



Institutional Training Grant Summit Summary Report

June 6, 2022

Introduction

THE GOAL OF THIS EVENT was to engage Pitt's academic community and formulate the groundwork for a strategic approach to supporting the University's institutional training grant programs.

IT WAS ATTENDED BY 126 training grant directors, training faculty, grant administrators, and other faculty members, staff and academic leaders interested in fostering and supporting renewed growth in institutional training grant programs across funding agencies.

THE OBJECTIVES WERE TO:

- Highlight the impact of current NIH institutional training grant programs upon the University's research enterprise.
- Share training trends, changes in the current NIH funding landscape, and new opportunities at the NSF.
- Identify ways to leverage existing institutional resources and networks of support.
- Engage with other stakeholders to identify gaps in institutional support for training grant programs and propose solutions.

Planning Committee

Robert K. Cunningham, PhD
Amanda J. Godley, PhD
Jennifer E. Woodward, PhD

Paula K. Davis, MA
Shelome Gooden, PhD
Darlene F. Zellers, PhD

Mark W. Geraci, MD
Doris M. Rubio, PhD

Opening Remarks

Dr. Anantha Shekhar, Senior Vice Chancellor for the Health Sciences and John and Gertrude Petersen Dean, School of Medicine, shared that the National Research Service Award (NRSA) program has been NIH's primary means of supporting predoctoral and postdoctoral research training programs since enactment of the NRSA legislation in 1974. The goal of the federal funding is to help ensure that a diverse and highly trained workforce is available to meet the needs of the nation's biomedical, behavioral, and clinical research agenda.

As of 2021, the University has 60 Institutional NRSA Training Grant programs: 48 in School of Medicine, 5 in School of Public Health, 3 in Swanson School of Engineering, 2 in School of Nursing, 2 in Dietrich School of Arts & Sciences. Several training programs in the Departments of Psychiatry, Medicine, and Epidemiology have been continuously funded since the 1980's. Several of our training programs leverage partnerships with the Carnegie Mellon University (CMU). Most recently, an innovative collaboration between the Schools of Medicine, Arts & Sciences and CMU, resulted in

funding for an Interinstitutional Program in Cell and Molecular Biology: A Graduate Path to Promote Traditional and Non-Traditional Professional Outcomes. Pitt's institutional environment, facilities, and faculty have long been recognized for supporting exemplary pre- and postdoctoral training. He viewed the summit as an opportunity to identify how we as an institution can do even better to diversify the scientific workforce and provide world-class training to emerging scientists across the University.

Dr. Rob Rutenbar, Senior Vice Chancellor for Research, Professor of Computer Science in the School of Computing & Information and Professor of Electrical & Computer Engineering in the Swanson School of Engineering hoped that this Summit would bring a deeper understanding of how we can increase and broaden institutional training grant opportunities for more faculty across the campus. Funding opportunities exist not only through the NIH but also through the NSF, where each entity in their own ways can have a direct impact upon Pitt's research enterprise especially in their commitments to supporting pre- and postdoctoral training. He had the privilege of participating on an NSF review panel last year for the National Research Training (NRT) Program in Artificial Intelligence and learned first-hand how much work goes into doing these programs well, and how valuable these awards are to the home institutions.

He asked participants of the Summit to 1) think about how these grants can increase and broaden the learning experiences and career development opportunities for a greater diversity of students keeping in mind that these programs train the next generation of researchers who will be working with faculty on innovative research and scholarship, and 2) think about what faculty and staff need in order to make these programs feasible and most effective particularly for those outside the health sciences and who are new to these types of training grants. He emphasized that he and his team are committed to supporting these efforts but need input on how best to do so. Drs. Cunningham and Gooden were identified as the best connections within his office to share thoughts and questions. In closing, he emphasized that what makes Pitt great is our ability to work collaboratively, to leverage institutional resources, and stand ready to build new networks in support and in service to our mission, and he looked forward to the collective outcomes and recommendations of this Summit.

NIH Landscape and Trends

Dr. Mark Geraci, Associate Vice Chancellor for Interdisciplinary Research, Health Sciences, and Professor of Medicine, School of Medicine presented FY2021 national comparative data of the top 15 educational institutions receiving NIH T-activity code funding. Pitt is among the top 10 educational institutions where T-awards make up 2.78% of its overall NIH funding and 4.27% of the total T-award funds distributed by the NIH. As of FY22, Pitt's 61 awards are spread over 20 institutes; awards are concentrated in the NHLBI, NIGMS, NIMH, and NIAID. The University had a record high of 65 awards in 2014, and for the past 2 years, has generated over \$20 million in T-award funding which includes 184 predoctoral positions and 170 postdoctoral positions. See Attachment A: NIH Landscape and Trends PowerPoint slides.

Acknowledging the time demands placed upon the PIs of these training programs, in FY22, the Office of the Senior Vice Chancellor for the Health Sciences (SVCHS) committed to partnering with department chairs within the schools of the health sciences to provide a total of 10% PI salary support (introduced on a rolling basis 5% SVCHS/5% department). Faculty are advised to contact Dr. Geraci

early in the process of developing both new and renewal applications to discuss this new program. Faculty participating in the Summit were encouraged to join Dr. Geraci in the Breakout Working Group “Incentives and Support for Departments and Faculty Within the Health Sciences” to discuss this program as well as explore other new opportunities for senior administration to support training programs in the health sciences.

NSF Landscape and Trends

Dr. Robert Cunningham, Vice Chancellor for Research Infrastructure and Deputy Director of Special Initiatives and Dr. Shelome Gooden, Assistant Vice Chancellor for Research in the Humanities, Arts, Social Sciences and Related Fields, and Professor of Linguistics, in collaboration with **Dr. Amanda Godley, Vice Provost for Graduate Studies**, provided an overview of the NSF Research Traineeship (NRT) program that supports interdisciplinary, evidence-based traineeships providing students in research-based master’s and doctoral degree programs with the skills, knowledge, and competencies needed to pursue a range of STEM careers that are aligned with changing workforce and research needs. In a 2022 Pitt Research poll of associate deans for research and department chairs, most respondents were not very familiar with institutional training grants in general (NIH T32, NIH T34, NSF NRT, NSF REU) and a majority reported not being aware of the NSF NRT program at all. Although the focus of the presentation was on NRT programs, the university is also interested in increasing awareness of the NSF Research Experiences for Undergraduates (REU) program and creating a pathway to support student researchers across their academic stages.

The core architecture of an NRT program includes an innovative and sustainable training model, advancing interdisciplinary or convergent research, and driving institutional change and workforce development. Research themes include quantum information science and engineering, artificial intelligence, harnessing the data revolution, astrophysics, among others. The primary NSF review criteria are the intellectual merit of the research, training, and evaluation, and the impact of the training. NRT-specific criteria include the interdisciplinary and convergent nature of the research; the innovative integration of the research, training, and evaluation; and fostering professional development and diversity. Due to the intricacies and complexity of institutional training grant applications, the suggested minimum timeline for preparing an NRT application is six-months. A detailed timeline, from the conceptualizing of the training program to the final review and submission of the application, was provided which highlighted the importance of early planning and preparation. See Attachment B: NSF Landscape and Funding Trends PowerPoint slides.

The presenters encouraged participants to attend the NSF Division of Biological Infrastructure Virtual Office Hour dedicated to training programs on June 21, 2022, 3pm-4pm EST: https://www.nsf.gov/events/event_summ.jsp?cntn_id=305011&org=NSF Additionally, faculty participating in the Summit were encouraged to join Drs. Cunningham and Gooden in the Breakout Working Group “Incentives and Support for Departments and Faculty Outside the Health Sciences” to discuss this program as well as explore other new opportunities for senior administration to support training programs in schools outside of the health sciences.

Working Group Reports

Participants could select one of six breakout rooms focusing upon issues particular to institutional training grants

Group #1 Cross-Institutional Collaborations

Facilitators: Jeffrey L. Brodsky, PhD
David A. Vorp, PhD

Best practices for faculty considering an institutional training grant program include:

- Check NIH RePORTER or other search engines to identify other similar programs. You do not want to overlap with an existing program
- Check your own institutional or potential partner institution for overlapping programs
- Check the depth and breadth of faculty expertise at your own institution
- Seek outside partners for complementary strengths without duplication. These programs benefit from capitalizing on the unique strengths of each unit
- Multidisciplinary and inter-institutional programs should employ a multiple PI (MPI) leadership model which distributes responsibilities for preparing the grant application and managing the program over multiple faculty members to which reviewers respond very favorably.
- Two exemplars of 3-way partnerships that utilize the T32 MPI model and leverage diverse strengths between institutions and between schools at Pitt:
 - Biomechanics in Regenerative Medicine has been successfully funded for 16 years and is a partnership with PIs in the Swanson School of Engineering and CMU, with key training faculty from the School of Medicine.
 - Interinstitutional Program in Cell and Molecular Biology: A Graduate Training Path to Promote Traditional and Non-Traditional Professional Outcomes is a recent partnership between Pitt's Schools of Medicine, Arts & Sciences, and CMU

How can Pitt foster more cross-institutional collaboration on institutional training grant programs?

- Develop a new parallel website or expand existing repository for previously successful proposals that exist in the School of Medicine (“Application Repository to Help University Researchers (ARTHUR); <https://www.oorhs.pitt.edu/application-assistance/arthur>”) and the Swanson School of Engineering ([see link here](#)) to include sample inter-institutional T32 applications
- Our institution needs to communicate better with schools outside the health sciences regarding their eligibility and competitiveness for NIH training grants.
- Faculty effort of T32 PIs at Pitt should be supported equally across all schools not just PIs in the health sciences

Group #2 Incentives and Support for Departments and Faculty within the Health Sciences

Facilitators: Mark W. Geraci, MD
Darlene F. Zellers, PhD

What incentives would increase departmental and faculty interest in institutional training grant programs?

- The SVCHS new commitment to partnering with departments to split 10% PI faculty effort has been a significant step in incentivizing faculty to develop new applications and support the

continuing efforts of current PIs of training grants. Policy being implemented on a rolling basis at time of grant application or renewal.

What supports do departments and faculty need to propose and successfully administer institutional training grants?

- A subgroup was recommended to specifically address how to provide more centralized support to compiling training table data. Tables referenced:
 - Table 1: faculty with trainees per department
 - Table 3: list of institutional T32s and overlapping faculty
 - Table 6AB: Applicants, Entrants, and Their Characteristics for the Past Five Years
 - Training and assistance with xTrain system (NIH trainee appointment processes)
 - Training and assistance with xTRACT system (NIH process for submitting applications, training tables, and progress reports)
 - Post-award guidance tracking trainees
 - Standard criteria for trainee provided publication data
 - Best practices for post award data entry for progress reports and applications
 - A standardized approach to trainee evaluations
 - Leverage institutional resources, e.g., CTSI or forms in use by other programs
 - A template for collecting faculty and trainee diversity data
 - Rigor and RCR training – provide central education in these domains which are required on all T32s. CTSI RCR Center may also have models.
 - Better understanding and approach to diversity and better enumeration of institutional efforts in this regard.
 - Institutional assistance recruiting postdocs eligible for training grants
 - Establish a pool of experienced training grant directors available to provide feedback on applications
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Group #3 Incentives and Support for Departments and Faculty outside the Health Sciences

Facilitators: Robert K. Cunningham, PhD
Amanda J. Godley, PhD
Shelome Gooden, PhD

What incentives would increase departmental and faculty interest in institutional training grant programs?

- The PI support provided in the health sciences where departments and central administration partner to share 10% PI faculty effort should be available university-wide (5% provided centrally if department/school will match with 5%). The 10% faculty effort can be shared among more faculty mentors with approval of the PI and school/dept.
- Pitt's decentralized organizational structure makes it difficult to find the correct resource or assistance, even by experienced staff
 - A centralized website that directs faculty or staff to information or resource that would streamline access to existing institutional support.
 - A resource flow chart connecting teams to needed support would also benefit other large collaborative grant efforts, e.g., NIH research Program Project grants (P series).
 - Library of successful training grant proposals.

- Removing barriers where early career faculty are discouraged from undertaking training grants when they often have the most relevant strengths
 - Include training grants when considering faculty promotion and tenure decisions.
 - Allowing for faculty effort incentives to be distributed among more than one faculty member may help.
 - School-based and peer support for writing training grants.
- A top-down approach would help: Provost Office could impress upon deans and chairs the financial benefits of training grant programs
 - New budget model may allow the financial benefits of training grants to be more transparent to departments by providing GSR support.

What supports do departments and faculty need to propose and successfully administer institutional training grants?

- NIH training grant applications and progress reports are administratively labor-intensive. There is a need for administrative and project management assistance on both a pre- and post-award basis.
 - A determination will need to be made relative to what support could or should be available on a department, school, or institutional level.
 - Faculty do not have the bandwidth to manage these awards and their administrative efforts are not recognized relative to faculty promotion and advancement.
- Templates should be available for standard components of grant applications
- Engineering staff have benchmarked peer institutions who provide more centralized support, and these models should be reviewed by Pitt senior administration

Group #4 Recruiting Top Talent and Increasing Diversity

Facilitator: Paula K. Davis, MA

What roadblocks impede Pitt's capacity to recruit top talent for its institutional training grant programs?

- Pittsburgh can be a hard sell; poor reputation of quality of living for people of color.
- Retention – Micro and other aggressions and structural racism feed a “back door” problem.
- Lack of clarity on what Black, Indigenous, (and) People of Color (BIPOC) prospects need and particularly how to help them.
- Lack of presence of faculty and others with disabilities (invisibility)
- Early exposure to research is critical.
- Lack of institutional investment of resources to support outreach.
- Lack of understanding that pipeline/pathway programs are a long game of relationship building and tending.

How can Pitt foster a community conducive to attracting diverse talent to its institutional training grant programs?

- Build long term relationships with Historically Black Colleges and Universities (HBCU) and Hispanic Serving Institutions (HSI)
- Campus and PIs can/should work together to recruit, including efforts to foster community among grad/professional students and postdoctoral trainees.
- Recruit trainees from other training grants
- Recruit diverse senior faculty. Trainees gravitate to role models.

- Junior faculty are being taxed for mentorship when they should be building careers; this practice should be avoided.
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Group #5 Training and Supporting Physician-Scientists

Facilitators: Richard Steinman, MD, PhD
Caterina Rosano, MD, MPH

What challenges do training programs face in preparing trainees for durable and successful careers as physician scientists?

- It is important first to consider what trainees see as the greatest challenge to becoming physician scientists. Steinman's survey of ~150 residents and fellows planning academic careers identified the following perceived barriers:
 - Balancing clinical and research responsibilities
 - Mastering needed range of expertise
 - Balancing personal and professional responsibilities
 - Finding a research niche
 - Obtaining funding
- That said, most expected to be evaluated by superiors equally for clinical and research performance and sustained an ideal view of their identity as encompassing clinical and research roles equally.
- The group discussed other challenges in facilitating durable careers for trainees as physician scientists including:
 - gender related differences in confidence levels in skills needed to navigate academic milestones
 - gender disparities in achievement of R grant funding.
 - Job Security: the transition from the training stage to the "real world" is harder than initially anticipated.
 - challenges in navigating the complexities of the research/clinical programs: this is one of the main causes of dropping out (not b/c of less talent/less skills).
- Training programs need to be aware of trainee needs beyond foundational knowledge and technical skills and to integrate steps to address these.
- Activities within the Medical Scientist Training program (MSTP) and the BWF Physician Scientists Incubator (BWF) programs that bolster sustained trajectories in academia were discussed and included:
 - Executive coaching (focused on resiliency, strategic planning, self-promotion, time management, etc.
 - Time management support (a concierge program in the BWF)
 - Community building and structures to develop near peer support and advice
 - Use of mentor maps and strategic mentor selection
- The consensus of the group was that incorporation into the training portfolio of such elements could be just as useful as the traditional repertoire of teaching grant writing, hypothesis generation, experimental design, statistics, etc.
- Challenges faced by programs included time to build curriculum and reinventing the wheel

How can Pitt enhance or improve the training environment for physician scientists within its institutional training grant programs?

- There was strong interest in the concierge support offered by the BWF program and its provision of technicians when trainees transition from research-intensive to clinical-intensive years.

- Can this type of concierge be offered during the fellowship? Extend it to other career stages?
 - Can lab/technical support be offered to trainees?
 - Support/advise physician scientists at multiple stages of their training including:
 - Cost-benefit analysis (professional mentors)
 - Life-work balance (hiring sitters, etc.)
 - Promote equity and support, the weight of balancing research and clinical work is still higher on women compared to men.
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Group #6 NIH Grant Application Administrative Support

Facilitators: Tammy L. Dennis COM
Aniko Nalevanko

What are current challenges for institutional training grant administrators?

- No common repository for training grant resources
- Decentralized student and postdoc data
- Lack of training for new training grant administrators, i.e., NIH xTrain, xTRACT
- Isolation of staff responsible for training grants

What support can Pitt provide centrally to help institutional training grant administrators?

- Host quarterly informational support group meetings for administrative staff
- Share templates for collecting training grant application information
- Develop a guide for new administrators
- Build a centralized repository of common resources

Recommendations

1. Establish an Institutional Training Grant Advisory Committee

A standing Institutional Training Grant Advisory Committee, dually reporting to Senior Vice Chancellors Shekhar and Rutenbar, would harness the synergy generated during this inaugural summit and thereby sustain this momentum. The Office of Academic Career Development, Health Sciences, could administratively facilitate this committee. The summit planning committee members could initially serve in this capacity. Their charge would be to

- 1) propose a sustainable advisory committee model with subcommittees so that working subgroups could continue to explore and/or implement recommendations generated during the summit,
- 2) one subcommittee should be focused exclusively upon improving access to institutional data for NIH training tables, and
- 3) to convene the annual university-wide summit.

The facilitators from two working groups have already begun to meet and develop action plans:

- Group #3 Incentives and Support for Departments and Faculty outside the Health Sciences
- Group #6 NIH Grant Application Administrative Support

2. Design an Institutional Training Grant Website

Our university does have existing resources to support training grants. However, the complicated nature of NIH training grant applications and our institution's vast organizational structure makes it difficult for faculty or staff administrators to locate these resources. Additional idiosyncrasies (i.e., health sciences versus not health sciences, and NIH versus NSF) make it difficult to know which office to contact for assistance developing grant applications. See Attachment C: List of Institutional Training Grant Resources referenced during the summit.

There is a university-wide [NIH Training Grant Directory](#) website managed by the Office of Academic Career Development, Health Sciences. The public-facing landing page is designed to promote our training programs and recruit trainees; the "back door" serves as a secure-access repository for training grant data collection. There is a need for a website which houses general information about NIH and NSF programs, that can direct our academic community to internal resources, and that can serve as a central clearinghouse of institutional training grant resources. This site should be housed and maintained through the Office of the Senior Vice Chancellor for Research.

3. Provide training for NIH program administrators

The Office of Academic Career Development, Health Sciences, currently maintains a training grant email distribution list to distribute information relevant to training grant programs. It will expand its efforts to create a sense of community within training grant programs by conducting quarterly peer support group meetings of staff program administrators. A consultant will be retained by the OACD to develop training modules and create a guidebook in the form of a FAQ website. A recently retired, highly experienced training grant administrator is interested in this project.

4. Assist with diverse postdoc recruitment

The Office of Academic Career Development, Health Sciences, recently redesigned its Postdoc Jobs website to accommodate university-wide postdoc listings: <https://postdocjobs.pitt.edu>. This site is a recruitment tool, and as part of the OACD's institutional diversity recruitment plan for our T32 programs, it is subscribing to a commercial service to automatically integrate listings from our website within national sites targeting candidates underrepresented in the sciences:

- <https://www.postdocjobs.com>
- <https://www.universityjobs.com>
- <https://sciencejobs.org>
- <https://biojobs.com>
- <https://academicwomen.com>
- <https://diversitywork.com>

5. Create equity for PIs across NIH institutional training grant programs

All NIH institutional training grant programs should receive a minimum of 10% faculty support for their PI's leadership efforts (co-PIs support would be distributed to not exceed the standard for one PI). Within the schools of the health sciences, departments/schools have partnered with the Office of the Senior Vice Chancellor for the Health Sciences to share a total of 10% faculty support across (co)PIs. For budgetary planning purposes, this model has been implemented on a rolling basis when a new program is proposed, or a continuing program is renewed. A similar arrangement should be explored for schools outside of the health sciences so that departments/schools can partner with either the Office of the Provost or the Office of the Senior Vice Chancellor for Research to provide a minimum of 10% faculty support for PIs.

Conclusion

The university is among the top ten educational institutions receiving NIH training grants and it has the potential to advance in its standing among these elite institutions. NSF institutional training grants provide additional untapped opportunities for our university to enhance its training environment and support its vast research enterprise. A significant advantage of our institution at this time is that it can leverage physical, financial, and human resources from four senior-level offices that are each invested in the development and sustainability of institutional training grant programs:

- Office of Academic Career Development, Health Sciences
- Office of the Provost Graduate Studies
- Office of the Senior Vice Chancellor for Research
- Office of the Senior Vice Chancellor for the Health Sciences

Each office contributes unique experiences, expertise, and resources to this endeavor. As we take the next steps in our quest to enhance Pitt's institutional infrastructure supporting our university's training grant community, we will continue to look for opportunities to add value. Each subsequent summit will provide the opportunity for these offices to report back to our training grant community on our collective progress growing and supporting institutional training grant programs.

Overview of NIH Landscape and Trends

Mark W. Geraci, MD

**Associate Vice Chancellor for Interdisciplinary Research,
Health Sciences**

Interim Chair, Department of Medicine

Professor of Medicine

Overall Goals of the Training Grant Summit

- **OBJECTIVES**

- Highlight the impact of current NIH institutional training grant programs upon the University's research enterprise.
- Share training trends, changes in the current NIH funding landscape, and new opportunities at the NSF.
- Identify ways to leverage existing institutional resources and networks of support.
- Engage with other stakeholders to identify gaps in institutional support for training grant programs and propose solutions.

FFY2021 Final NIH Research Awards Data

Table 10.8 - Summary of Top 15 Educational Institutions T Activity Code Group

Percentage of Total Award Dollars and Award Count vs. Total Institution Funding

Institution	Award Dollars	T Awards (\$)	% T (\$)	Award Count	T Awards (#)	% T (#)
JOHNS HOPKINS UNIVERSITY	\$822,420,483	\$29,059,482	3.53%	1,477	63	4.27%
NEW YORK UNIVERSITY SCHOOL OF MEDICINE	\$809,959,181	\$5,810,181	0.72%	564	16	2.84%
DUKE UNIVERSITY	\$730,896,154	\$10,391,951	1.42%	926	27	2.92%
UNIVERSITY OF CALIFORNIA SAN FRANCISCO	\$706,083,891	\$21,724,838	3.08%	1,486	54	3.63%
UNIVERSITY OF PENNSYLVANIA	\$641,845,101	\$28,025,122	4.37%	1,308	67	5.12%
WASHINGTON UNIVERSITY	\$622,273,314	\$18,339,651	2.95%	1,092	40	3.66%
STANFORD UNIVERSITY	\$611,331,038	\$14,794,456	2.42%	1,185	38	3.21%
UNIVERSITY OF MICHIGAN	\$608,462,976	\$21,297,184	3.50%	1,305	56	4.29%
UNIVERSITY OF CALIFORNIA LOS ANGELES	\$608,406,829	\$14,189,063	2.33%	952	38	3.99%
UNIVERSITY OF PITTSBURGH	\$596,687,055	\$16,590,315	2.78%	1,194	51	4.27%
COLUMBIA UNIVERSITY	\$579,961,026	\$17,114,260	2.95%	1,046	49	4.68%
YALE UNIVERSITY	\$557,371,572	\$18,562,800	3.33%	1,099	49	4.46%
UNIVERSITY OF CALIFORNIA SAN DIEGO	\$549,204,951	\$15,784,311	2.87%	1,068	46	4.31%
UNIVERSITY OF WASHINGTON	\$542,764,496	\$21,456,674	3.95%	1,038	51	4.91%
UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	\$498,588,382	\$19,227,306	3.86%	1,030	58	5.63%
Average	\$632,417,097	\$18,157,840	2.94%	1,118	47	4.15%

NIH Reference Data

Activity Code Group as Percentage of Total Funding

	Award Dollars	T Awards (\$)	% T (\$)	Award Count	T Awards (#)	% T (#)
NIH Total Awards by Activity Code Group	\$36,236,452,875	\$722,064,997	1.99%	63,666	2,064	3.24%

FFY2021 Final NIH Research Awards Data
Table 10.9 - Summary of Top 15 Educational Institutions F Activity Code Group
Percentage of Total Award Dollars and Award Count vs. Total Institution Funding

Institution	Award Dollars	F Awards (\$)	% F (\$)	Award Count	F Awards (#)	% F (#)
JOHNS HOPKINS UNIVERSITY	\$822,420,483	\$4,873,661	0.59%	1,477	104	7.04%
NEW YORK UNIVERSITY SCHOOL OF MEDICINE	\$809,959,181	\$1,677,514	0.21%	564	36	6.38%
DUKE UNIVERSITY	\$730,896,154	\$3,988,580	0.55%	926	88	9.50%
UNIVERSITY OF CALIFORNIA SAN FRANCISCO	\$706,083,891	\$7,264,327	1.03%	1,486	147	9.89%
UNIVERSITY OF PENNSYLVANIA	\$641,845,101	\$7,260,458	1.13%	1,308	158	12.08%
WASHINGTON UNIVERSITY	\$622,273,314	\$2,980,331	0.48%	1,092	72	6.59%
STANFORD UNIVERSITY	\$611,331,038	\$4,878,303	0.80%	1,185	94	7.93%
UNIVERSITY OF MICHIGAN	\$608,462,976	\$5,579,243	0.92%	1,305	130	9.96%
UNIVERSITY OF CALIFORNIA LOS ANGELES	\$608,406,829	\$2,982,726	0.49%	952	65	6.83%
UNIVERSITY OF PITTSBURGH	\$596,687,055	\$3,956,963	0.66%	1,194	82	6.87%
COLUMBIA UNIVERSITY	\$579,961,026	\$3,855,770	0.66%	1,046	84	8.03%
YALE UNIVERSITY	\$557,371,572	\$4,233,762	0.76%	1,099	98	8.92%
UNIVERSITY OF CALIFORNIA SAN DIEGO	\$549,204,951	\$2,939,464	0.54%	1,068	66	6.18%
UNIVERSITY OF WASHINGTON	\$542,764,496	\$4,397,840	0.81%	1,038	90	8.67%
UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	\$498,588,382	\$4,414,635	0.89%	1,030	105	10.19%
Average	\$632,417,097	\$4,352,238	0.70%	1,118	95	8.34%

NIH Reference Data
Activity Code Group as Percentage of Total Funding

	Award Dollars	F Awards (\$)	% F (\$)	Award Count	F Awards (#)	% F (#)
NIH Total Awards by Activity Code Group	\$36,236,452,875	\$198,478,907	0.55%	63,666	4,382	6.88%

FFY2021 Final NIH Research Awards Data

Table 10.6 - Summary of Top 15 Educational Institutions K Activity Code Group
Percentage of Total Award Dollars and Award Count vs. Total Institution Funding

Institution	Award Dollars	K Awards (\$)	% K (\$)	Award Count	K Awards (#)	% K (#)
JOHNS HOPKINS UNIVERSITY	\$822,420,483	\$36,539,542	4.44%	1,477	199	13.47%
NEW YORK UNIVERSITY SCHOOL OF MEDICINE	\$809,959,181	\$6,831,911	0.84%	564	40	7.09%
DUKE UNIVERSITY	\$730,896,154	\$14,635,906	2.00%	926	80	8.64%
UNIVERSITY OF CALIFORNIA SAN FRANCISCO	\$706,083,891	\$45,354,000	6.42%	1,486	244	16.42%
UNIVERSITY OF PENNSYLVANIA	\$641,845,101	\$25,934,871	4.04%	1,308	150	11.47%
WASHINGTON UNIVERSITY	\$622,273,314	\$19,891,750	3.20%	1,092	112	10.26%
STANFORD UNIVERSITY	\$611,331,038	\$24,632,937	4.03%	1,185	146	12.32%
UNIVERSITY OF MICHIGAN	\$608,462,976	\$23,930,516	3.93%	1,305	135	10.34%
UNIVERSITY OF CALIFORNIA LOS ANGELES	\$608,406,829	\$15,184,560	2.50%	952	88	9.24%
UNIVERSITY OF PITTSBURGH	\$596,687,055	\$18,868,458	3.16%	1,194	115	9.63%
COLUMBIA UNIVERSITY	\$579,961,026	\$18,042,491	3.11%	1,046	110	10.52%
YALE UNIVERSITY	\$557,371,572	\$21,880,559	3.93%	1,099	118	10.74%
UNIVERSITY OF CALIFORNIA SAN DIEGO	\$549,204,951	\$17,563,716	3.20%	1,068	80	7.49%
UNIVERSITY OF WASHINGTON	\$542,764,496	\$16,492,488	3.04%	1,038	95	9.15%
UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	\$498,588,382	\$16,447,227	3.30%	1,030	83	8.06%
Average	\$632,417,097	\$21,482,062	3.41%	1,118	120	10.32%

NIH Reference Data

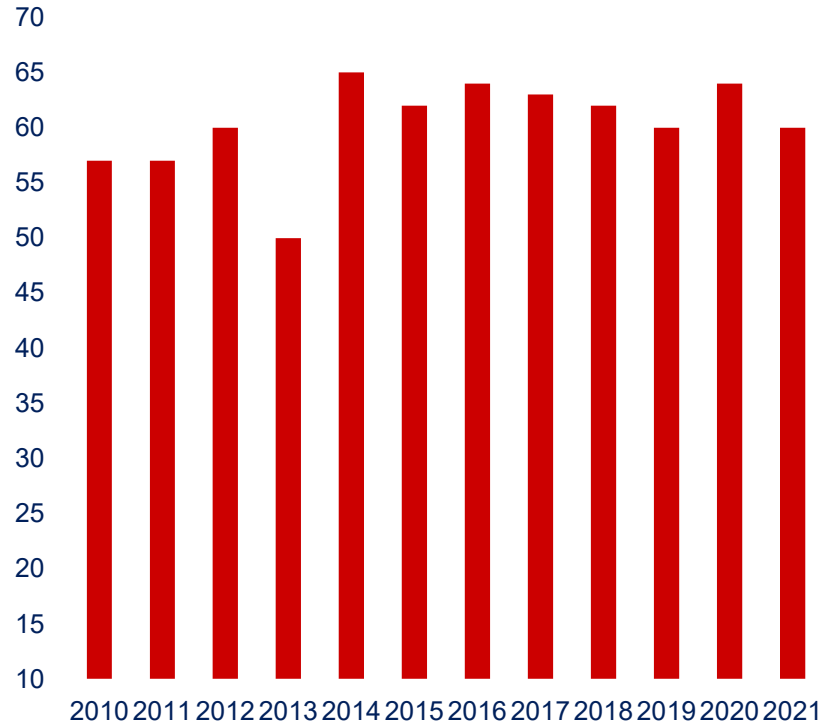
Activity Code Group as Percentage of Total Funding

	Award Dollars	K Awards (\$)	% K (\$)	Award Count	K Awards (#)	% K (#)
NIH Total Awards by Activity Code Group	\$36,236,452,875	\$893,594,612	2.47%	63,666	5,120	8.04%

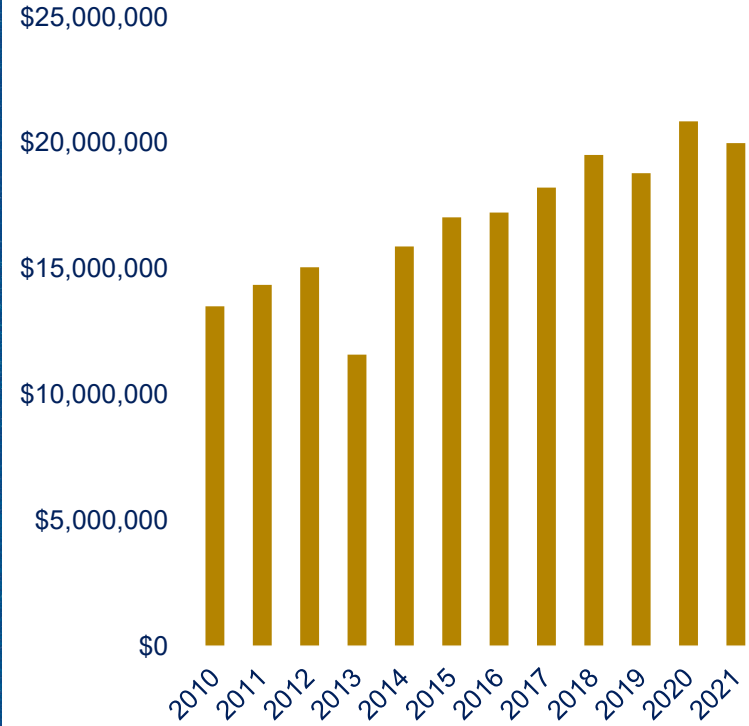
Institute	# of T Awards
NHLBI	14
NIGMS	7
NIMH	6
NAID	5
NCI	4
NIDDK	4
NAI	3
NICHHD	3
NINDS	3
NIBIB	2
HRSA	1

Institute	# of T Awards
NCATS	1
NEI	1
NHGRI	1
NIAAA	1
NIDA	1
NIDCD	1
NINR	1
NIRR	1
NLM	1
Total	61

Number of T Awards



Total Dollars of T Awards



Summary

- Overall we are doing well!
- Currently 184 pre-doctoral positions and 170 post-doctoral positions supported
- T32 leadership and grant / reporting requirements are extremely difficult
- We want to help the TG community and ask for your input
- Reminder: 12 months ago we started a new program of support for PIs: OSVC and Department Chairs partner to provide 10% salary support for new or renewed T32s.

Facilitated Working Groups

1. Cross Institutional NIH Collaborations
2. Incentives and Support for Departments and Faculty within the Health Sciences
3. Incentives and Support for Departments and Faculty outside the Health Sciences
4. Recruiting Top Talent and Increasing Diversity
5. Training and Supporting Physician-Scientists
6. NIH Grant Application Administrative Support

Questions?



**IF YOU ASK ME
ANYTHING I DON'T
KNOW, I'M NOT
GOING TO ANSWER.**

Yogi Berra

PICTUREQUOTES.COM



NSF Training Grant Opportunities

6 June 2022

Shelome Gooden, Amanda Godley,
Rob Cunningham

Pitt **Research**



What are Institutional Training Grants?



NRT

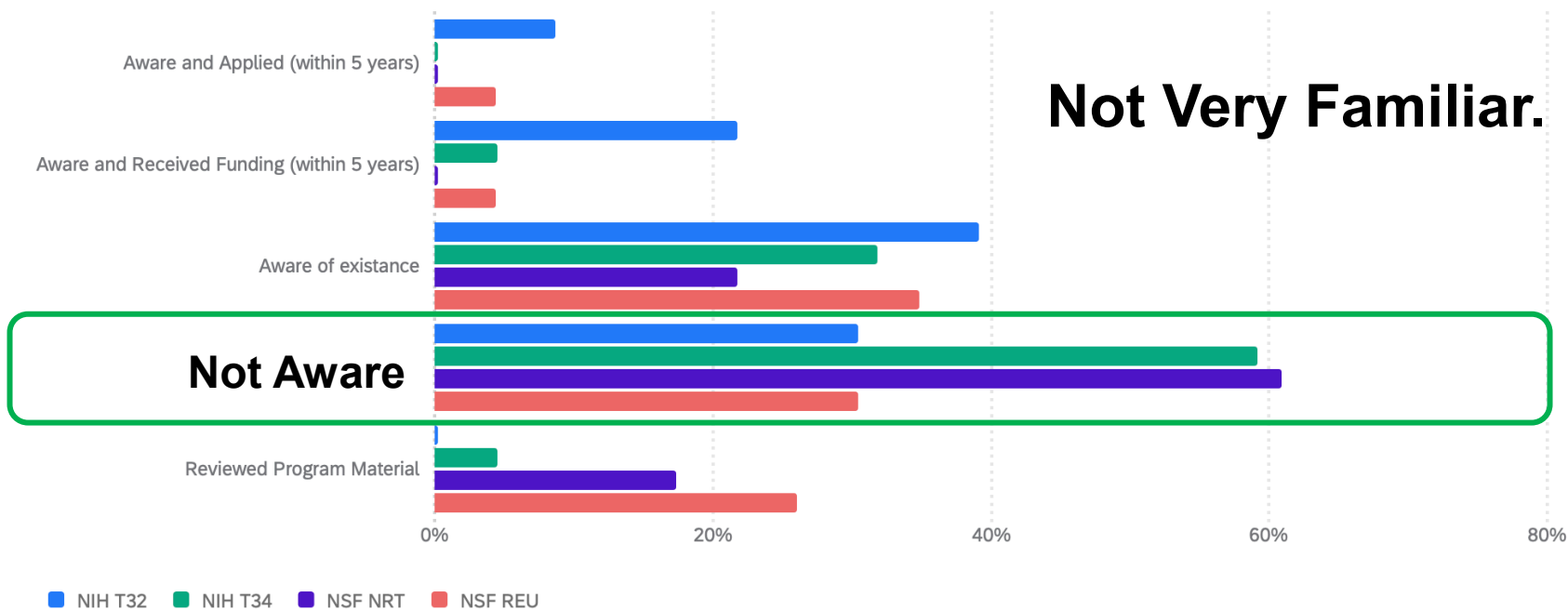
Supports **interdisciplinary, evidence-based traineeships** that advance ways for graduate students in research-based master's and doctoral degree programs to pursue a range of STEM careers.

Synopsis

The NSF Research Traineeship (NRT) program seeks proposals that explore ways for graduate students in research-based master's and doctoral degree programs to develop the skills, knowledge, and competencies needed to pursue a range of STEM careers. The program is dedicated to effective training of STEM graduate students in high priority interdisciplinary or convergent research areas, through a comprehensive traineeship model that is innovative, evidence-based, and aligned with **changing workforce and research needs**. Proposals are requested that address any interdisciplinary or convergent research theme of national priority, as noted above.



How Familiar is Pitt with Institutional Training Grants?





Training Grant Landscape

Institutional	Research Traineeship (NRT) Research Experiences for Undergraduate (REU) Sites	T32 PhD National Research Service Award (NRSA) T34 Undergraduate (NRSA) T35 Short-term/summer NRSA T90 Training with Research/R90 D43 + D71 International
	CAREER / PECASE REU Supplements	F05/30/31... Individual fellowships K01/02/... Career development
Individual	National Science Foundation (NSF)	National Institutes of Health (NIH)

Outline

- What are Training Grants?
- ➔ Institutional Training Grant Benefits
 - Planning: Topics, Architecture, Timeline
 - Why Propose?
 - What support would you want?



Benefits of NSF Institutional Training Grants

Research Experiences for Undergraduates (REU) Site

- 3-5 years, \$80K-\$130K per year
- Often summer programs
- Minimum ~10 students

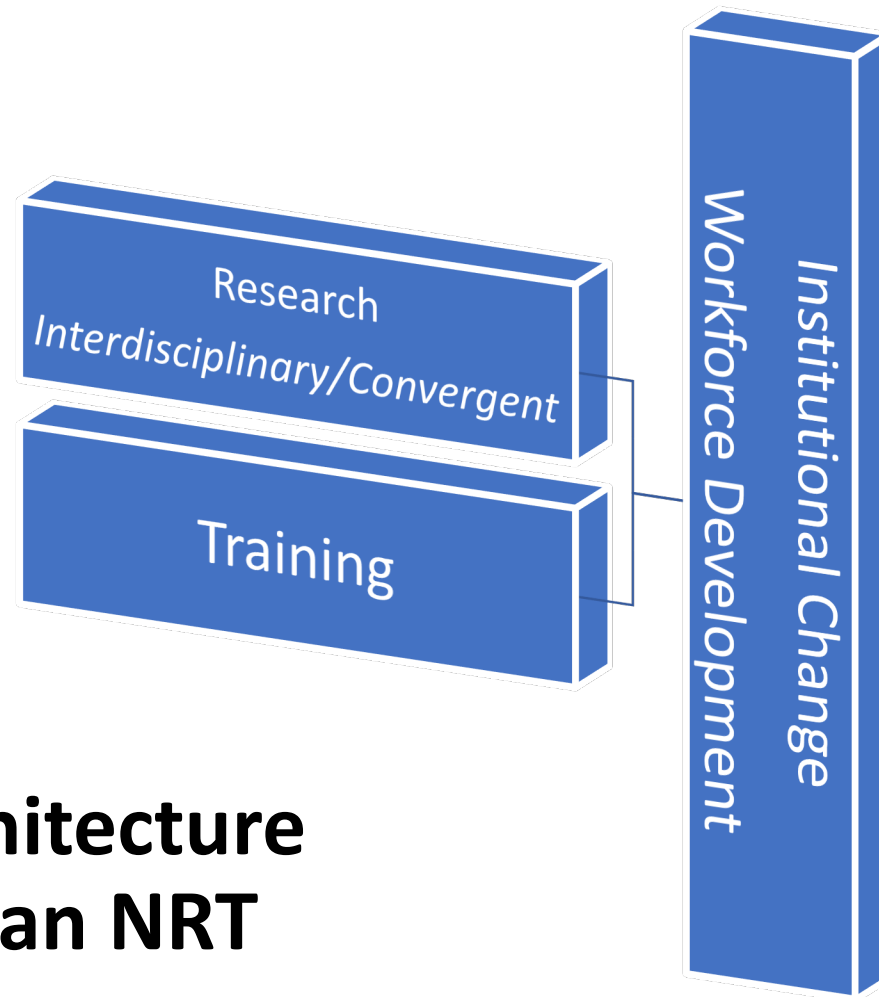
NSF Research Traineeship (NRT)

- 5 years, \$3M total
- MS, PhD students
- Interdisciplinary/convergent research and training

Builds a pipeline of great students, broadens and deepens our research, and expands others' awareness of Pitt

EHR

DIRECTORATE FOR
EDUCATION & HUMAN RESOURCES



Architecture of an NRT

NRT Program

- Goals

- “...advance interdisciplinary or convergent research...”
- “increase capacity” (must be sustainable)
- “Develop innovative approaches” (with path to institutionalize)

- Research Themes

- Quantum Information Science and Engineering
- Artificial Intelligence
- Harnessing the Data Revolution
- Future of work
- Windows on the Universe (Astrophysics)
- Quantum Leap
- Understanding the Rules of Life



From “10 Big Ideas”

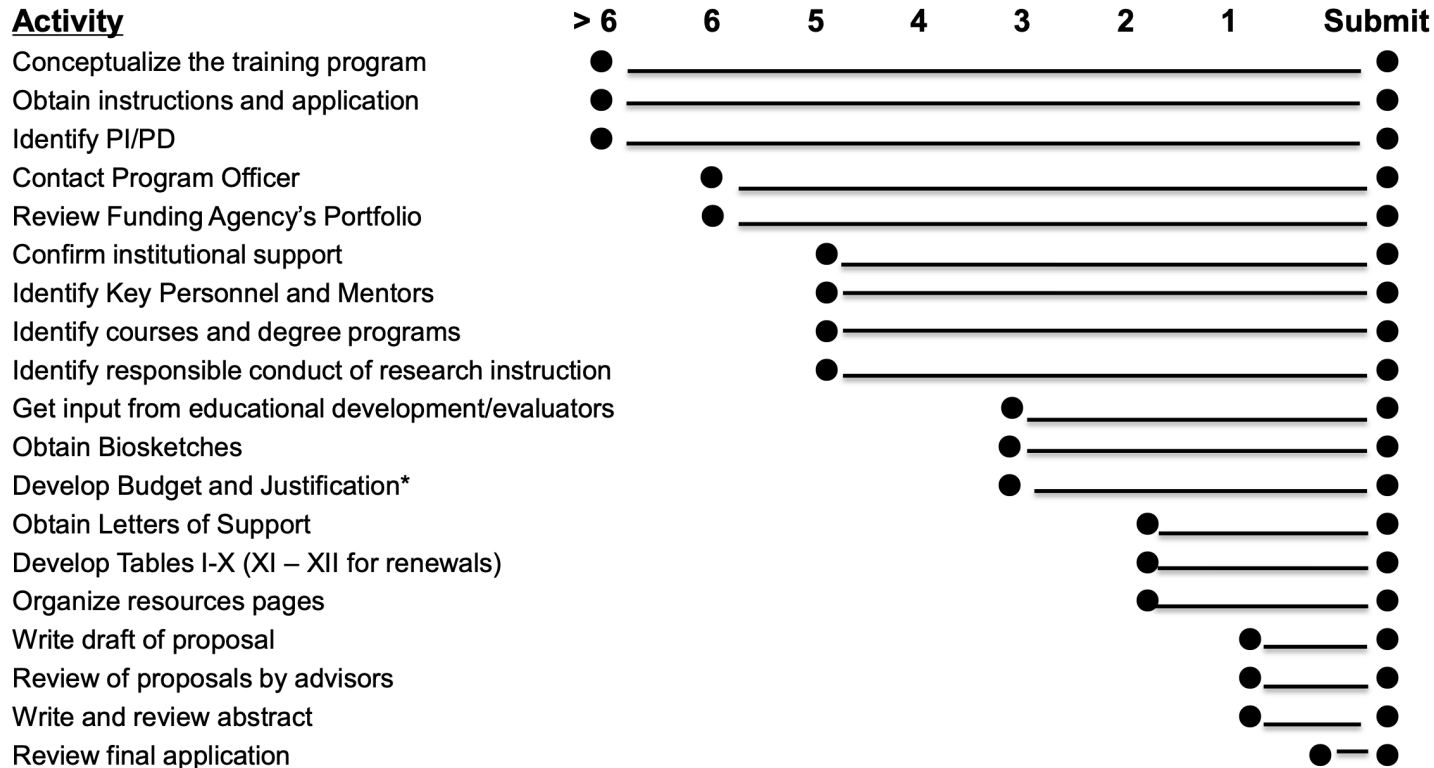
Convergent Research

- Driven by a specific and compelling problem (esp. societal needs)
- Deep integration across disciplines, integrating knowledge, methods, expertise

NRT-Specific Review Criteria

- NSF criteria
 - Intellectual merit: research & training/eval
 - Broader impacts: beyond diversity
- NRT-specific criteria
 - Integration of research & education
 - Interdisciplinarity/convergence
 - Professional development/training
 - Integrating diversity
 - Evaluation

Timeline and Tasks



NRT Deadline is in Sept.



Save the Date

- **June 21st 3pm-4pm EST: DBI Virtual Office Hour**
 - Program Officers will discuss the REUs, NRTs, and Research and Mentoring for Postbaccalaureates in Biological Sciences (RaMP) Programs
 - Provide tips on how to write great training grant proposals

Webinar

https://www.nsf.gov/events/event_summ.jsp?cntn_id=305011&org=NSF

Register:

https://nsf.zoomgov.com/webinar/register/WN_n-BmtQBTSfS2sccqhIsVnw

Credit and Support

- Come to our session:

Incentives and Support for Departments and Faculty outside the Health Sciences

- We will discuss
 - How should departments value such training grants?
 - What support would you need to write those grants?
 - What support would you need to manage those programs?

Supplementary Material

NSF Research Traineeship (NRT)*

- Two opportunities per year: Feb and Sept
- Tracks
 1. 5 years, budget of up to \$3M – for Pitt faculty
 2. 5 years, budget of up to \$2M – for “not doctoral universities: R1”
- Limits
 - Organization: two proposals per competition
 - PI/co-PI: faculty member; one proposal per competition
- Track 1: 14-16 Awards per year

10 Big Ideas for Future NSF Investments

- ✓ 1. Future of Work
- ✓ 2. Growing Convergence Research
- ✓ 3. Harnessing the Data Revolution
- ✓ 4. Mid-scale Research Infrastructure
- 5. Navigating the New Arctic

Pitt opportunities

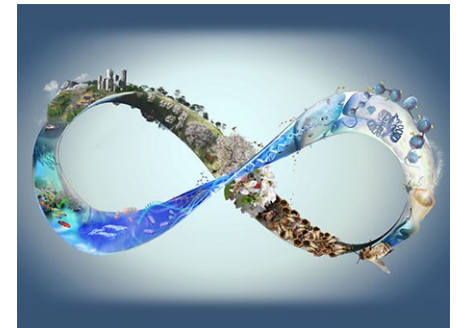
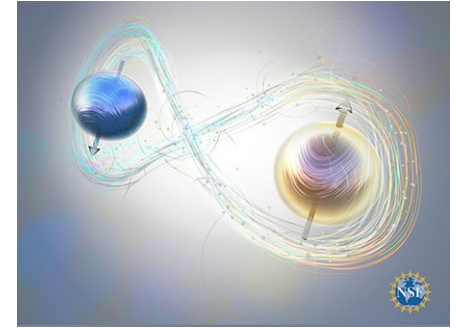


10 Big Ideas for Future NSF Investments

(continued)

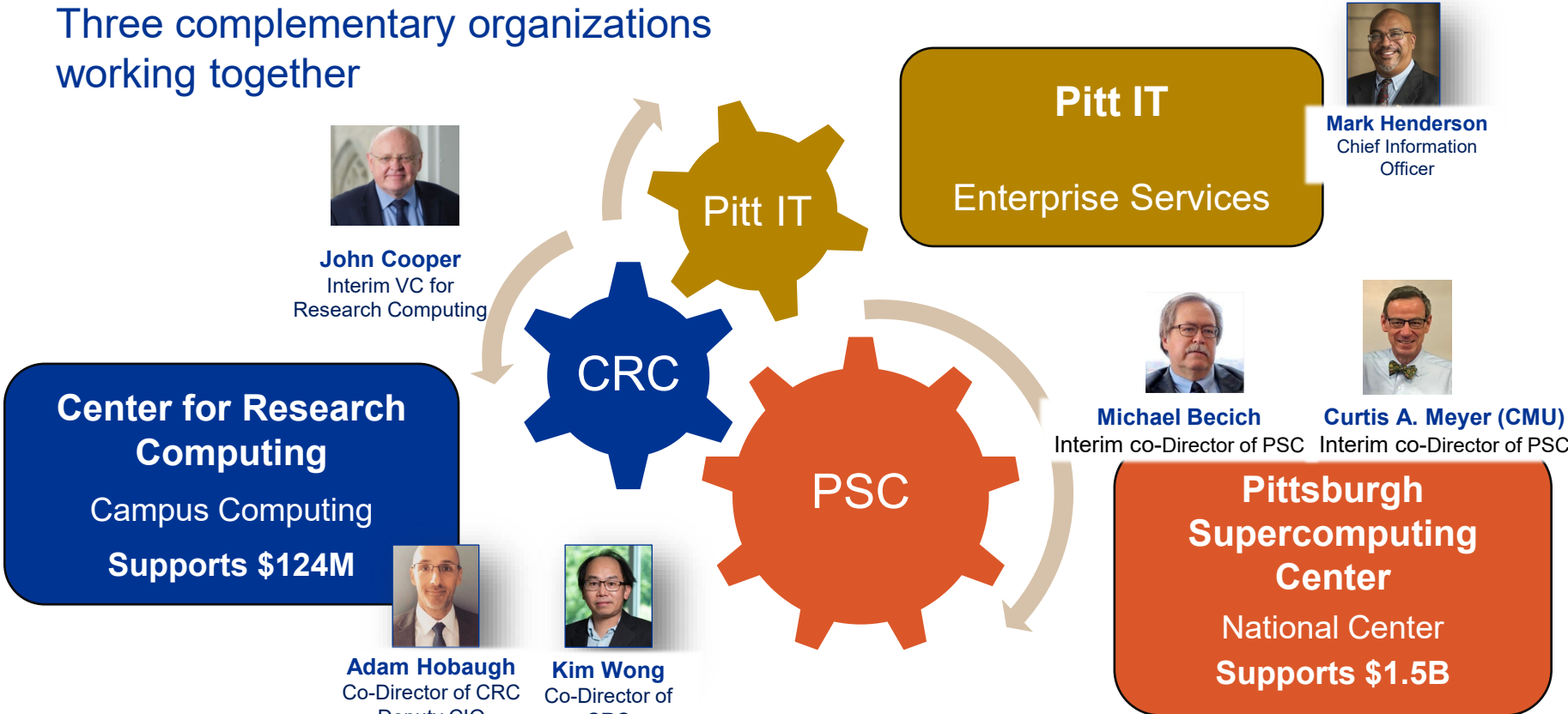
- ✓ 6. NSF 2026 (Seeding new)
- ✓ 7. NSF Includes (Broaden)
- ✓ 8. Quantum Leap
- ✓ 9. Understanding the Rules of Life
- ✓ 10. Windows on the Universe

Pitt opportunities



Research Computing Ecosystem

Three complementary organizations working together



John Cooper
Interim VC for
Research Computing



Mark Henderson
Chief Information
Officer



Michael Becich
Interim co-Director of PSC



Curtis A. Meyer (CMU)
Interim co-Director of PSC



Adam Hobaugh
Co-Director of CRC
Deputy CIO



Kim Wong
Co-Director of CRC

Lots of Computing Resources

- On-premise & remote cloud
- Computing & storage
- Especially for AI apps
- You just **need to ask...**

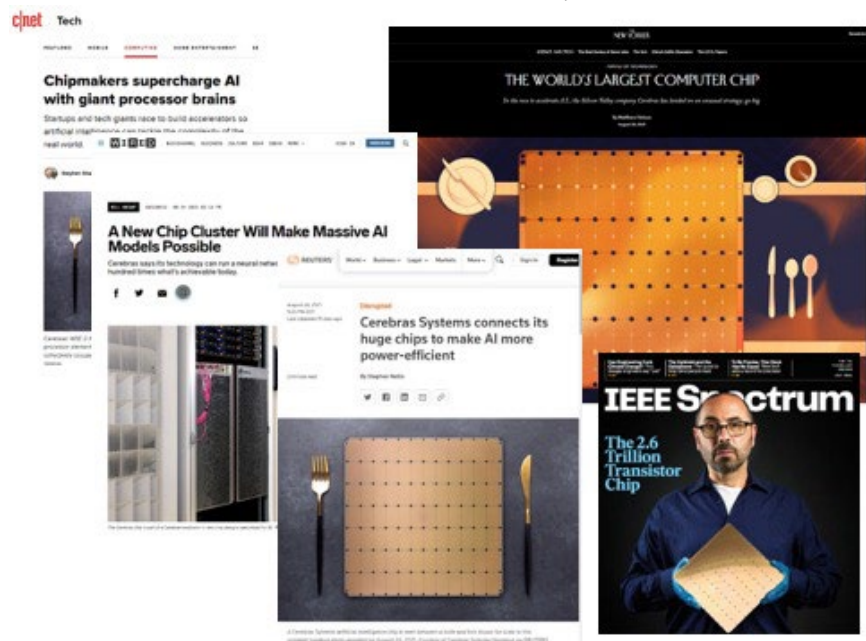
Ex: Cerabras AI machine.

- Most schools have 0; we have 2

PittCRC ▼ PSC

Resource	CRC	PSC
General CPU Cores	10K+	72K+
GPU & AI Cores	640K+	1.7M+
Data Storage	3PB	15PB
Research Supported	\$124M	\$1.4B

Pitt Research



University of Pittsburgh Institutional Training Grant Resources

RESOURCE	WEBSITE
Center for Mentoring	https://teaching.pitt.edu/center-for-mentoring
Center for Postdoctoral Affairs in the Health Sciences	https://www.oacd.health.pitt.edu/postdocs
CTSI Research Services	https://ctsi.pitt.edu/research-services
Corporate and Community Support Community Engagement Centers Office of Industry and Economic Partnerships University Center for International Studies	https://cec.pitt.edu https://corporate.pitt.edu https://www.ucis.pitt.edu
Office of Academic Career Development, Health Sciences Application consultation Trainee career preparation Training tables #1 and #3 assistance	https://www.oacd.health.pitt.edu
Office of Equity Diversity and Inclusion	https://www.diversity.pitt.edu
Office of Health Sciences Diversity, Equity and Inclusion Assistance with diversity plans	https://www.healthdiversity.pitt.edu
Office of Research, Health Sciences	https://www.oorhs.pitt.edu/application-assistance
Office of the SVC for Research (Pitt Research) Request Letter of Support Request application review teams Research computing	https://www.pitt.edu/research
Office of the SVC for the Health Sciences Request Letter of Support	https://www.health.pitt.edu
Office of Sponsored Programs	https://www.osp.pitt.edu
Office of the Provost Graduate Studies Funding Professional Development	https://www.gradstudies.pitt.edu https://www.gradstudies.pitt.edu/funding https://www.gradstudies.pitt.edu/professional-development
Postdoctoral Association	https://www.uppda.pitt.edu
Postdoctoral Career Outcomes	https://www.postdoc.pitt.edu/outcome-data
Postdoctoral Data	https://www.postdoc.pitt.edu/postdocdata
Postdoctoral Data: Request Assistance	traininggrants@pitt.edu
Postdoctoral Training	https://www.postdoc.pitt.edu
Posting Postdoctoral Scholar Positions	https://www.postdocjobs.pitt.edu
Pre-doctoral Data: Decentralized by Graduate Programs	See Office of Graduate Studies by School
Pre-doctoral Data: Request Assistance	graduate@pitt.edu
Responsible Conduct of Research Center Assistance with RCR Plans	https://ctsi.pitt.edu/education-training/responsible-conduct-of-research-training
Training Table 3: Request Compilation	traininggrants@pitt.edu
Training Grant Email Distribution List: Request to Join	traininggrants@pitt.edu
Training Grant Program Directory (NIH)	https://www.traininggrants.pitt.edu
Training Grant Resources Repository	https://www.oacd.health.pitt.edu/administrators/training-grant-resources
University Center for Teaching and Learning	https://teaching.pitt.edu
Working with Foundations Office of Philanthropy and Alumni Engagement	https://osp.pitt.edu/philanthropic-alumni-engagement