Eunice Kennedy Shriver
National Institute of Child Health & Human Development

Constantine A. Stratakis, MD, D(med)Sci
Scientific Director

Open Session Report
September 13, 2018, 10:25 am
NICHD DIR by the Numbers

• Total personnel of ~900 employees
  • 60 PIs (54 Tenured; 6 Tenure-Track)
  • 3 retirements in FY18

• >70 Clinical Protocols
  • ~2/3 at the NIH Clinical Center

• Accredited medical training programs:
  o Pediatric Endocrinology
  o Adult Endocrinology
  o Reproductive Endocrinology and Infertility
  o Medical Genetics (with NHGRI)
  o Perinatal Research and Obstetrics (Wayne State Univ/PRB)
## Affinity Group Membership

### Aquatic Models of Human Development
- **Burgess, Harold** [Head]
- Chinnis, Ajay
- Drerup, Katie
- Feldman, Ben [Core]
- Weinstein, Brant

### Basic Mechanisms of Genome Regulation
- **Maraia, Richard** [Head]
- Cashel, Mike
- Clark, David
- Crouch, Bob
- Depamphilis, Melvin
- Woodgate, Roger

### Bone & Matrix Biology in Development & Disease
- **Marini, Joan** [Head]
- Leikin, Sergey

### Cell Regulation & Development
- **Hinnebusch, Alan** [Head]
- Dasso, Mary
- Dever, Tom
- Dufau, Maria
- Levin, Henry
- Lorsch, Jon [NIGMS]
- Serpe, Mihaela
- Shi, Yun-Bo

### Cell & Structural Biology
- **Buonanno, Andres** [Head]
- Banerjee, Anirban
- Bonifacino, Juan
- Lilly, Mary
- Machner, Matthias
- Storz, Gisela

### Developmental Endocrine Oncology & Genetics
- **Pacak, Karel** [Head]
- Lodish, Maya [Training Program]
- Stojilkovic, Stanko
- Stratakis, Constantine

### Genetics & Epigenetics of Development
- **Kassis, Judy** [Head]
- Kennison, Jim
- Love, Paul
- Macfarlan, Todd
- Ozato, Keiko
- Pfeifer, Karl
- Rocha, Pedro

### Physical Biology & Medicine
- **Chernomordik, Leonid** [Head]
- Bezrukov, Sergey
- Sodt, Alex
- Zimmerberg, Joshua

### Reproductive Endocrinology & Gynecology
- **Decherney, Alan** [Head]

### Maternal-Fetal Medicine, Imaging, & Behavioral Development
- **Romero, Roberto** [Head]
- Basser, Peter
- Gandjbakhche, Amir
- Margolis, Leonid

### Metals Biology & Molecular Medicine
- **Kaler, Stephen** [Head]
- Le Pichon, Claire
- Rouault, Tracey

### Neurosciences
- **Stopfer, Mark** [Head]
- Balla, Tamas
- Fields, Doug
- Hoffman, Dax
- Loh, Y Peng
- McBain, Chris
- Petros, Tim

### Pediatric Endocrinology, Metabolism, & Genetics
- **Yanovski, Jack** [Head]
- Baron, Jeff
- Chou, Janice
- Delaney, Angela
- Merke, Deborah (CC)
- Mukherjee, Anil
- Porter, Forbes

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As of May 31, 2018
# NICHD Board of Scientific Counselors

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scott Rivkees, MD (Chair)</td>
<td>U of Florida</td>
<td>Pediatric Endocrinology</td>
</tr>
<tr>
<td>Kate Ackerman, MD</td>
<td>U of Rochester</td>
<td>Dev Bio/Genetics/Pediatrics</td>
</tr>
<tr>
<td>Vanessa Auld, PhD</td>
<td>U of British Columbia</td>
<td>Cell &amp; Developmental Biology</td>
</tr>
<tr>
<td>Elizabeth Bonney, MD, MPH</td>
<td>U of Vermont</td>
<td>Immunobiology/Mol Bio/OBGyn</td>
</tr>
<tr>
<td>Rita Balice-Gordon, PhD</td>
<td>Sanofi</td>
<td>Neuroscience</td>
</tr>
<tr>
<td>Jeanne Brooks-Gunn, PhD</td>
<td>Columbia</td>
<td>Dev Psych/Behavioral Sci</td>
</tr>
<tr>
<td>Serdar Bulun, MD</td>
<td>Northwestern</td>
<td>Obstetrics/Gynecology</td>
</tr>
<tr>
<td>Frances Jensen, MD</td>
<td>U of Pennsylvania</td>
<td>Neuroscience</td>
</tr>
<tr>
<td>Deborah Johnson, PhD</td>
<td>Baylor</td>
<td>Molecular &amp; Cell Biology</td>
</tr>
<tr>
<td>Kojo Mensa-Wilmot, PhD</td>
<td>U of Georgia</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>Antonios Mikos, PhD</td>
<td>Rice University</td>
<td>Bioengineering/Biophysics</td>
</tr>
<tr>
<td>Yoel Sadovsky, MD</td>
<td>Magee-Womens/Pitt</td>
<td>Rep Bio/Obstetrics/Gynecology</td>
</tr>
<tr>
<td>Susan Taylor, PhD</td>
<td>UCSD</td>
<td>Struc Bio/Mol Biochem</td>
</tr>
<tr>
<td>Eric Vilain, MD, PhD</td>
<td>Children’s National</td>
<td>Mol &amp; Human Genetics</td>
</tr>
<tr>
<td>Martha Werler, DSc</td>
<td>Boston</td>
<td>Epidemiology</td>
</tr>
</tbody>
</table>
NICHD Board of Scientific Counselors

Petra Hüppi, MD
Expertise: Dev. Neurosciences, Neonatology, Neuroimaging, Biophysics
Group Leader, Child Development Disorders
University of Geneva

Joseph A. Majzoub, MD
Expertise: Internal Medicine, Endocrinology, Obesity & Reproduction, Neuroendocrinology
Thomas Morgan Rotch Professor of Pediatrics & Professor of Medicine, Harvard Medical School
Chief, Division of Endocrinology, Boston Children's Hospital
NICHD Board of Scientific Counselors

William T. Dauer, MD
Expertise: Pediatrics, Pediatric Development & Behavior, Rare Disease & Genetics, Neurobiology
Elinor Levine Professor of Neurology
Professor of Cell and Developmental Biology
Director, Movement Disorders Group & Udall Center of Excellence for Parkinson’s Disease Research
University of Michigan Medical School
NICHD DIR Budget: FY2018 Estimates

Total $186,657,000

- Lab Consumables $45,225,748 24%
- Salaries $63,796,000 34%
- Animal Care $3,786,332 2%
- Capital Equipment $1,388,200 1%
- Unity Plan $902,720 1%
- Agreements $4,150,000 2%
- Renovations $1,411,000 1%
- Management Fund $35,607,520 19%
- School Tax $30,389,480 16%

*Total Budget for DIR, does not include DIPHR Budget of $9,580,000
# NICHD DIR Personnel Trends

<table>
<thead>
<tr>
<th></th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
<th>FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FTEs</strong></td>
<td>306</td>
<td>308</td>
<td>307</td>
<td>301</td>
</tr>
<tr>
<td><strong>Non-FTEs</strong></td>
<td>690</td>
<td>655</td>
<td>607</td>
<td>587</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>996</td>
<td>963</td>
<td>914</td>
<td>888</td>
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</tbody>
</table>
NICHD Intramural Trainee Numbers
As of April 2018, 269 total

- Postbacs: 53
- Summer for 2017: 62
- Clinical Fellows: 20
- Graduate Students: 17
- Postdocs: 178
Retirements & Departures

Stephen Suomi, PhD
Retired March 2018

Chi-Hon Lee, MD, PhD
Retired February 2018
Director, Institute of Cellular & Organismic Biology, Academia Sinica, Taiwan
Retirements & Departures

Marc Bornstein, PhD
Retired May 2018

Maya Lodish, MD
Departed June 2018
S. Kaplan Chair of Pediatric Clinical Research at the University of California, San Francisco
Recruitment

Pedro Rocha, PhD
Stadtman Investigator
Started April 30, 2018
Unit on Genome Structure and Regulation
BIONFORMATICS at NICHD

Ryan Dale, MD

Started June 24, 2018

Scientific Information Officer
Head, Bioinformatics and Scientific Programming Core
Recruitment

Fady Hannah-Shmouni, MD

Graduated from the NIH Inter-Institute Endocrinology Training Program in 2017

Starting in fall 2018 as:

- Staff Clinician & Co-Chief, Internal Medicine, NICHD
- Associate Program Director, Inter-Institute Endocrinology Training Program
Tenure-Track Earl Stadtman Investigators

Deadline: September 30, 2018

The National Institutes of Health, the U.S. government’s premier biomedical and behavioral research enterprise and a component of the Department of Health and Human Services, is pleased to announce its tenth annual call for researchers who want to be “NIH Earl Stadtman Investigators”. These are tenure-track positions (assistant professor equivalent) within the NIH Intramural Research Program (IRP). As a member of the IRP, you join a team whose hallmarks are stable funding, intellectual freedom, shared resources, and access to a wide range of scientific expertise. A wide array of scientists already has been hired through the “Stadtman” recruitment mechanism over the last nine years.

A variety of basic and translational/clinical positions are available, with areas of active recruitment including (but not limited to): Behavioral Sciences, Biochemistry, Biomedical Engineering, Biophysics, Biostatistics, Cancer Biology, Cell Biology, Cell Metabolism, Chemical Biology, Chromosome Biology, Computational Biology/Bioinformatics (including natural language processing and text mining), Developmental Biology, Epidemiology, Genetics, Genomics, Health Disparities, Immunology, Infectious Diseases, Microbiology, Molecular Pharmacology, Neurodevelopment, Neurosciences, Physiology, RNA Biology, Social Sciences, Structural Biology, Systems Biology, Toxicology, Translational and Clinical Research, and Virology.
Lasker Clinical Research Scholars Program

- **Goal** – To grow the diminishing pool of talented clinical/translational researchers.

- **Total program duration 8+ years:**
  - Years 1-5: NIH Intramural Research Program full support (salary and research support)
  - Years 6-8: salary and/or research support of up to $500,000/year at outside institution, OR continuation in Intramural Research Program

- **Candidates** – Early stage clinical researchers, within 10 years of completing core residency, with the ability to conduct independent research.

- **Application deadline:** August 31, 2018

[https://www.nih.gov/research-training/lasker-clinical-research-scholars](https://www.nih.gov/research-training/lasker-clinical-research-scholars)
Recently Tenured - DIPHR

Pauline Mendola, PhD
Senior Investigator, Epidemiology Branch
Awarded Tenure: March 5, 2018

Stephen Gilman, ScD
Senior Investigator & Chief,
Behavioral Health Sciences Branch
Awarded Tenure: April 16, 2018

Zhen Chen, PhD
Senior Investigator, Biostatistics &
Bioinformatics Branch
Awarded Tenure: May 21, 2018
Investigator Honors - DIR

Tom Dever, PhD
Elected Fellow to the American Academy of Microbiology

Peter Basser, PhD
Inducted into the American Institute for Medical and Biological Engineering
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
- **NICHD:** 2 awards in Cycle 1
  - 2 awards in Cycle 2
  - 3 applications in Cycle 3
  - 2 applications in Cycle 4

<table>
<thead>
<tr>
<th>Year</th>
<th>LOIs/X02s</th>
<th>Approved</th>
<th>Approval Rate</th>
<th>New Apps</th>
<th>Resubmissions</th>
<th>Awards</th>
<th>Funding Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>74</td>
<td>56</td>
<td>76%</td>
<td>51</td>
<td>-</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>2014</td>
<td>48</td>
<td>32</td>
<td>67%</td>
<td>19</td>
<td>14</td>
<td>10</td>
<td>30%</td>
</tr>
<tr>
<td>2015</td>
<td>47</td>
<td>39</td>
<td>83%</td>
<td>28</td>
<td>6</td>
<td>5</td>
<td>15%</td>
</tr>
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</table>
NICHD DIR Competitive Awards

NICHD DIR Director's Awards, FY18

- Two years of funding
  - FY14-15, $3M
  - FY16-17, $2M, 8 of 25 applications funded
  - FY18-19, 26 applications

- 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 DIR Director’s Awards, FY18-19

<table>
<thead>
<tr>
<th>PI Name</th>
<th>Collaborators</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banerjee, Anirban</td>
<td>Inglese, James (NCATS); Shi, Lei (NIDA)</td>
<td>A multipronged approach to develop small molecule probes for investigating the physiology and pharmacology of protein palmitoylation</td>
</tr>
<tr>
<td>Burgess, Harold</td>
<td>Pfeifer, Karl</td>
<td>Characterization of random mono-allelic gene expression in zebrafish</td>
</tr>
<tr>
<td>Chernomordik, Leonid</td>
<td>Margolis, Leonid</td>
<td>Mechanisms of Zika virus entry into human cervical and placental tissues ex vivo</td>
</tr>
<tr>
<td>Clark, David</td>
<td>Burgess, Harold</td>
<td>Autism-Spectrum Disorder-linked Chromatin Remodelers in Brain Development</td>
</tr>
<tr>
<td>Crouch, Robert</td>
<td>Ozato, Keiko</td>
<td>Clearing endogenous nucleic acids in microglia: essential requirement for neuronal development and brain health</td>
</tr>
<tr>
<td>Dasso, Mary</td>
<td>Serpe, Mihaela</td>
<td>IRBIT-dependent pathways for control of cell differentiation and tissue homeostasis</td>
</tr>
<tr>
<td>Feldman, Benjamin</td>
<td>Coon, Steve</td>
<td>Modeling of Disease-Related Missense Mutations in Zebrafish</td>
</tr>
<tr>
<td>Levin, Henry</td>
<td>Macfarlan, Todd</td>
<td>The role of retrotransposons and zinc finger proteins in neural development and neurological diseases</td>
</tr>
<tr>
<td>Maraia, Rich</td>
<td>Iben, James</td>
<td>Functional modeling of TRIT1 deficiency alleles toward precision medicine</td>
</tr>
<tr>
<td>Marini, Joan</td>
<td>Robey, Pamela (NIDCR); Collins, Michael (NIDCR); Bhattacharyya, Timothy (NIAMS)</td>
<td>Role of MAP2K1 somatic mutations in melorheostosis</td>
</tr>
<tr>
<td>Storz, Gisela</td>
<td>Banerjee, Anirban; Luisi, Ben (University of Cambridge)</td>
<td>Modulating drug efflux pumps with small proteins</td>
</tr>
<tr>
<td>Yanovski, Jack</td>
<td>Zimmerberg, Joshua; Demidowich, Andrew; Margolis, Leonid</td>
<td>Novel Approaches to quantify and ameliorate the impact of adipose inflammation on insulin resistance</td>
</tr>
</tbody>
</table>
NIH Competitive Awards

Office of AIDS Research Strategic Funding

Funding through the NICHD Office of the Director

- The aim of this Fund is to redirect NIH HIV/AIDS research funds to the highest priority, most meritorious, research aligned with the current NIH HIV/AIDS research 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
## Office of AIDS Research Strategic/Innovation Funding, FY18

<table>
<thead>
<tr>
<th>PI</th>
<th>Project Title</th>
<th>FY18 Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levin, Henry</td>
<td>The role of mRNA splicing in HIV-1 integration</td>
<td>$110,000</td>
</tr>
<tr>
<td>Levin, Henry</td>
<td>Mapping chromatin interactions of LEDGF by creating highly specific antibodies</td>
<td>$105,000</td>
</tr>
<tr>
<td>Banerjee, Anirban</td>
<td>Investigation into the organization, function and interacting partners of SERINC3 and SERINC5</td>
<td>$187,000</td>
</tr>
<tr>
<td>Chernomordik, Leonid</td>
<td>Molecular Mechanisms Underlying Phosphatidylyserine-Dependent Stage of HIV-1 Entry</td>
<td>$120,000</td>
</tr>
<tr>
<td>Zimmerberg, Josh</td>
<td>Determining the Cellular Mechanisms of HIV Viral Assembly and Latency</td>
<td>$100,000</td>
</tr>
</tbody>
</table>
Diversity & Training Initiatives
DIR 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): 5 new recruits for 2018-19
Alumni group of 14: our three new alumni are starting professional school in the fall with full scholarships; L. Crawford (PhD program at Penn State University), A. Simmons (Cornell Medical School), and O. Bankole (Rush College, Biotechnology Master’s)

Summer Trainees: Centrally-funded slots for students from groups traditionally underrepresented in science or from disadvantaged backgrounds
15 filled for 2018 (1/4 of our summer population)

Fellows Recruitment Incentive Award (Postdocs):
1 recruit every fiscal year
Alejandra Garcia (Stopfer Lab, started in Nov. 2017)
FRIA alumni: AAAS Science Policy Fellow
Intramural Research Fellowships

Our 2nd Application Cycle Started on May 12

• For Postdoctoral and Clinical Fellows in their second or third training year
• Training on how to write various components of an NIH grant
• Application prepared by fellow under guidance of their mentor
  • 10 pages max. (NIH Biosketch, Specific Aims, Significance and Approach, Budget Justification, and Mentor’s Statement of Support)
• Award of $30K for 1 year, towards equipment, travel/training, and the fellow’s stipend; up to 3 awards per year

Review by BSC members. Fellows’ applications and reviewing instructions will be sent on September 10th. Scores with comments are due by October 15th.
Three-minute Talks (TmT): Science Communication Training and Awards Program

• Professional training in speech development and presentation delivery

• One-on-one coaching and feedback in a supportive environment

• For finalists: A professionally produced video of your talk for NICHD promotional efforts and your own use, plus travel/training awards

• Final competition June 28, 2018 with other participating institutes: NIDCR, NIAMS, NEI, & NHGRI

Congratulations to Dr. Jakob Gutzmann for placing 3rd overall!

2018 FINALISTS:
Karen Plevock Haase (Dasso)
Larissa Erben (Buonanno)
Jakob Gutzmann (Hoffman)
Lindsey Friend (Serpe)
Thank you!
New Directions in Microstructure and Functional MRI

Peter J. Basser, Ph.D.
Associate Scientific Director, Imaging, Behavior, & Genetic Integrity
Senior Investigator and Head, Section on Quantitative Imaging & Tissue Sciences