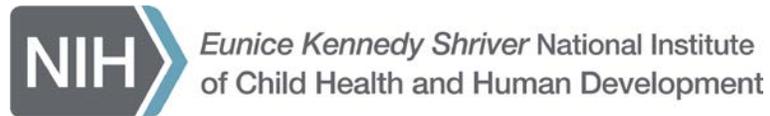


NICHD Advisory Council Open Session Report September 9, 2020

Mary C. Dasso, PhD

Acting Scientific Director



Outline:

- Introduction
- NICHD Intramural Program Overview
- Budget & Personnel Updates
- Office of Education Updates
- Competitive Awards



Introduction

Introduction: Mary Dasso

- Appointed Acting Scientific Director on February 7, 2020
- Previously served as the Associate Scientific Director for Budget and Administration from October 2015-February 2020
- Education:
 - B.A. in Chemistry (Minor in Mathematics), Robert D. Clark Honors College, University of Oregon
 - Ph.D. in Biochemistry, University of Cambridge
 - Postdoc in Cell Biology, University of California at San Diego
- Research: Head, Section on Cell Cycle Regulation



DIPHR Director



- Dr. Germaine M. Buck Louis, PhD stepped down in September 2017 to serve as Dean of the College of Health and Human Services, George Mason University
- Dr. Constantine Stratakis served as Acting Director, DIPHR from October 2017-February 2020
- Dr. Una Grewal appointed Interim Director in February 2020, following Dr. Stratakis stepping down as Scientific Director.
- Recruitment of the new Director was pending the outcome of NICHD's Strategic Planning and is now underway.





NICHD Intramural Program Overview

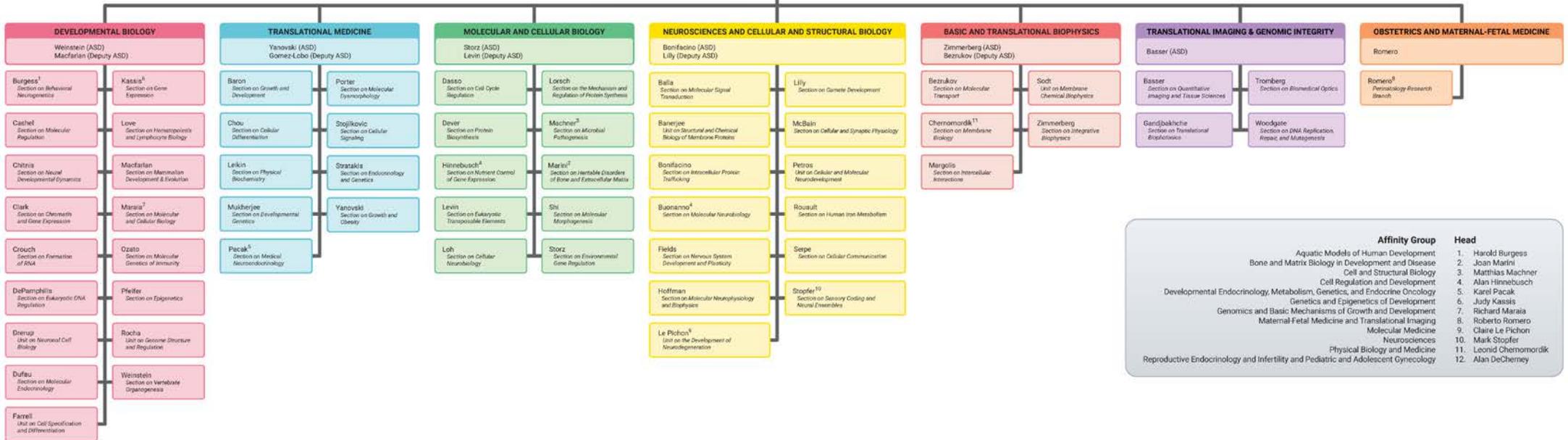
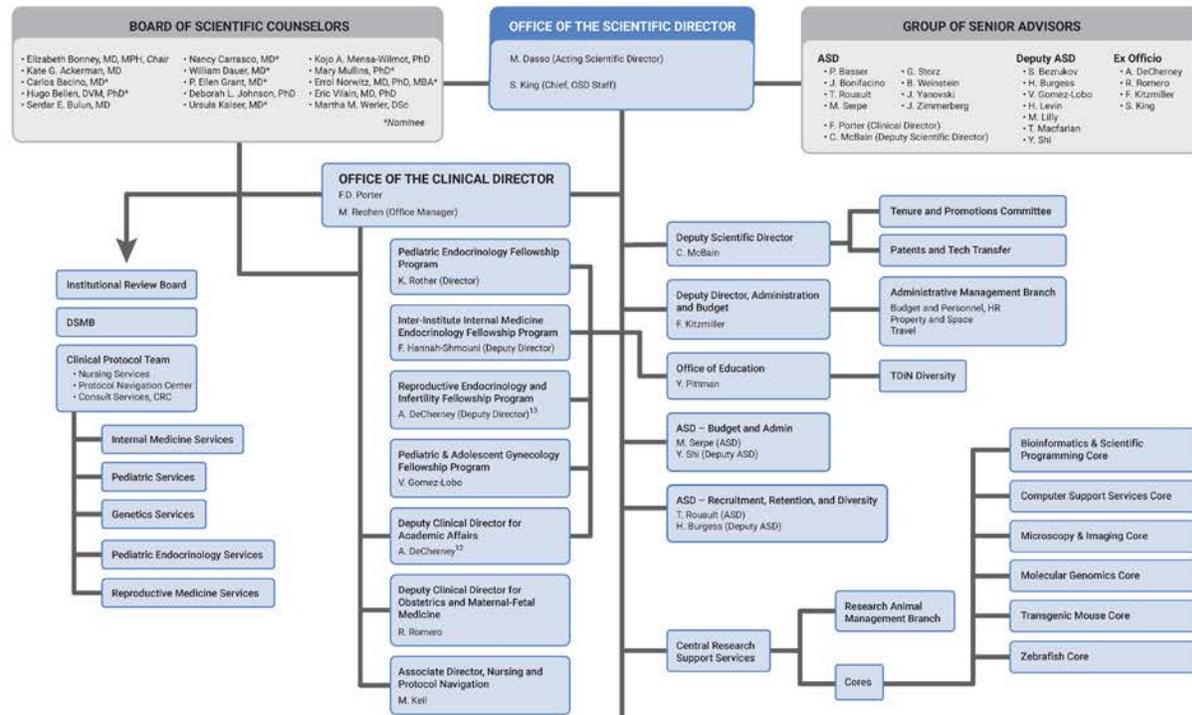
Who we are: NICHD DIR in numbers

- Total personnel of ~880 employees
 - 59 PIs (52 Tenured; 7 Tenure-Track)
 - 48 Staff Scientists
 - 293 trainees (graduate, postbac, postdoctoral and clinical fellows)
- 12 scientifically based affinity groups (from developmental & cell biology to physics, neurosciences, endocrinology & mol. genetics, pre/perinatal care, reproduction & infertility)
- 66 Clinical Protocols
 - ~2/3 at the NIH Clinical Center
- Accredited medical training programs:
 - Pediatric Endocrinology
 - Adult Endocrinology
 - Pediatric and Adolescent Gynecology
 - Reproductive Endocrinology and Infertility
 - Medical Genetics (with NHGRI)
 - Perinatal Research and Obstetrics (Wayne State Univ/PRB)



Division of Intramural Research

Updated July 2020

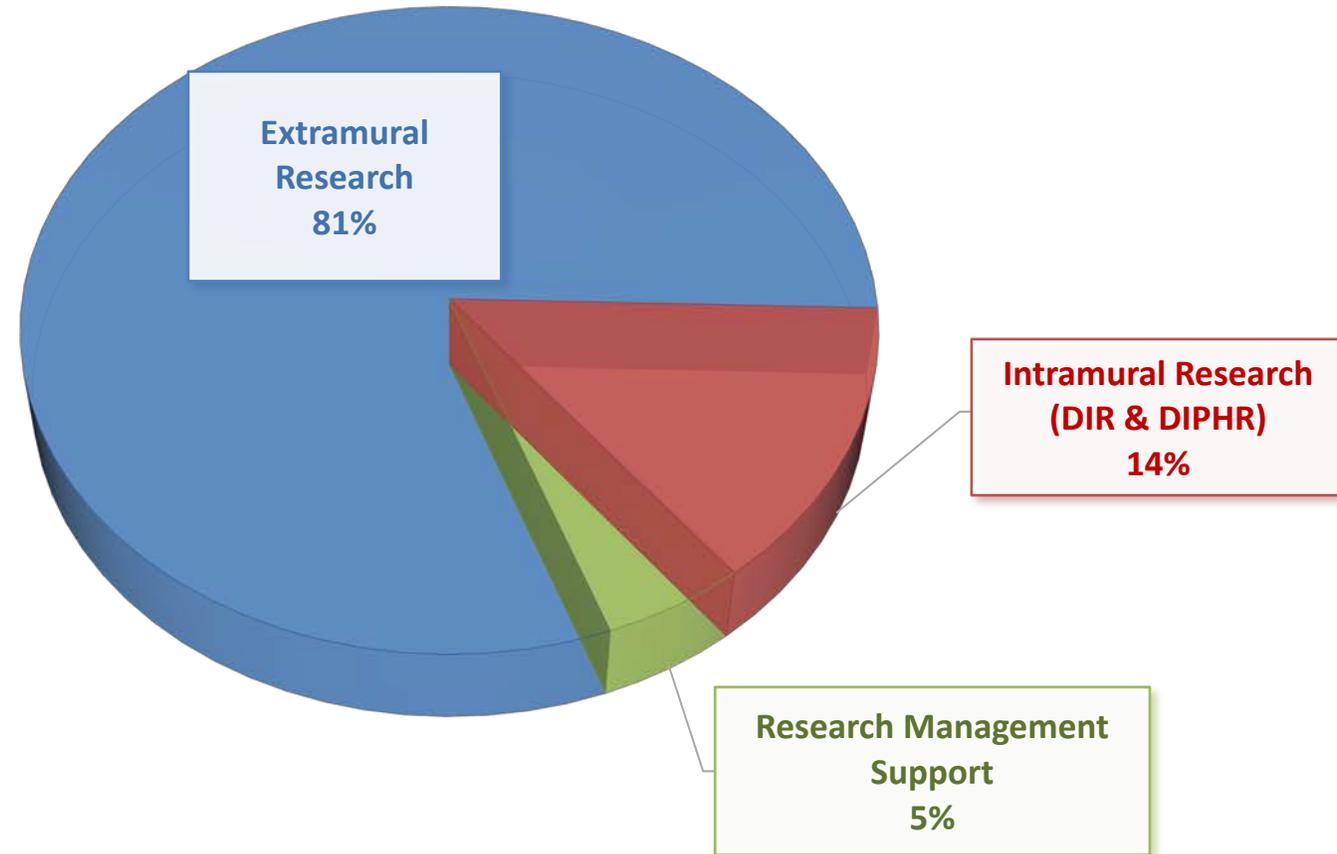


NICHD Division of Intramural Research

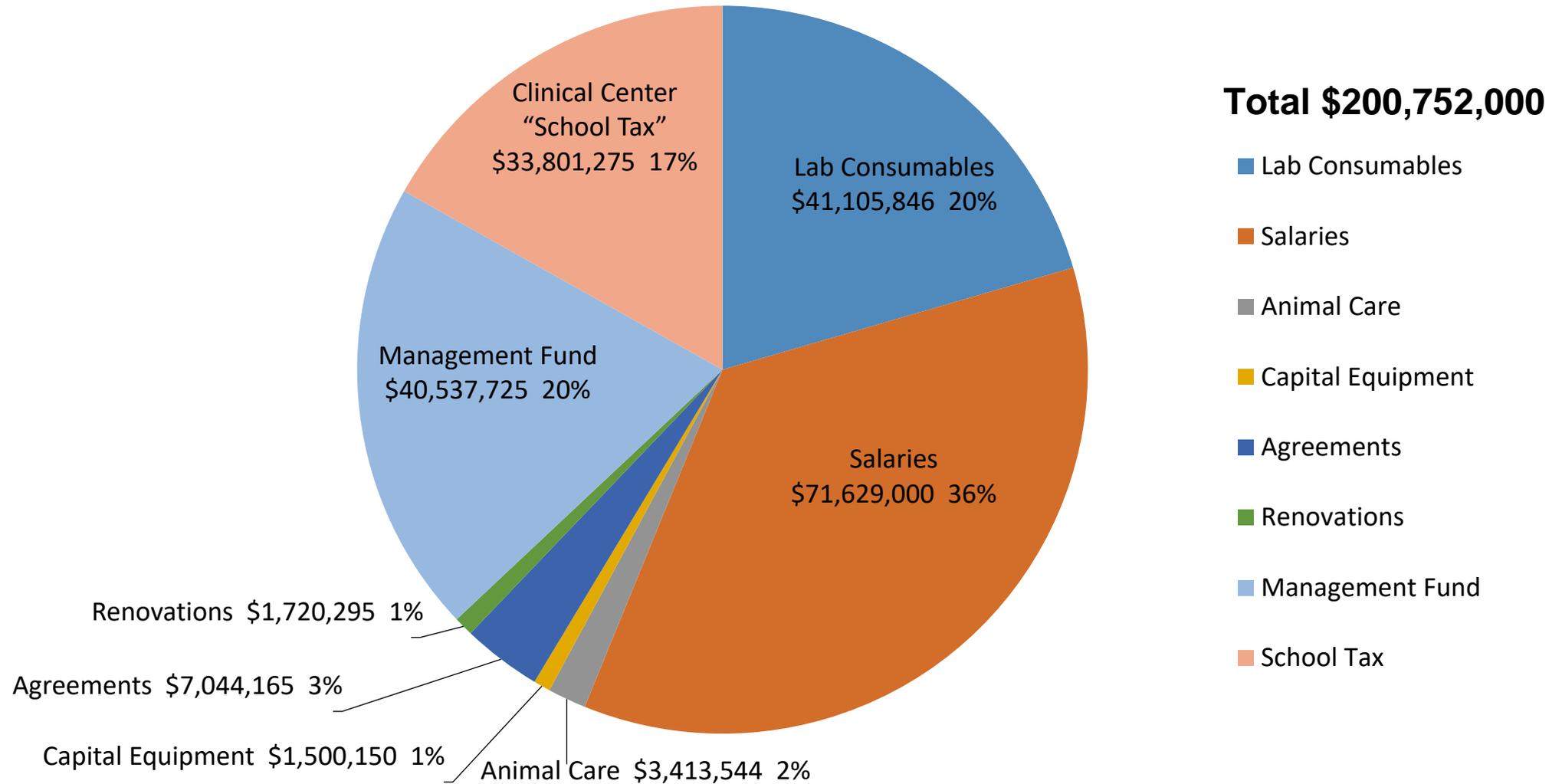
- Two-Tiered Structure
 - Investigators self-assembled into 12 scientific **Affinity Groups**, fostering communication around a scientific area or theme.
 - Administratively organized into functional groups loosely based around buildings. **Associate Scientific Directors** (ASD) oversee the scientific management and shared resources of their building but do not oversee individual lab budgets.
- Both Affinity Groups and Associate Scientific Directors play a role in mentoring Tenure-Track Investigators
- The Scientific Director works directly with each PI on their budget and resource needs
- Additional ASDs manage administrative portfolios such as Budget and Administration as well as Recruitment, Retention, and Diversity



NICHD Intramural Program FY2020 Allocations



NICHD DIR Budget FY20 Estimate



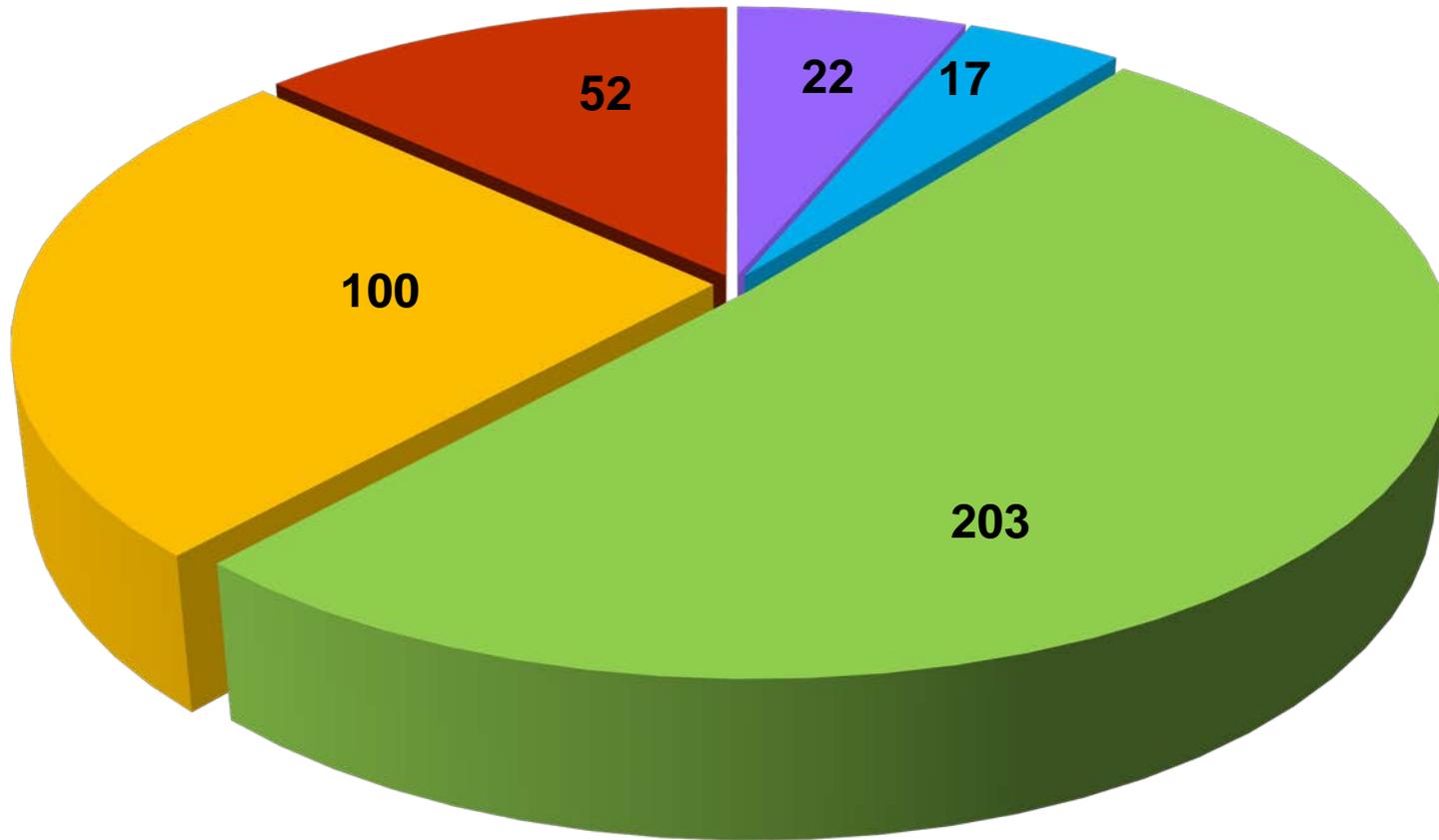
NICHD DIR Personnel Trends: FY2016-2020

	FY2017	FY2018	FY2019	FY2020
FTEs	307	304	296	284
Non-FTEs	607	614	610	597
TOTAL	914	918	906	881



NICHD Intramural Trainee Numbers

As of April 2020, 345 total



- Clinical Fellows (22)
- Graduate Students (17)
- Postdocs (203)
- Postbacs (100)
- 2019 Summer Students (52)





Recruitments

Jeffrey Farrell, PhD
**Stadtman Investigator, Unit on Cell
Specification and Differentiation**

My lab will identify the genetic basis of cellular differentiation by finding the cascade of genes expressed in every cell type as it adopts its developmental identity and associating it with that cell type's cell biological transformations. My research program will use zebrafish to study these questions, as among vertebrates, they are easy to culture, image, and manipulate both embryologically and genetically, yet much of their regulation and function is conserved in mammals.





Recruitments

Doreen Matthies, PhD
**Stadtman Investigator, Unit on Structural
Biology**

Starting September 13th

My research goal is to understand complex proteins at a molecular level using a combination of biochemical and structural techniques, including high-resolution electron microscopy and to continue to help develop the field of correlated light and electron microscopy. In particular, I am interested in membrane protein complexes, lipid membrane composition, localization and structures of potential drug targets in a variety of diseases.



NIH Earl Stadtman Investigator Program

- Annual search open to all doctoral-level, biomedical and behavioral researchers interested in NIH Intramural tenure-track positions
- Searching for researchers studying important problems in innovative ways
- Show us your best ideas and we will see if we can find a place for you
- Accepting applications each August and September
- For details see <http://irp.nih.gov>
- DIR established two priorities for the 2020-2021 search:
 - Developmental Biology
 - Physician Scientist



Physician Scientist Development Program

- Goal: Improve recruitment of tenure-track physician scientists
- Series of programs at different levels
 - **Lasker Program:** for individuals recruited as tenure-track investigators.
 - **Physician Scientist Development Program:** for individuals with high potential to become tenure-track investigators. Clinical fellowship training followed by two years of research.
 - **Assistant Clinical Investigator Program:** for individuals with significant promise to become physician scientists. Three-year program engaged in both clinical and basic science.
- Guiding principals
 - Only invest in individuals who have high potential to develop an independent combined clinical/basic research program
 - Provide sufficient mentoring and support
 - Engage NICHD basic scientists to attract physician scientists whose interests align with the work being done in the DIR



Clinical Fellowship Programs: Endocrinology

NICHD-NIDDK-NIDCR Inter-Institute Endocrine Training Program

- Three-year program with emphasis on clinical training in first year and years 2-3 focused on laboratory or clinical research
- Four positions per year, one funded by NICHD
- Rotations at the NIH Clinical Center, Georgetown University Hospital, Washington Hospital Center, and Walter Reed Medical Center

Pediatric Endocrinology Inter-Institute Training Program

- Three-year program with emphasis on clinical training in first year and years 2-3 focused on laboratory or clinical research
- Three positions per year funded by NICHD
- Rotations at the NIH Clinical Center, Children's National Health System, and Walter Reed National Military Medical Center

Combined 4-year dual program in adult-pediatric endocrinology training available



Clinical Fellowship Programs: Gynecology & REI

Combined NICHD/Federal Reproductive Endocrinology and Infertility Training Program

- Three-year program with emphasis on clinical training in first 15 months and 20 months of dedicated laboratory or clinical research
- Four positions per year
- Clinical rotations at the NIH Clinical Center, Walter Reed National Military Medical Center, and the Shady Grove Fertility Center
- Research may be conducted within NICHD or the Uniformed Services University of the Health Sciences

NICHD Pediatric and Adolescent Gynecology Training Program

- Established in 2019
- Two-year program with 1.5 days/week dedicated to research
- Two positions per year
- Rotations at the NIH Clinical Center, Children's National Health Systems, and MedStar Washington Hospital Center



Clinical Fellowship Programs: Maternal-Fetal Medicine

Maternal-Fetal Medicine

- In partnership with Wayne State University in Detroit, MI
- Three-year program with 18-month clinical rotation and 18 months dedicated to research
- Seven total fellowship positions, alternating 2-3 per year, 2 funded by NICHD
- Combined Maternal-Fetal Medicine Medical Genetics Fellowship training available
- Candidates can opt to complete a PhD in the Department of Physiology at Wayne State University



DIR Honors

Peter Bassler, PhD

Elected to the National
Academy of Engineering

Douglas Fields, PhD

Elected to the American
Association for the
Advancement of Science





Education Updates

NICHD OFFICE OF EDUCATION

Activities, Programs, and Professional Development

LEADERSHIP AND MANAGEMENT

- Project management for scientists
- Organizational dynamics and supervisory skills
- Setting expectations and goals
- Improving lab communication

RESEARCH AWARDS

- Annual Fellows Award for Research Excellence (FARE)
- K99/R00, Pathway to Independence Award
- NIGMS Postdoctoral Research Associate (PRAT) Program
- National Research Service Award (NRSA), individual predoc and postdoc fellowships
- Intramural Research Fellowships for NICHD postdoc and clinical fellows

TEACHING

- Skills workshops on curriculum design and active learning
- Six-week college teaching workshop series, each summer
- "Becoming an Effective Scientist" course for postbac fellows, an eleven-week lecture and journal club series taught by postdocs and clinical fellows

RESEARCH ETHICS

- An established training plan for all fellows
- 8-hour requirement, within the initial two years of training
- Completed by the fellow or facilitated by the mentor or Office of Education

MEDICAL AND GRAD SCHOOL PREPARATION

- Individual consulting
- Mock interviews
- Shadowing opportunities

CAREERS

- Job interview preparation
- Alumni speakers and panels from various career paths
- Editing of job application materials (c.v., cover letter, resume, teaching/research statement)
- Guidance for IDPs/Annual Progress Reviews
- One-on-one advising and career counseling

WRITING AND PUBLISHING

- Editorial service
- Grant preparation
- Online classes for scientific writing
- Getting published: strategies and approaches

ANNUAL FELLOWS RETREAT

- This year's retreat: May 31, 2019
- Postdocs, clinical fellows, graduate students retreat
- Off campus, one day event
- Current scientific topics, keynote addresses, fellow talks, posters, networking, and career events

SCIENCE COMMUNICATION

- Presentation skills (oral, poster, and chalk talks)
- Annual Three-Minute Talks (TmT) Competition
- Graduate student talks
- Individual sessions with a public speaking coach

GRANTS

- Grant writing/review workshops
- Mock study sections
- Individualized coaching for the NIH application process
- NICHD Fellows Intramural Grants Supplement (FIGS) Award

 Eunice Kennedy Shriver National Institute of Child Health and Human Development

Any questions? Contact:
Dr. Yvette R. Pittman
Director, Office of Education, NICHD, NIH
yvette.pittman@nih.gov | 301-496-3014

For more information, visit fellows.nichd.nih.gov



Office of Education: Key Activities

Public Speaking & Teaching: job talks, individual coaching, elevator speeches, syllabus & curriculum development with Univ. of Maryland (college teaching workshop summer series); graduate student talks (GST) during the PI monthly meetings

Grantsmanship & Publishing: annual grants workshop (full day); guidance with NIH submissions (several K99 and K22, help with NRSAs), mock study section workshop, three-week grant writing course, getting published workshop: strategies and approaches

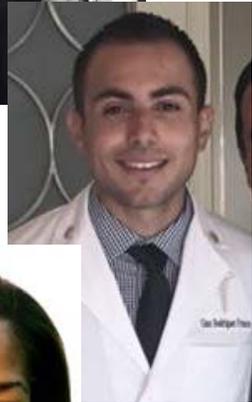
Careers: job interview preparation, networking, editing of job application materials, individualized guidance of IDPs/Annual Progress Reviews, exploration sessions for various career paths, preparing for industry success

Average ratings for our professional development workshops, over the last five years: 4.5/5



NICHD Intramural Diversity Initiatives

committed to train, support, and sustain a diverse cohort of individuals traditionally underrepresented in science



NICHD Developing Talent Scholars Program

(Postbacs/Grad Students): **Four new recruits for 2020**
Alumni group of 18: many of them are currently in professional school, MD and PhD programs

Summer Trainees: Centrally-funded slots for students from groups traditionally underrepresented in science or from disadvantaged backgrounds
10 filled for 2019 (20% of our summer population)

Fellows Recruitment Incentive Award (Postdocs):
Recruited Aisha Burton (Storz Lab) for 2020
Velencia Witherspoon (Basser Lab, started in 2019)
Alejandra Garcia (Stopfer Lab, started in Nov. 2017)



International Collaborations for Training

NICHD-INSERM

- Exchange program with Inserm (the Institut National de la Sante et de la Recherche Medicale) in France
- Unique opportunity for US and French scientists to obtain **postdoctoral training** with French and US mentors, respectively
- **DIR trains one INSERM for a two-year period**; we in turn will send one “graduating” postdoctoral fellow to a participating Inserm lab in France
- To facilitate strong research collaborations, there will also be an opportunity for the awardees’ mentors to visit, in both directions

FUTURE RESEARCHERS PROGRAM

- Students from the Santa Casa de São Paulo School of Medical Sciences (Brazil) train with NICHD investigators
- **2nd and 3rd year medical students**, completing a research rotation during their summer break
- Selected students receive a scholarship providing travel expenses, housing, food and transportation
- **Laboratory/clinical experience for a two-month period** (January & February)
- DIR placed two or three students since 2016. **Two students trained with us for 2020**



NICHD Postbacs: Medical & Graduate School Acceptances (2019-2020)

MD Programs

- University of Maryland
- Georgetown University
- University of Virginia
- University of Utah
- University of Pittsburgh
- New York University School of Medicine
- UMDNJ – New Jersey Medical School
- Cornell University
- George Washington University
- Wayne State University
- University of Pennsylvania

MD/PhD Programs

- Washington University in St. Louis
- Harvard-MIT
- Ohio State University
- University of Texas Southwestern

PhD Programs

- University of Arizona
- University of California, Berkeley
- Johns Hopkins University
- Vanderbilt University
- University of Washington
- University of Michigan
- Duke University

MS Programs

- Emory University (Public Health)
- Thomas Jefferson University (Genetic Counseling and Human Genetics)
- Howard University (Occupational Therapy)



Joy Cui
NICHD postbac alumni
(2018, Gandjbakhche Lab)



An Increase of Grant Awardees: NICHD Fellows

FUNDING OPPORTUNITIES FOR NIH INTRAMURAL FELLOWS

ORGANIZATION	WEBSITE	OPEN TO NON-US CITIZENS
Alpha-1 Foundation	https://www.alpha1.org/Investigators/Grants/Grant-Opportunities	✓
American Academy of Pediatrics	https://www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/pediatric-trainees/Pages/default.aspx	
American Association for Clinical Chemistry	https://www.aacc.org/community/grants/research	✓
American Association of Neuromuscular & Electrodiagnostic Medicine Foundation for Research and Education	http://www.aanemfoundation.org/ResearchFunding-Opportunities	
American Cancer Society	http://www.cancer.org/research/applyforresearchgrant/granttypes/index	
American Diabetes Association	http://professional.diabetes.org/Research-Grants	
American Epilepsy Society	https://www.aesnet.org/research	✓
Bright Focus	http://www.brightfocus.org/grants	✓
Cancer Research and Prevention Foundation	http://preventcancer.org/our-work/grants-fellowships/	✓
Charles A. Dana Foundation	http://www.dana.org/Grants/	✓
Children's Tumor Foundation	http://www.ctf.org/	✓
Crohn's and Colitis Foundation of America	http://www.cdfa.org/science-and-professionals/	✓
Damon Runyon Cancer Research Foundation	https://www.damonrunyon.org-for-scientists/application-guidelines/fellowship	
Ford Foundation Fellowship, National Academies	http://sites.nationalacademies.org/ppa/fordfellowships/index.htm	
Glaucoma Research Foundation	http://www.glaucoma.org/	✓
Harold Amos Medical Faculty Development Program	http://www.amfdp.org/	
Helen Hay Whitney Foundation Research Fellowships	http://hhwf.org/research-fellowship	✓
Human Frontier Science Program	http://www.hfsp.org/	✓
Huntington's Disease Society of America	http://hdsa.org/hd-research/a-leader-in-global-hd-research/	✓
Immune Deficiency Foundation	http://primaryimmune.org/	✓
International Association for the Study of Pain	http://www.iasp-pain.org/Education/GrantList.aspx?navItemNumber=649	
James S. McDonnell Foundation	https://www.jsmf.org/	✓
Jane Coffin Childs Memorial Fund for Medical Research	http://www.jccfund.org/fellowship-information/	✓
Leukemia Research Foundation	http://www.allbloodcancers.org/application-information	✓
Life Sciences Research Foundation	http://www.lisrf.org/apply	✓
Myositis Association of America	http://www.myositis.org/explore-research/tma-grants-a-fellowships/myositis-research-funding	✓
National Ataxia Foundation	http://www.ataxia.org/research/ataxia-research-grants.aspx	✓
Thrasher Research Fund	https://www.thrasherresearch.org/SitePages/which-grant.aspx	
American Association of Obstetricians and Gynecologists Foundation	http://www.aagf.org/scholarship.asp	✓
American Society of Primatologists	https://www.asp.org/grants/	✓
Canadian Institute of Health Research	http://www.cihr-irsc.gc.ca/e/37788.html	✓
European Molecular Biology Laboratory (EMBO)	http://www.embo.org/funding-awards/fellowships	✓
L'Oréal Fellowship for Women in Science	http://www.lorealusa.com/csr-commitments/the-1%2%80%99or%C3%A9al-corporate-foundation/science/1%E2%80%99or%C3%A9al-usa-for-women-in-science-program	
Lysosomal Disease Network	http://www.lysosomaldisenetwork.org/fellowship-applications-are-now-open/	✓

Recent Successes for NICHD fellows (NIH and non-NIH funding):

- NIH K99/R00 Pathway to Independence, \$747K
- NIMGS Postdoctoral Research Associate Training Program, \$180K
- NIH Independent Research Scholars Program, \$ 750K
- Pediatric Endocrine Society, \$50K
- Damon Runyon Cancer Research, \$100K
- Helen Hay Whitney Foundation Fellowship, \$180K
- Thrasher Research Award, \$30K
- ALS Association Postdoctoral Fellowship, \$100K
- Arthritis National Research Foundation, \$100K
- Parseghian Fund Grant Award, \$60K
- Banting Fellowship, \$70K

An extensive grants list of funding opportunities that intramural fellows can apply for—from outside organizations (available online)





Competitive Awards

Opportunities for Collaborations at the NIH Clinical Center (U-01)



- Goal: to support collaborative research projects aligned with NIH efforts to enhance the translation of basic biological discoveries into clinical applications that improve health
- Up to \$500K/year x 4 years, renewable
- Teams must have one extramural and one intramural co-PI
- Some of the work must be done at the CC

<https://clinicalcenter.nih.gov/translational-research-resources/U01/index.html>

NIH Competitive Awards Office of AIDS Research (OAR) Strategic Fund

- Aim to redirect NIH HIV/AIDS research funds to the highest priority, most meritorious, research
- Funding through OAR/NICHD Office of the Director and can be multi-year requests
- Must align with one or more OAR priorities:
 - Reducing Incidence of HIV/AIDS
 - Next generation of HIV therapies
 - Research toward a cure
 - HIV-associated comorbidities, coinfections, and complications
 - Basic research
 - Health disparities
 - Training



NIH Competitive Awards Office of AIDS Research (OAR) Strategic Fund

PI	Project Title	New or Continuing in 2020	FY20 Funding
Leonid Margolis	Mechanisms of Persistent Immune Activation in Human Cervico-Vaginal and Lymphoid Tissues after Suppression of HIV-1 Infection with Antiretroviral Therapy	New	\$93,000
Leonid Chernomordik	TMEM16 scramblase dependence of HIV-1 cell entry	Continuing	\$120,000
Leonid Margolis	HIV-1 –Cytokine Complexes and their Immunosuppressive Activity	Continuing	\$89,000



NICHD Scientific Director's Awards

- Now in its fourth cycle. Provides two years of funding:
 - FY14-15, \$3M
 - FY16-17, \$2M, 8 of 25 applications funded
 - FY18-19, \$3.2M, 12 of 26 applications funded
 - FY20-21, \$2.5M, 11 of 19 applications funded
- Established pursuant to a recommendation in the July 2013 Blue Ribbon Panel Report to create competitive research opportunities with a collaborative focus among investigators, and to support new research ideas.
- Uses a modified application based on an R-21, and an expedited administrative review process with the support of NICHD's Division of Extramural Research and a panel of NIH extramural reviewers.



NICHD Scientific Director's Awards FY20-21

PI(s)	Collaborators	Project Title
Tamas Balla	Tracey Rouault, Richard Youle (NINDS)	The role of mitochondrial lipids in the functional organization of mitochondria dynamics and energetics
Leonid Chernomordik Leonid Margolis		Cell fusion in placenta formation in healthy and complicated pregnancies
Ajay Chitnis Katie Drerup	Greg Palardy	Mechanistic analyses of the neural deficits in KAND pathology
David Clark	Rich Maraia, Steve Coon	Investigating mechanisms of transcription through chromatin by RNA polymerases I, II and III using long-read sequencing
Mary Dasso	Mihaela Serpe, Yixian Zheng (Carnegie Inst)	Dissecting the Genetic Program of Tissue Aging
Claire Le Pichon	Katie Drerup, Juan Bonifacino, Vincent Schram	Organelle dynamics during axon regeneration after injury in human sensory neurons analyzed using advanced microscopy techniques
Paul Love	Karl Pfeifer, Yasmin Belkaid (NIAID), Gregoire Altan-Bonnet (NCI)	An unexpected inhibitory role for T cell antigen receptor (TCR) signaling motifs (ITAMs) in TCR signaling
Chris McBain Constantine Stratakis	Tim Petros	PKA RII α mediated regulation of medial habenula neuron function
Tim Petros Pedro Rocha	Ryan Dale, Soohyun Lee (NIMH)	Exploring how the epigenetic landscape regulates GABAergic interneuron neurogenesis
Forbes Porter	Claire Le Pichon, Juan Bonifacino, Michael Ward, Ryan Dale, Steve Coon	Modeling of neuronal ceroid lipofuscinosis 3 disease in i3neurons to investigate neuronal pathology and CLN3 function
Bruce Tromberg	Amir Gandjbakhche, Ashura Buckley	Development of a Wearable Point of Care Monitoring Device for Pediatric Obstructive Sleep Apnea

NICHD Office of the Director Strategic Planning Awards FY20

- Funding through the NICHD Director
- Provided \$501,900 in FY20 supporting 8 awards
- The goal is to support objectives outlined out in the plan, as well as the aspirational goals, provide opportunities to advance the science in key areas such as: developmental biology; gynecologic, andrologic, and reproductive health; pregnancy; child and adolescent health; and therapeutic drug and device studies in pregnant and lactating women, children, and people with disabilities. In addition, the aspirational goals of the plan provide a set of challenges to the intramural community to propose projects that will advance these goals.



NICHD Office of the Director Strategic Planning Awards FY20

PI(s)	Title/Topic
Todd Macfarlan and Harold Burgess	The role of THAP7 in neurodevelopment and intellectual disability
Anirban Banerjee	S-acylation of essential viral proteins as new antiviral target discovery
Fasil Tekola-Ayele	Placental oxidative DNA damage markers and epigenetic aging of placenta
Leonid Chernomordik	Exploring the role of Lupus La protein in osteoclast formation in normal development and in infantile malignant osteopetrosis
Jeffrey Baron	Cartilage-Targeted Therapeutics for Achondroplasia
Forbes Porter	Reduction of Glutamate Neurotoxicity: A Novel Therapeutic Approach for Niemann-Pick disease, type C1:
Pedro Rocha	Dissecting the molecular mechanism underlying a novel human syndrome
Veronica Gomez-Lobo	Gonadal Tissue Freezing for Fertility Preservation in Girls at Risk for Ovarian Dysfunction and Primary Ovarian Insufficiency



QUESTIONS?

***Genetic Epidemiology of
Early Growth &
Cardiometabolic Links***

Fasil Tekola-Ayele, Ph.D., M.P.H.

Earl Stadtman Investigator,
Epidemiology Branch,
Division of Intramural Population
Health Research

