH institutes and centers
- He recapture is ~90% efficient; will save more than 100,000 liters of liquid helium per year (~\$1.5 M at current average price of \$15/liter)

Established Investigator MIRA FOA Has Been Reissued

Department of Health and Human Services

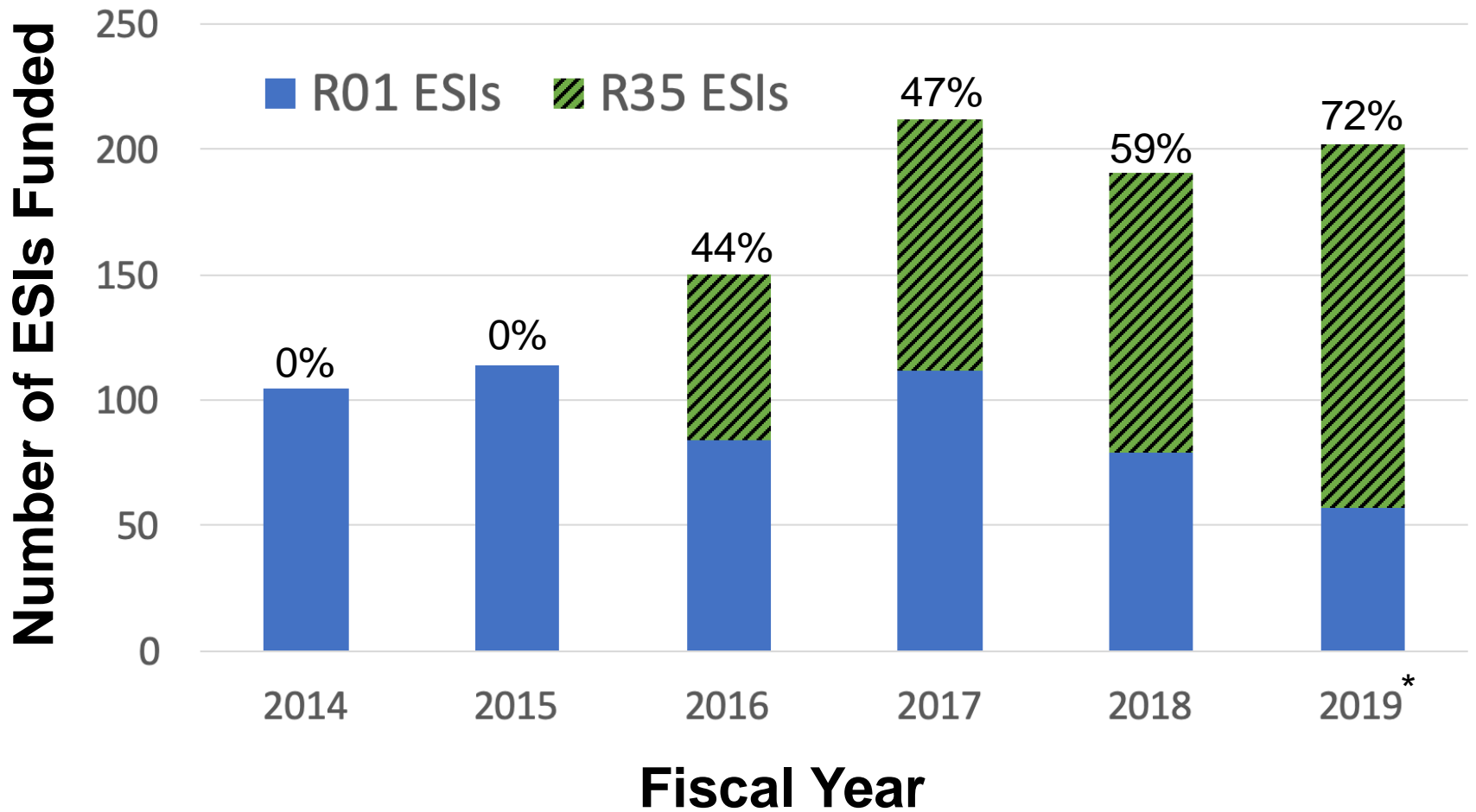
Part 1. Overview Information

Participating Organization(s)	National Institutes of Health (NIH)
Components of Participating Organizations	National Institute of General Medical Sciences (NIGMS)
Funding Opportunity Title	Maximizing Investigators' Research Award (R35 - Clinical Trial Optional)
Activity Code	R35 Outstanding Investigator Award
Announcement Type	Reissue of PAR-17-094
Related Notices	NOT-GM-19-006 NOT-OD-19-128 Changes to NIH Requirements Regarding Proposed Human Fetal Tissue Research NOT-OD-19-137 Clarifying Competing Application Instructions and Notice of Publication of Frequently Asked Questions (FAQs) Regarding Proposed Human Fetal Tissue Research
Funding Opportunity Announcement (FOA) Number	PAR-19-367
Companion Funding Opportunity	None
Number of Applications	See Section III. 3. Additional Information on Eligibility .
Catalog of Federal Domestic Assistance (CFDA) Number(s)	93.859
Funding Opportunity Purpose	<p>The Maximizing Investigators' Research Award (MIRA) provides support for the program of research in an investigator's laboratory that is within the mission of NIGMS. The goal of MIRA is to increase the efficiency and efficacy of NIGMS funding. It is anticipated that this program will:</p> <ul style="list-style-type: none">• Increase the stability of funding for NIGMS-supported investigators, which could enhance their ability to take on ambitious scientific projects and approach problems more creatively;• Increase flexibility for investigators to follow important new research directions within the NIGMS mission as opportunities arise, rather than being bound to specific aims proposed in advance of the studies;• More widely distribute funding among the nation's highly talented and promising investigators to increase overall scientific productivity and the chances for important breakthroughs;• Reduce the time spent by researchers writing and reviewing grant applications, allowing them to spend more time conducting research;• Enable investigators to devote more time and energy to mentoring trainees in a more stable research environment. <p>This FOA allows both new applications from eligible NIGMS-funded investigators and renewal applications from current established and early-stage MIRA grantees.</p>
Key Dates	
Posted Date	September 9, 2019
Open Date (Earliest Submission Date)	December 17, 2019
Letter of Intent Due Date(s)	Not Applicable
Application Due Date(s)	January 17, 2020; May 18, 2020; January 19, 2021; May 17, 2021; January 18, 2022, May 17, 2022

New Features:

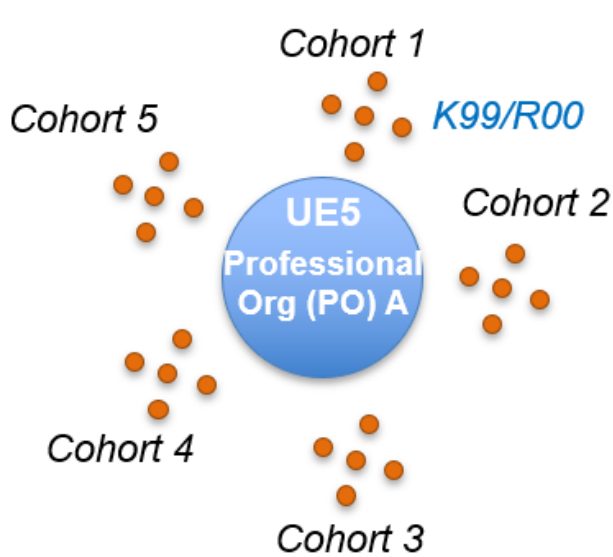
- Allows for renewals
- Expanded eligibility windows
- Detailed budget not required in application
- NIGMS DP1s and tR01s eligible to convert to MIRAs
- Applications from PIs who were ESIs last round will be clustered in review

The Majority of ESIs Funded by NIGMS Are Now Coming in through MIRA

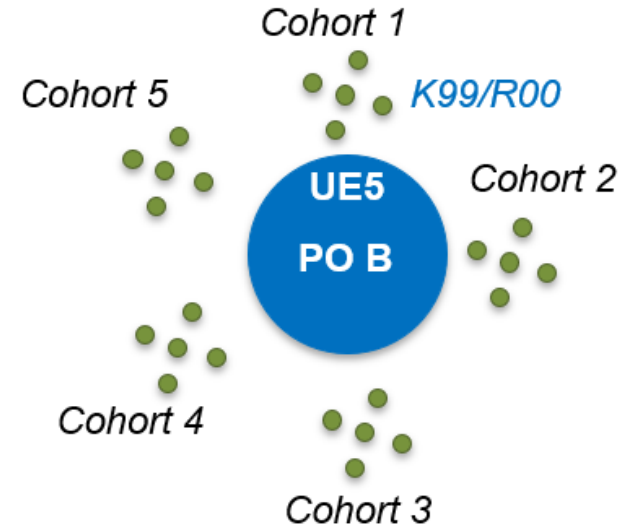


*Estimate

The Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Program Has Launched

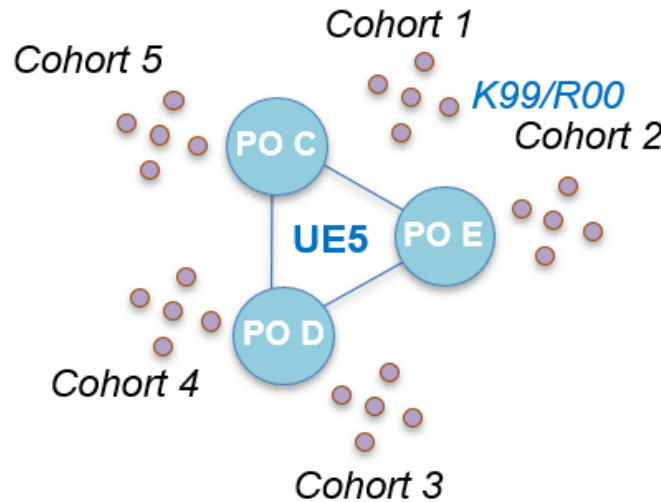


Promote successful transitions of postdocs from diverse backgrounds to independent faculty positions at research-intensive institutions



UE5s:

- Team building
- Professional skills
- Mentoring
- Network development
- Career development
- Institutional responsibility



K99/R00s:

- Funding
- Mentoring (PIs & POs)
- Near-peer mentoring (senior to junior cohorts)
- Independence

National and Regional Technology Resources

- Synchrotron beamlines: PAR-19-232 (P30)
- Common Fund Cryo-EM Centers: <https://commonfund.nih.gov/cryoem>
- New Common Fund Cryo-ET Resources: RFA-19-009, RFA-19-010 (close 11/12)
- NIGMS National and Regional Resources: PAR-19-301 (R24)
 - Large, national or regional (multi-state) user communities
 - Significantly expand access to technology
 - Create economies of scale
 - Focus on user service and efficiency of operation

Questions & Comments

