

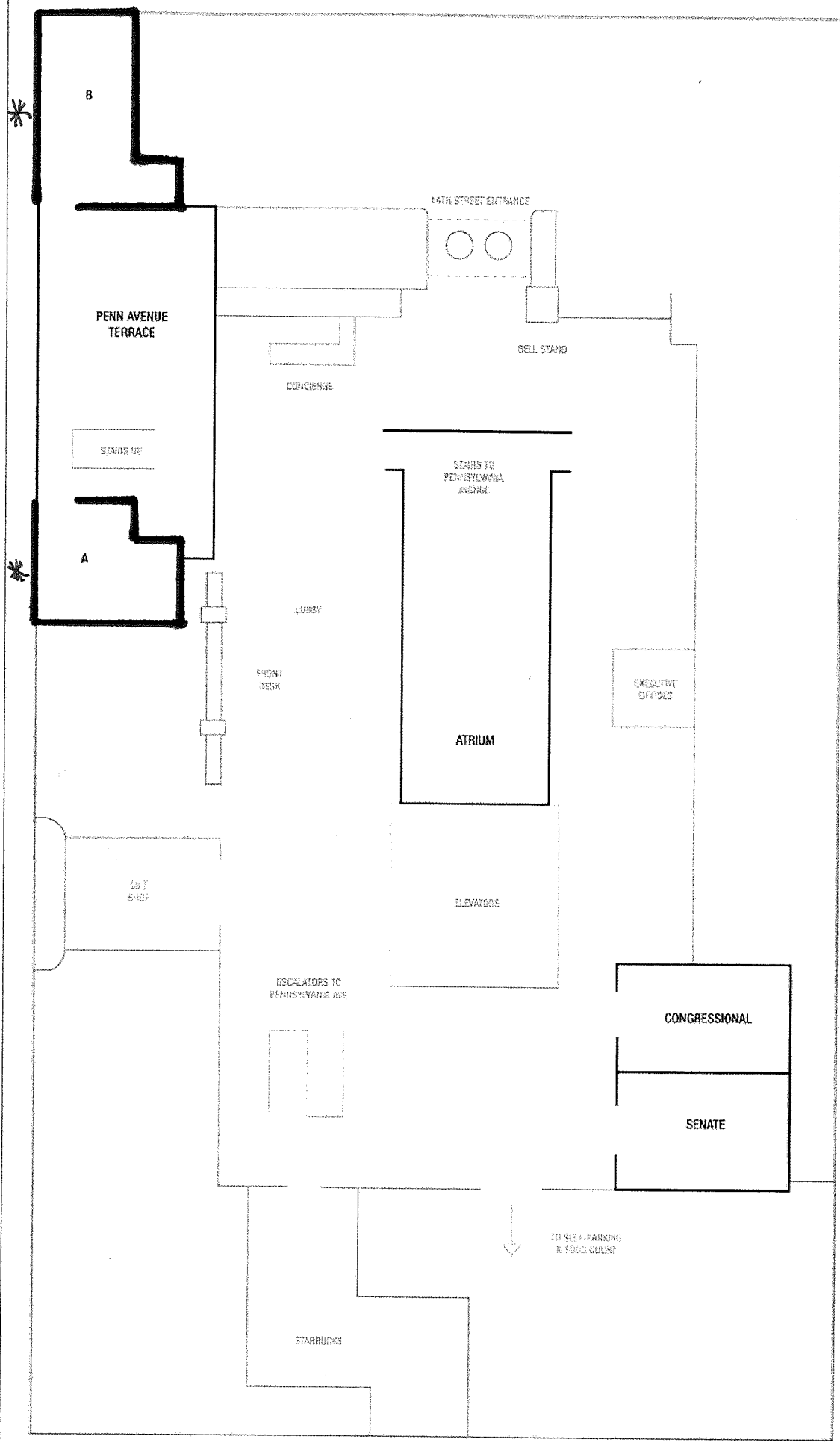
# NINDS / AUPN / ANA / CNS

June 26-27, 2015 • JW Marriott • Washington, DC

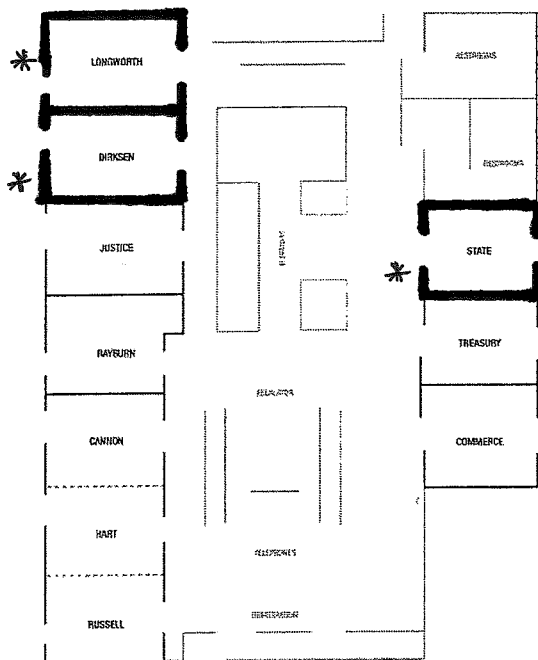
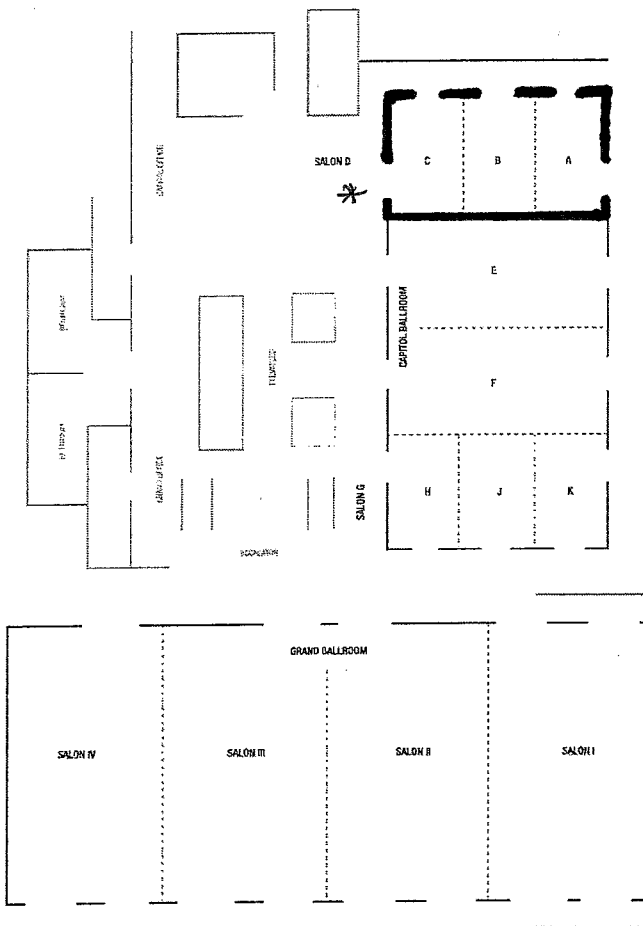
## Combining Clinical and Research Careers in Neuroscience



LOBBY LEVEL



## MEETING ROOM LEVEL

**BALLROOM LEVEL**

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*How to Combine Clinical and Research Careers in Neuroscience Symposium*  
*JW Marriott/Washington, DC June 26-27, 2015*

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## **Evaluation**

[Please take a moment to complete the course evaluation](#)



Association of  
University Professors  
of Neurology



CHILD NEUROLOGY SOCIETY

## **HOW TO COMBINE CLINICAL AND RESEARCH CAREERS IN NEUROSCIENCE**

The Association of University Professors of Neurology (AUPN) together with the National Institute of Neurological Disorders and Stroke (NINDS), the American Neurological Association (ANA) and the Child Neurology Society (CNS) welcome you to the clinician-scientist mentoring course.

**Goals:** The goals of this course are to: 1) encourage medical students with neuroscience research training to pursue clinical training (with special emphasis on neurology) and choose clinician-scientist careers, 2) describe and discuss strategies for successfully melding clinical and research careers, 3) discuss the satisfactions and power of a combined research and clinical career, 4) describe and discuss sources of and strategies for obtaining training and research support, and 5) provide an opportunity for students to meet academicians who have successfully combined clinical and research careers in neuroscience.

**Expectations:** We are interested to know the impact of this course on the career-development experience of our student attendees. To this end we must collect both immediate and long-term information about our student participants. This information will help us justify federal support for future mentoring courses and will allow us to modify the program to be maximally responsive to student needs. Please give us your feedback. We are counting on a 100% response rate to the brief questionnaires you will receive via email following the course.

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Bruce R. Ransom, MD, PhD  
Symposium Organizer

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David J. Fink, MD  
President, AUPN

---

Walter Koroshetz, MD  
Director, National Institute of Neurological Disorders and Stroke  
National Institutes of Health



Association of  
University Professors  
of Neurology



CHILD NEUROLOGY SOCIETY

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## **COURSE ORGANIZERS**

### **Bruce R. Ransom, MD, PhD**

Symposium Organizer, University of Washington

### **Allan Levey, MD**

Co-Symposium Organizer, Emory University

### **David J. Fink, MD**

President, AUPN, University of Michigan

### **Stephen J. Korn, PhD**

National Institute of Neurological Disorders and Stroke  
National Institutes of Health, Bethesda

### **Walter Koroshetz, MD**

Director, National Institute of Neurological Disorders and Stroke  
National Institutes of Health

### **Support Staff**

#### **JoAnn Taie**

Association of University Professors of Neurology

[joanntaie@llmsi.com](mailto:joanntaie@llmsi.com)

#### **Lizzie Larson**

Association of University Professors of Neurology

[neuro@aupn.org](mailto:neuro@aupn.org)

## **COMBINING CLINICAL AND RESEARCH CAREERS IN NEUROSCIENCE SYMPOSIUM**

*JW Marriott Washington DC  
1331 Pennsylvania Avenue NW  
Washington, DC 20004  
Friday, June 26 – Saturday, June 27, 2015*

**Sponsored by:** National Institute of Neurological Disorders and Stroke (NINDS), Association of University Professors of Neurology (AUPN), American Neurological Association (ANA) and Child Neurology Society (CNS).

### **AGENDA**

#### **Friday, June 26, 2015 – Meeting and meals will take place in Salon D**

- |                  |   |
|------------------|---|
| 6:30 - 7:30 p.m. | <b>Registration and Cocktail Reception</b>  |
| 7:30 - 7:45 p.m. | <b>Welcome and Opening Remarks</b><br><i>Bruce R. Ransom, MD, PhD, University of Washington</i>                             |
| 7:45 - 8:45 p.m. | <b>Dinner</b>   |
| 8:45 - 9:15 p.m. | <b>Combining Clinical and Research Careers: How I Am Doing It</b><br><i>Ryan Felling, MD, PhD, Johns Hopkins University</i> |

#### **Saturday, June 27, 2015 – Meeting and meals will take place in Salon D**

- |                    |  |
|--------------------|--|
| 8:30 - 9:15 a.m.   | <b>Registration and Continental Breakfast</b>  |
| 9:15 - 10:00 a.m.  | <b>Combining Clinical and Research Careers in Neuroscience: An Overview</b><br><i>Bruce R. Ransom, MD, PhD, University of Washington</i>   |
| 10:00 - 10:45 a.m. | <b>NINDS Career Development – The NINDS Perspective</b><br><i>Walter Koroshetz, MD, Acting Director, National Institute of Neurological Disorders and Stroke</i>   |
| 10:45 - 11:00 a.m. | <b>Break</b>   |
| 11:00 – 12noon     | <b>Panel Discussion</b><br><i>Moderated by: Bruce R. Ransom, MD, PhD, University of Washington</i><br><i>Panelists: Stephen J. Korn, PhD, NINDS; Christina M. Marra, MD, University of Washington; Walter Koroshetz, MD, Acting Director, NINDS; Ryan Felling, MD, PhD, Johns Hopkins University</i> |

12noon - 1:30 p.m.      **Networking Lunch**

1:30 - 2:15 p.m.      **Funding for Research Training and Career Development**

*Stephen J. Korn, PhD, NINDS*

2:15 - 3:00 p.m.      **Physician-Scientist: Career and Family: Can You Have It All?**

*Christina M. Marra, MD, University of Washington School of Medicine*

3:00 - 3:15 p.m.      **Break**

### **Meeting Room Assignments for Small Group Breakouts**

*Breakout Group Facilitators: Bruce R. Ransom, MD, PhD, University of Washington; Ryan Felling, MD, PhD, Johns Hopkins University; Walter Koroshetz, MD, Acting Director, National Institute of Neurological Disorders and Stroke; Stephen J. Korn, PhD, NINDS; Christina M. Marra, MD, University of Washington; Nina Schor, MD, PhD, Child Neurology Society; Sami Barmada, MD, PhD, University of Michigan; Geoffrey Aguirre, MD, PhD, University of Pennsylvania; Christopher Ransom, MD, PhD, University of Washington; Ana-Claire Meyer, MD, Harvard University*

3:15 – 4:30      **Small Group Breakouts**

Group 1: MEETING ROOM: Dirksen

Group 2: MEETING ROOM: Longworth

Group 3: MEETING ROOM: State

Group 4: MEETING ROOM: Penn Avenue Terrace A

Group 5: MEETING ROOM: Penn Avenue Terrace B

4:30 - 6:30 p.m.      **Final Cocktail Reception (Penn Avenue Terrace) – hors d'oeuvres will be served**





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Last Name	First Name	Breakout Group	Meeting Room 3:15-4:00pm
Adams	Joshua	1	Dirksen
Adegoke	Modupe	2	Longworth
Allsop	Stephen	3	State
Ballinger	Elizabeth	4	Penn Avenue Terrace A
Baratono	Sheena	5	Penn Avenue Terrace B
Bennion	Douglas	1	Dirksen
Brown	Christopher	2	Longworth
Butt	Omar	3	State
Campbell	Philip	4	Penn Avenue Terrace A
Campbell	Peter	5	Penn Avenue Terrace B
Cano	Christopher	1	Dirksen
Carlisle	Tara	2	Longworth
Carvalho	Fernanda	3	State
Chopra	Ravi	4	Penn Avenue Terrace A
Clark	Michael	5	Penn Avenue Terrace B
Comer	John	1	Dirksen
Corty	Robert	2	Longworth
Eshel	Neir	3	State
Fisher	Clark	4	Penn Avenue Terrace A
Fremont	Rachel	5	Penn Avenue Terrace B
Freret	Morgan	1	Dirksen
Harmon	Jennifer	2	Longworth
Hauser	Jessica	3	State
Hernandez	Amanda	4	Penn Avenue Terrace A
Hornstein	Nicholas	5	Penn Avenue Terrace B
Kelley	Kevin	1	Dirksen
Kumar	Jaswinder	2	Longworth
Laitman	Benjamin	3	State
Lang	Patrick	4	Penn Avenue Terrace A
LaRocque	Joshua	5	Penn Avenue Terrace B
Leclerc	Jenna	1	Dirksen
Liao	James	2	Longworth
Lucke-Wold	Brandon	3	State
Luna	Esteban	4	Penn Avenue Terrace A
Marcott	Pamela	5	Penn Avenue Terrace B

Marshall	Michael	1	Dirksen
Martinez-Velasquez	Luis	2	Longworth
Maya-Ramos	Lisandro	3	State
McConnell	Evan	4	Penn Avenue Terrace A
Mendelsohn	Alana	5	Penn Avenue Terrace B
Motzkin	Julian	1	Dirksen
Olfson	Emily	2	Longworth
Pappalardo (West)	Laura	3	State
Proch	Katherine	4	Penn Avenue Terrace A
Russ	Jeffrey	5	Penn Avenue Terrace B
Sandlin	David	1	Dirksen
Scarpa	Joseph	2	Longworth
Srinivasan	Sharan	3	State
Thomas	Eleanor	4	Penn Avenue Terrace A
Tischfield	David	5	Penn Avenue Terrace B
Tow	Amanda	1	Dirksen
Wadhwani	Anil	2	Longworth
Wei	Don	3	State
Wilson	Tommy	4	Penn Avenue Terrace A
Yeates	Eniola	5	Penn Avenue Terrace B

### Breakout Group Faculty Assignments

**Group 1:** Geoffrey Aguirre, MD, PhD and Christina Marra, MD

**Group 2:** Sami Barmada, MD, PhD and Brice Ransom, MD, PhD

**Group 3:** Nina Schor, MD, PhD and Ryan Felling, MD, PhD

**Group 4:** Stephen Korn, PhD and Ana-Claire Meyer, MD

**Group 5:** Walter Koroshetz, MD and Christopher Ransom, MD, PhD

## STUDENT PARTICIPANTS, JUNE 2015

**Joshua Adams**

Baylor College of Medicine  
Houston, TX  
Email: jmadams@bcm.edu

**Modupe Adegoke**

University of Pennsylvania  
Philadelphia, PA  
Email: adegokem@mail.med.upenn.edu

**Stephen Allsop**

Harvard/MIT  
Boston, MA  
Email: stephen\_allsop@hms.harvard.edu

**Elizabeth Ballinger**

Stony Brook University  
Port Jefferson Station, New York  
Email: elizabeth.ballinger@stonybrook.edu

**Sheena Baraton**

Perlman school of medicine  
Philadelphia, PA  
Email: baraton@mail.med.upenn.edu

**Douglas Bennion**

University of Florida  
Gainesville, FL  
Email: douglasbennion@ufl.edu

**Christopher Brown**

University of Kentucky  
Lexington, KY  
Email: cabr237@uky.edu

**Omar Butt**

University of Pennsylvania  
Philadelphia, PA  
Email: obutt@mail.med.upenn.edu

**Philip Campbell**

Albert Einstein College of Medicine  
Bronx, New York  
Email: philip.campbell@med.einstein.yu.edu

**Peter Campbell**

University of Louisville; Grinnell College  
Louisville, Kentucky  
Email: pwcamp02@louisville.edu

**Christopher Cano**

UT Southwestern  
Dallas, TX  
Email: Christopher.Cano@utsouthwestern.edu

**Tara Carlisle**

University of Colorado Anschutz Medical Camp.  
Aurora, CO  
Email: Tara.Carlisle@ucdenver.edu

**Fernanda Carvalho**

Columbia University  
West New York, NJ  
Email: fdc2107@columbia.edu

**Ravi Chopra**

Northwestern University  
Ann Arbor, MI  
Email: chopravi@med.umich.edu

**Michael Clark**

UNC-Chapel Hill  
Chapel Hill, North Carolina  
Email: michael\_clark@med.unc.edu

**John Comer**

Weill Cornell Medical College  
New York, NY  
Email: joc2051@med.cornell.edu

**Robert Corty**

UNC at Chapel Hill  
Chapel Hill, NC  
Email: robert\_corty@med.unc.edu

**Neir Eshel**

Harvard Medical School  
Cambridge, MA  
Email: Neir\_Eshel@hms.harvard.edu

## STUDENT PARTICIPANTS, JUNE 2015

**Clark Fisher**

Weill Cornell Medical College (MD)/The  
Rockefeller University (PhD)  
New York, NY  
Email: clf2003@med.cornell.edu

**Rachel Fremont**

Albert Einstein College of Medicine  
New York, NY  
Email: rachel.fremont@med.einstein.yu.edu

**Morgan Freret**

Harvard Medical School  
Boston, MA  
Email: morgan\_freret@hms.harvard.edu

**Jennifer Harmon**

Erskine College  
Charleston, SC  
Email: blakely@musc.edu

**Jessica Hauser**

Baylor College of Medicine  
Pearland, TX  
Email: jlhauser@bcm.edu

**Amanda Hernandez**

Yale University School of Medicine  
New Haven, CT  
Email: amanda.hernandez@yale.edu

**Nicholas Hornstein**

Columbia University  
New York, NY - New York  
Email: njh219@gmail.com

**Kevin Kelley**

UCSF  
San Francisco, CA  
Email: kevin.kelley@ucsf.edu

**Jaswinder Kumar**

UT Southwestern  
Valencia, CA  
Email: jaswinder.kumar@utsouthwestern.edu

**Benjamin Laitman**

Icahn School of Medicine at Mount Sinai  
New York, NY  
Email: benjamin.laitman@mssm.edu

**Patrick Lang**

UNC School of Medicine  
Chapel Hill, NC  
Email: ylang@ad.unc.edu

**Joshua LaRocque**

University of Wisconsin-Madison  
Middleton, WI  
Email: jlarocque@wisc.edu

**Jenna Leclerc**

University of Florida  
Gainesville, FL  
Email: jleclerc@ufl.edu

**James Liao**

Case Western Reserve University  
Shaker Heights, OH  
Email: james.liao@case.edu

**Brandon Lucke-Wold**

West Virginia University School of Medicine  
Morgantown, WV  
Email: Bwold@mix.wvu.edu

**Esteban Luna**

Perelman School of Medicine at the University  
of Pennsylvania  
Philadelphia, PA  
Email: estebanl@mail.med.upenn.edu

## STUDENT PARTICIPANTS, JUNE 2015

**Pamela Marcott**

Case Western Reserve University  
Cleveland, OH  
Email: pamela.marcott@case.edu

**Michael Marshall**

University of Illinois at Chicago  
Chicago, IL  
Email: mmars22@uic.edu

**Luis Martinez-Velasquez**

NYU School of Medicine  
New York, NY  
Email: lam694@nyumc.org

**Lisandro Maya-Ramos**

UCSF  
san francisco, CA  
Email: lisandro.maya-ramos@ucsf.edu

**Evan McConnell**

University of Rochester Medical Center  
Rochester, NY  
Email: evan\_mcconnell@urmc.rochester.edu

**Alana Mendelsohn**

Columbia University  
New York, NY  
Email: aim2116@cumc.columbia.edu

**Julian Motzkin**

University of Wisconsin - Madison  
Madison, Wisconsin  
Email: motzkin@wisc.edu

**Emily Olfson**

Washington University in St Louis  
Saint Louis, MO  
Email: olfsone@wusm.wustl.edu

**Laura Pappalardo (West)**

Yale University  
New Haven, CT  
Email: laura.pappalardo@yale.edu

**Katherine Proch**

University of Iowa Carver College of Medicine  
Iowa City, IA  
Email: katherine-proch@uiowa.edu

**Jeffrey Russ**

Weill Cornell Medical College  
New York, NY  
Email: jer2018@med.cornell.edu

**David Sandlin**

University of Mississippi Medical Center  
Jackson, MS  
Email: dsandlin@umc.edu

**Joseph Scarpa**

Mount Siinai School of Medicine  
New York, NY  
Email: joseph.scarpa@mssm.edu

**Sharan Srinivasan**

University of Michigan  
Ann Arbor, MI  
Email: sharans@med.umich.edu

**Eleanor Thomas**

Yale University  
New Haven, CT  
Email: eleanor.thomas@yale.edu

**David Tischfield**

Upenn/CHOP  
Philadelphia, PA  
Email: dtis@mail.med.upenn.edu

**Amanda Tow**

Albert Einstein College of Medicine  
Bronx, NY  
Email: amanda.tow@med.einstein.yu.edu

**Anil Wadhwani**

Northwestern University  
Chicago, Illinois  
Email: a-wadhwani@northwestern.edu

**Don Wei**

UC Irvine

Irvine, CA

Email: d.wei@uci.edu

**Tommy Wilson**

Albert Einstein College of Medicine

Bronx, NY

Email: tommy.wilson@med.einstein.yu.edu

**Eniola Yeates**

Tufts University

Boston, MA

Email: eniola.yeates@tufts.edu

## FACULTY AND MENTOR PARTICIPANTS, JUNE 2015

**Geoffrey Aguirre, MD, PhD**

University of Pennsylvania  
Philadelphia, PA

Email: [aguirreg@mail.med.upenn.edu](mailto:aguirreg@mail.med.upenn.edu)

**Sami Barmada, MD, PhD**

University of Michigan  
Ann Arbor, MI

Email: [sbarmada@med.umich.edu](mailto:sbarmada@med.umich.edu)

**Ryan Felling, MD, PhD**

Johns Hopkins University  
Baltimore, MD

Email: [rfellin2@jhmi.edu](mailto:rfellin2@jhmi.edu)

**Stephen Korn, PhD**

National Institutes of Health  
Bethesda, MD

Email: [korns@ninds.nih.gov](mailto:korns@ninds.nih.gov)

**Walter Koroshetz, MD**

National Institute of Neurological Disorders and  
Stroke

Bethesda, MD

Email: [koroshetzw@ninds.nih.gov](mailto:koroshetzw@ninds.nih.gov)

**Christina Marra, MD, PhD**

University of Washington  
Seattle, WA

Email: [cmarra@uw.edu](mailto:cmarra@uw.edu)

**Ana-Claire Meyer, MD**

Harvard University  
Boston, MA

Email: [anaclaire@gmail.com](mailto:anaclaire@gmail.com)

**Bruce Ransom, MD, PhD**

Symposium Organizer, University of  
Washington

Seattle, WA

Email: [bransom@u.washington.edu](mailto:bransom@u.washington.edu)

**Chris Ransom, MD, PhD**

University of Washington  
Seattle, WA

Email: [cbr5@u.washington.edu](mailto:cbr5@u.washington.edu)

**Nina Schor, MD, PhD**

Child Neurology Society  
Rochester, NY

Email: [Nina\\_Schor@URMC.Rochester.edu](mailto:Nina_Schor@URMC.Rochester.edu)

**Support Staff****JoAnn Taie**

Association of University Professors of  
Neurology

Email: [joanntaie@llmsi.com](mailto:joanntaie@llmsi.com)

**Lizzie Larson**

Association of University Professors of  
Neurology

Email: [neuro@aupn.org](mailto:neuro@aupn.org)

## ***Faculty & Mentor Biographies***



### ***Geoffrey Aguirre, MD, PhD, University of Pennsylvania***

I am an Associate Professor of Neurology at the University of Pennsylvania and a cognitive neuroscientist. My clinical and research work concerns the organization of the brain for mental operations, in particular visual ability. Using functional MRI, a non-invasive tool for measuring brain activity, I study how neurons are normally arranged to represent and store visual information. I use these techniques to understand as well how blindness changes the brain. As a clinician, I treat patients with a variety of disturbances of thinking and memory, with my practice informed by recent insights into the organization of the brain for these functions. I study the methodological development and application of imaging techniques. I am the Associate Director of the Center for Neuroscience and Society and a Senior Consultant to the MacArthur Foundation Research Network on Law and Neuroscience, with a focus upon the use and misuse of brain imaging data. Finally, I am the Associate Director of the Neurology Residency program at the Hospital of the University of Pennsylvania.



### ***Bruce Ransom, MD, PhD, Symposium Organizer, University of Washington***

Dr. Ransom's research focuses on the physiology and function of glial cells and mechanisms of neural injury associated with ischemia, especially in axonal pathways of the brain. A major goal of his work is to understand how glial cells interact with neurons in the course of normal and pathological brain function.

Ransom's current studies on glial cells are designed to determine their role in glutamate homeostasis in the brain and their role in brain energy metabolism. These studies are pursued using ion imaging techniques, biochemical analysis (including HPLC) and electrophysiology. He and his colleagues have begun to elucidate the important contributions of ion channels/transport mechanisms in regulating ionic balance and glutamate release. These mechanisms can exert critical influence over the excitability of neuronal populations and may also participate in pathological events like brain ischemia. Ransom's research also relates to neural injury. He is seeking to understand how myelinated axons within the central nervous system are affected by anoxic or ischemic insults during development and in adulthood. Increased knowledge of the basic pathophysiology of neural injury during maturation of the central nervous system will allow development of strategies that minimize the amount of injury in infants who undergo anoxic or ischemic insults.



## ***Faculty & Mentor Biographies***



### ***Sami Barmada, MD, PhD, University of Michigan***

Dr. Barmada received his undergraduate degree (B.S. in Molecular Biology: Biochemistry) from the University of Pittsburgh, Pittsburgh, PA, in 1998. He then moved to Washington University School of Medicine in St. Louis, MO, where he was enrolled in the Medical Scientist Training Program. For his Ph.D. in Neuroscience, he established a transgenic model of prion diseases with Dr. David Harris (now chair of Biochemistry at Boston University), and used this model to identify some of the first steps in prion disease pathogenesis. He earned his M.D. and Ph.D. in 2006, and spent an additional year as an intern at Barnes-Jewish Hospital and Washington University School of Medicine in St. Louis, MO, before moving to the University of California, San Francisco (UCSF), for a residency in neurology. During this time, he participated in the Flexible Residency Program, allowing him to participate in basic science while still a resident (this was a precursor to the NIH-supported R25 program, now adopted by UCSF and other institutions). As a resident and afterwards, as a research fellow, he worked with Dr. Steve Finkbeiner, Senior Investigator at the J. David Gladstone Institutes and Associate Director of the Institute for Neurological Diseases. One year after completing residency, in 2011, Dr. Barmada became a Staff Scientist at the Gladstone Institutes, focusing on the pathologic overlap between amyotrophic lateral sclerosis (ALS) and frontotemporal dementia. He also maintained a position as a Health Sciences Clinical Instructor at UCSF, seeing patients in San Francisco General Hospital, the ALS Center and the Memory and Aging Center, both at UCSF. In 2013, he joined the Neurology Department at the University of Michigan (UM) in Ann Arbor, MI, as an Assistant Professor of Neurology. At UM, the majority (80%) of his time is devoted to research, while the remaining 20% is occupied by teaching and clinical service at the Cognitive Disorders Clinic and the Neurology Inpatient Service. His laboratory focuses on convergent mechanisms in ALS and frontotemporal dementia, and on powerful microscopy systems to better study disease and evaluate therapeutics.



### ***Christopher Ransom, MD, PhD, University of Washington***

Christopher Ransom, MD, PhD is an Assistant Professor of Neurology at the University of Washington and the Epilepsy Center of Excellence at the VA Puget Sound. Dr. Ransom graduated from the MSTP at the University of Alabama School of Medicine, earning his PhD in Neurobiology, before completing a Neurology Residency and Epilepsy Fellowship at Yale-New Haven Hospital. During fellowship training, Dr. Ransom developed an interest in the regulation and function of extrasynaptic GABA<sub>A</sub> receptors in the hippocampus and is continuing to work on this topic supported by a VA Career Development Award. Dr. Ransom joined the Epilepsy Center of Excellence at the VA Puget Sound in 2010.

## ***Faculty & Mentor Biographies***



### ***Ryan Felling, MD, PhD, Johns Hopkins University***

Ryan Felling went to medical school in Hershey, PA where completed a combined MD, PhD program, studying the response of neural stem cells to perinatal brain injury in the lab of Steve Levison. He then completed 2 years of Pediatrics residency at the Children's Hospital of Philadelphia before moving to Johns Hopkins for Child Neurology residency. During his child neurology residency he began doing research in the laboratory of Hongjun Song, studying the effects of hypoxic ischemic injury on epigenetic DNA modifications in the brain. He was recognized during residency with the Johns Hopkins Guy McKhann award, given to the graduating resident who exemplifies excellence in teaching, as well as the Jay Slotkin award given to the graduating resident who has demonstrated significant research accomplishment during residency. He then completed a 1 year clinical fellowship in vascular neurology and subsequently joined the faculty at Johns Hopkins as an Assistant Professor. He is currently the Director of the Pediatric Stroke program at Johns Hopkins, and continues his research efforts under the mentorship of Hongjun Song, studying the role that DNA modifications play in regulating neurogenesis following perinatal hypoxic-ischemic brain injury. He is in the midst of developing a career that combines an academic clinical niche of pediatric stroke with a scientific interest in the mechanisms of recovery following brain injury.



### ***Stephen J. Korn, PhD, NIH***

Dr. Korn came to NINDS as Director of the Office of Training, Career Development and Workforce Diversity in January, 2006. He received his Ph.D. in Pharmacology from the University of North Carolina- Chapel Hill, and received postdoctoral training at NIH (as a PRAT Fellow of NIGMS) and at the Roche Institute of Molecular Biology (with financial support from NRSA postdoctoral fellowships). He then spent 15 years on the faculty of the University of Connecticut at Storrs, where he was a Full Professor. His area of scientific specialty is the molecular basis of ion channel gating and permeation, but he has also conducted electrophysiological and imaging research on calcium and pH transport/buffering, and synaptic transmission in the hippocampal slice.

## ***Faculty & Mentor Biographies***



### ***Walter Koroshetz, MD, NINDS***

Walter Koroshetz, M.D. is the Director of the National Institute of Neurological Disorders and Stroke (NINDS) and works to manage the taxpayers' investment of \$1.5 billion in NINDS research to advance neuroscience and reduce the burden of illness due to neurological disorders. Before coming to NIH, Dr. Koroshetz was a Harvard Professor of Neurology, Vice Chair of Neurology at the Mass General Hospital, Director of Stroke and Neurointensive Care, and a member of the Huntington's disease unit. His research activities spanned basic neurobiology to clinical trials. A graduate of Georgetown University and University of Chicago Medical School, he trained in internal medicine

and neurology.



### ***Christina M. Marra, MD, University of Washington***

Christina M. Marra MD completed residency training in Neurology and fellowship training in Infectious Diseases. She is Professor of Neurology with an adjunct appointment in Medicine (Infectious Diseases) at the University of Washington in Seattle. She directs an NINDS-funded research program on neurosyphilis and participates in NIH-funded multi-center clinical research on the neurological consequences of HIV.



### ***Ana-Claire Meyer, MD, Harvard University***

Dr. Meyer is an Assistant Professor in Neurology at Yale University and has been based in Kenya since 2009 as a Visiting Scientist at the Kenya Medical Research Institute. She received her M.D. from Harvard Medical School and her neurology training at the Partners Neurology Program. She was a Veterans Affairs/Robert Wood Johnson Clinical Scholar at the University of California, Los Angeles. She is a founding member and secretary for the newly formed East African College of Neurology whose mission is to develop neurology training programs across the East African Community.

The overarching goal of her research is to develop scalable and sustainable interventions to prevent or treat high morbidity neuro-infectious diseases in resource-poor settings. Her ongoing research projects include: the relationship between epilepsy and neurocysticercosis in Western Kenya; health outcomes from HIV-associated cognitive impairment in Western Kenya and Tanzania; and identifying preventive strategies and treatments for early mortality due to HIV infection in sub-Saharan Africa with a focus on cryptococcal infection. She also works to build research and clinical capacity for neurology in global settings through training and mentorship.

## ***Faculty & Mentor Biographies***



### ***Nina F. Schor, MD, PhD, Child Neurology Society***

Dr. Nina F. Schor is the seventh Chair of the Department of Pediatrics and the William H. Eilinger Professor of Pediatrics at the University of Rochester Medical Center. She is also Pediatrician-in-Chief of the Golisano Children's Hospital at Strong and Professor in the Departments of Neurology and Neurobiology & Anatomy. Before arriving in Rochester, she was the Chief of the Division of Child Neurology in the Department of Pediatrics at Children's Hospital of Pittsburgh. She was Professor of Pediatrics, Neurology, and Pharmacology at the University of Pittsburgh and held the Carol Ann Craumer Endowed Chair in Pediatric Research at Children's Hospital of Pittsburgh. A native of New York City, Dr. Schor received her BS in Molecular Biophysics and Biochemistry from Yale University, her MD from Cornell University, and her PhD from Rockefeller University. Her work at Rockefeller University resulted in awarding of a U.S. Patent and an IND from the FDA for development of a mucolytic agent for use in children with cystic fibrosis. She did her Pediatrics and Child Neurology residencies at Harvard University, Children's Hospital of Boston, and the Longwood Area Neurology Program. Dr. Schor heads a research effort aimed at design and development of new strategies for treating tumors of the nervous system, including neuroblastoma and pheochromocytoma and for understanding the developmental mechanisms underlying neurodegenerative diseases like Alzheimer's and Parkinson's diseases. She served as Associate Dean for Medical Student Research at the University of Pittsburgh. Dr. Schor's research has been continuously funded by the National Institutes of Health, among other agencies, since 1988. Dr. Schor has been a Counselor of the Society for Pediatric Research, Counselor and Secretary-Treasurer of the Child Neurology Society, and President of Professors of Child Neurology. She is currently President of the Child Neurology Society and a member of the Executive Council of the American Pediatric Society and the Science Committee of the American Academy of Neurology.

# Combining Clinical and Research Careers: How I Am Doing It

Ryan J. Felling, MD, PhD

June 26, 2015



JOHNS HOPKINS  
CHILDREN'S CENTER

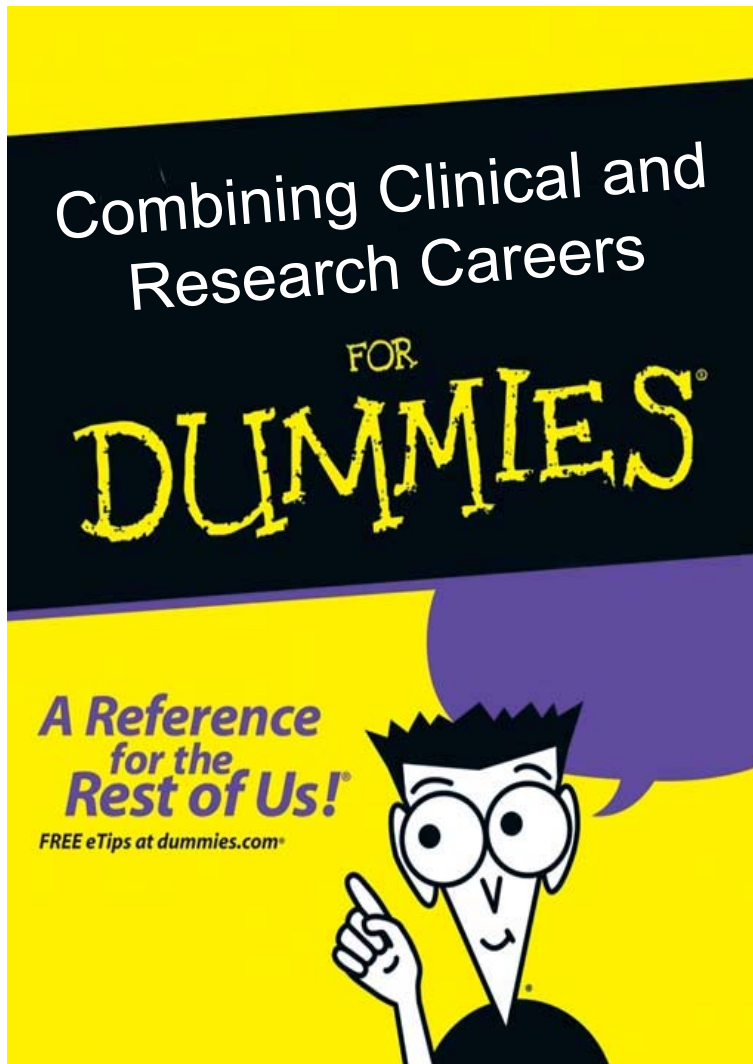
# What more could you ask for?

---

- The freedom to design your own career
- The opportunity to answer life's questions and help people at the same time
- Flexibility
- Job security



# This talk is not...



- Your career will be unique
- There will be no shortage of advice – some good, some not
- Here is my journey and what I've learned along the way

# Mentoring

- Identify mentors early and often
  - These can be lifelong resources that you can turn to
- Your goal is to become your own

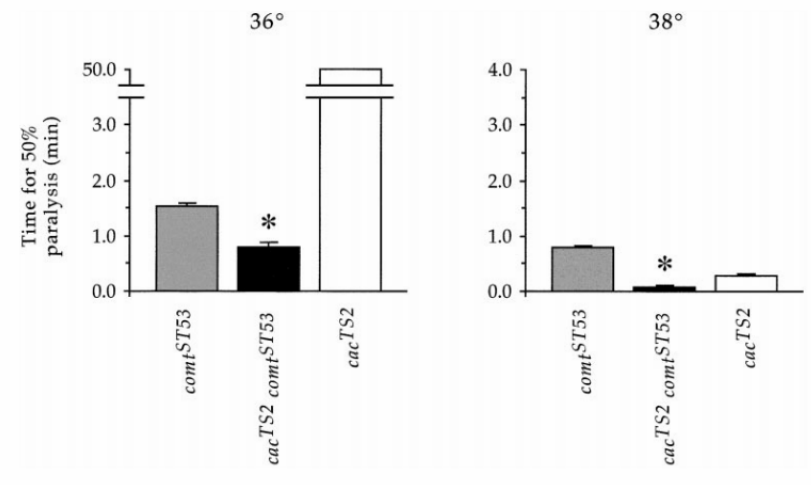




# The Early Years



# Undergraduate Years



Dellinger et al. (2000) *Genetics*

Rick Ordway

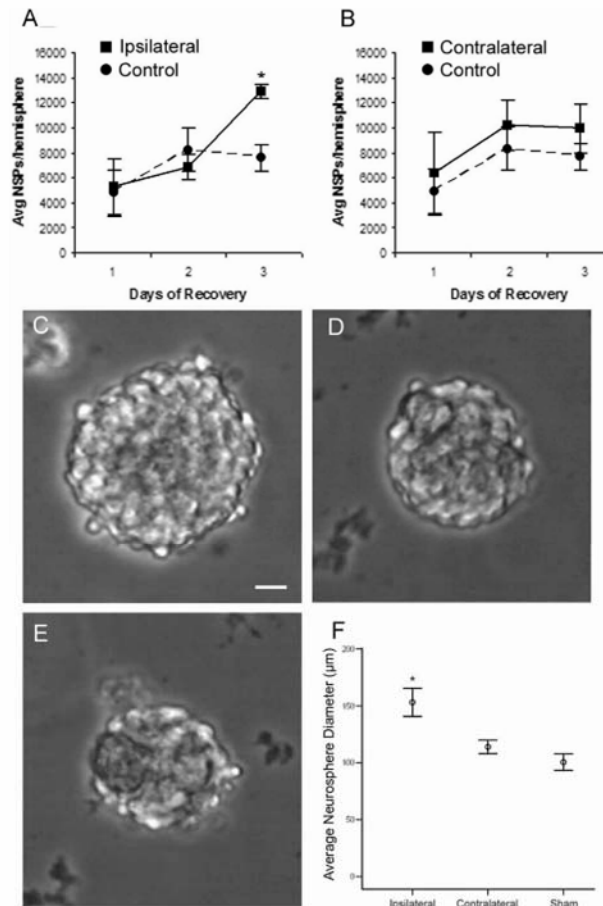




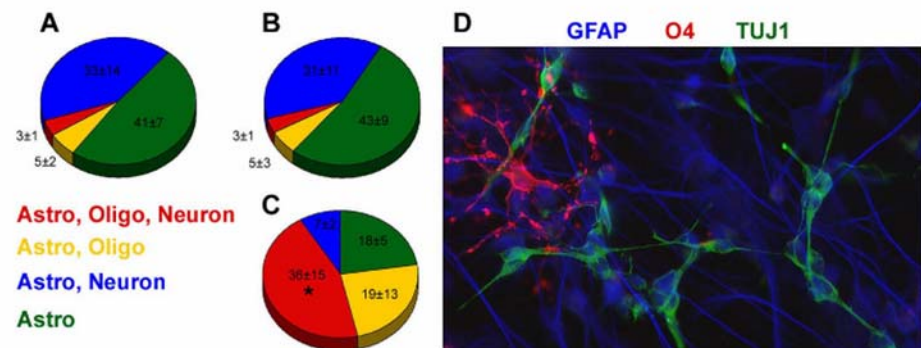
PENNSTATE HERSHEY  
 College of Medicine  
MD/PhD Program

 **JOHNS HOPKINS**  
CHILDREN'S CENTER

# MD/PhD Years

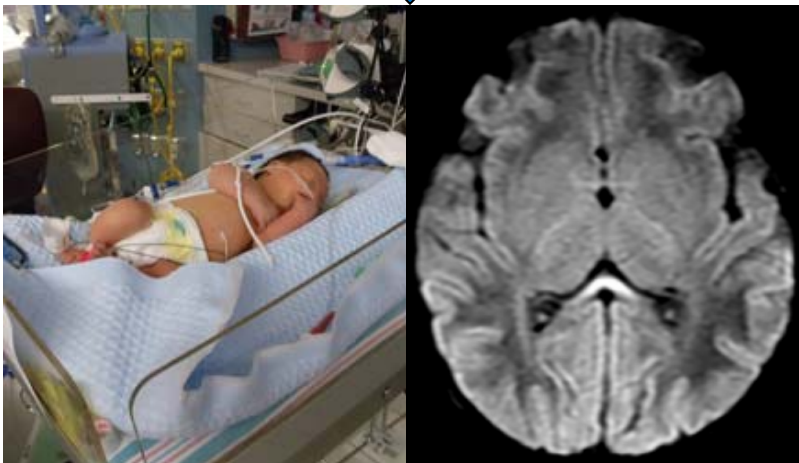
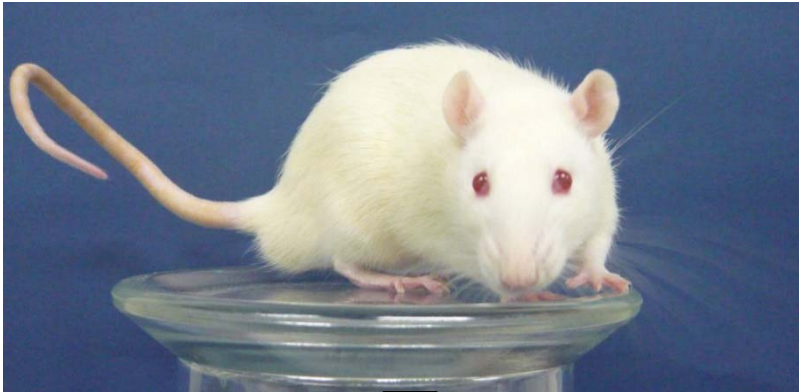


Steve Levison, PhD

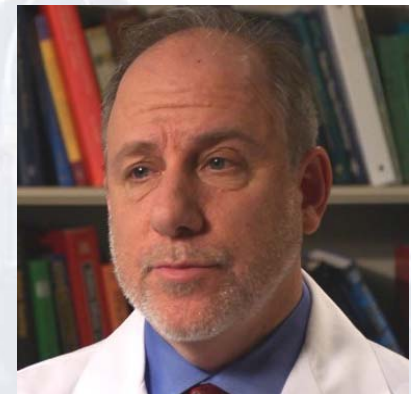




# MD/PhD Years



Bill Trescher



Todd Barron

# Do what you love

---

- Identify projects and questions that are important (to the world and to you)
- You will always be the strongest advocate for your work

# Residency/Fellowship Years



The Children's Hospital  
of Philadelphia®



Becky Ichord



JOHNS HOPKINS  
M E D I C I N E

Justin McArthur

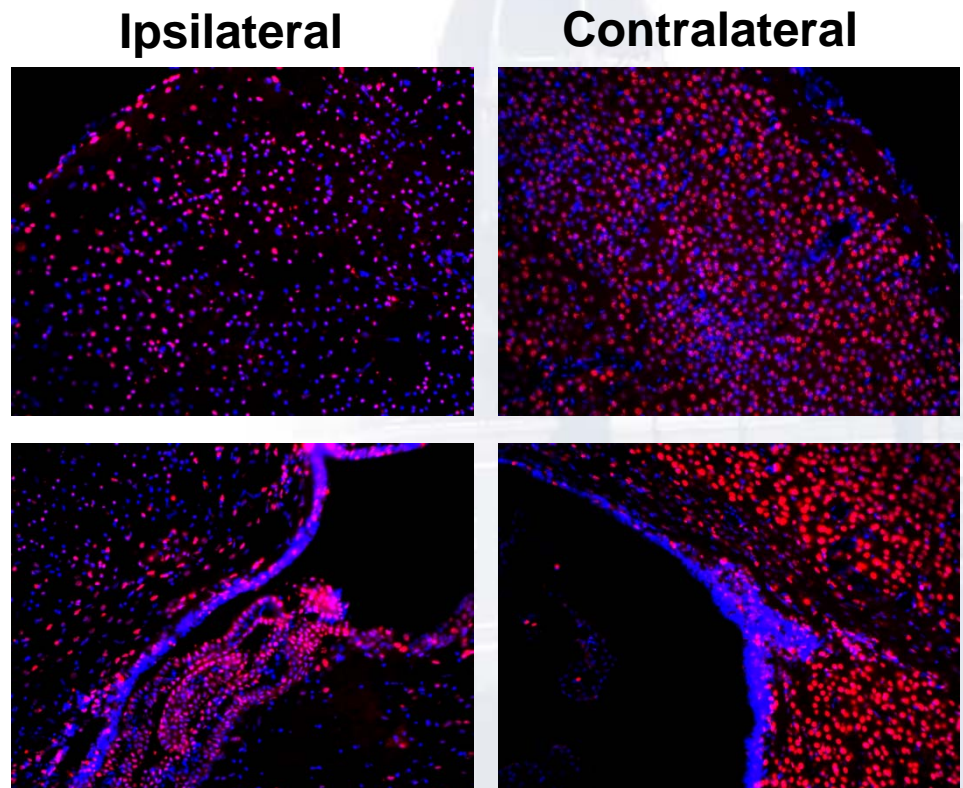
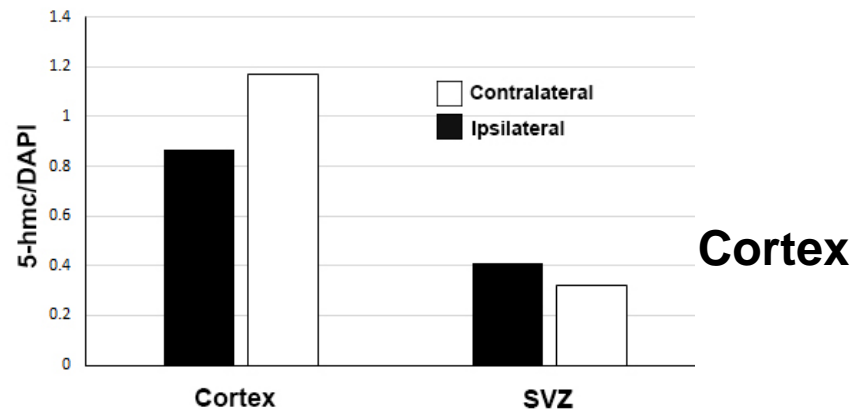


Lori Jordan

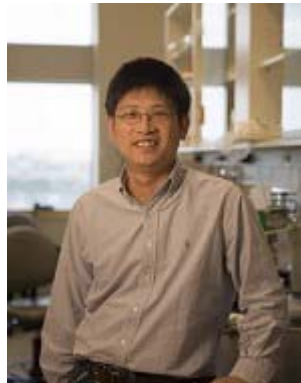


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CHILDREN'S CENTER

# Epigenetic DNA Modifications after Perinatal Brain Injury



Frances Northington



Hongjun Song



# Patience is a virtue

- “You’ve been in school for how long?!”
- “The key to academic success is to stay poor”
  - Protected research time is crucial

Copyright 2006 by Randy Glasbergen.  
www.glasbergen.com



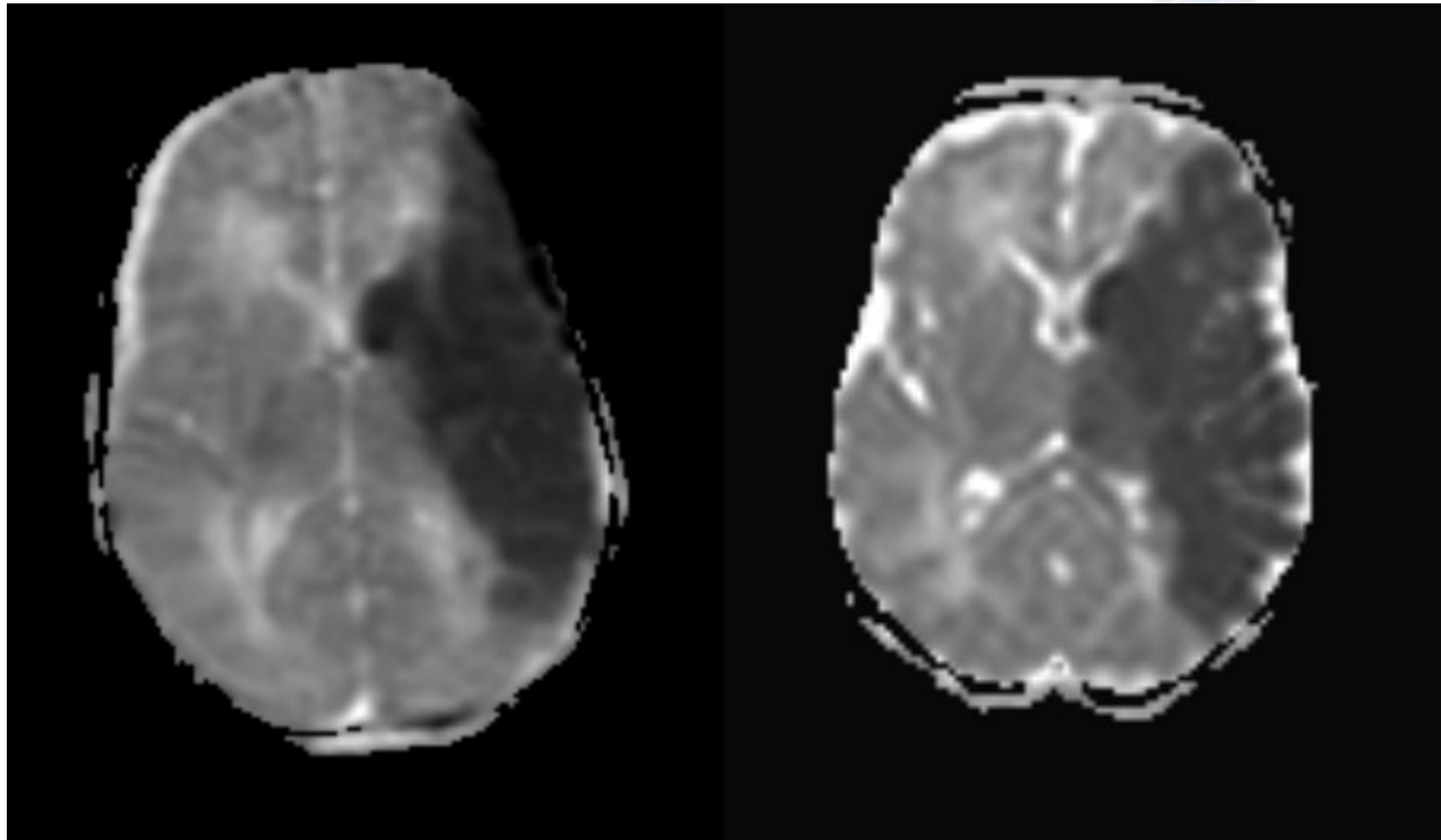
**“We believe in paying our employees as much as they need.  
Since you’ll be at your desk 90 hours a week,  
you won’t need much.”**

# Your Academic Niche

- Identify an clinical niche that can synergize with your research interests



# The Interplay Between Lab and Clinic



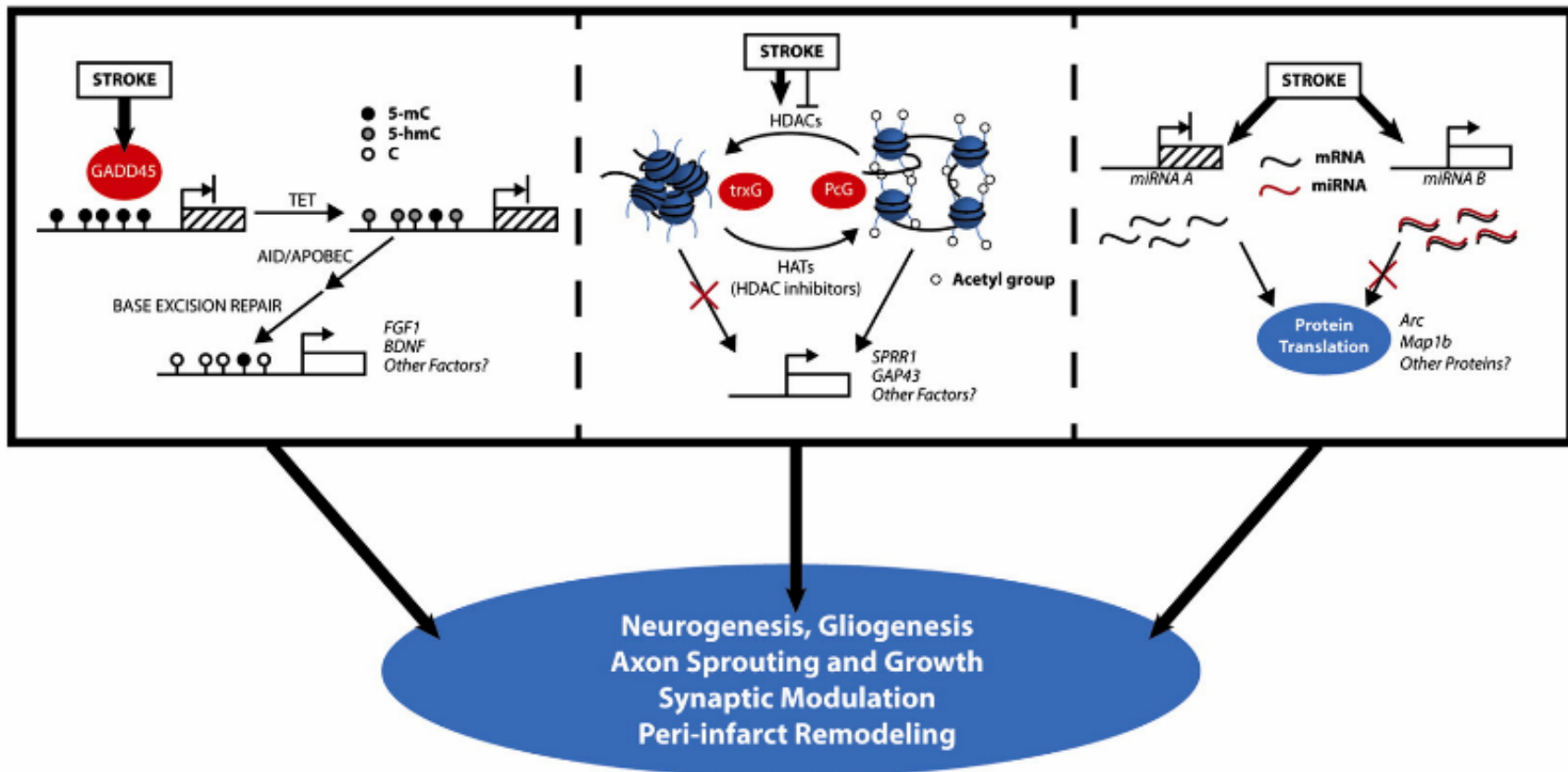
# Early Faculty Years

- Juggling Responsibilities
  - Learn when and how to say “NO”
- New Challenges
  - Transitioning from a scientist/clinician to almost a small business manager

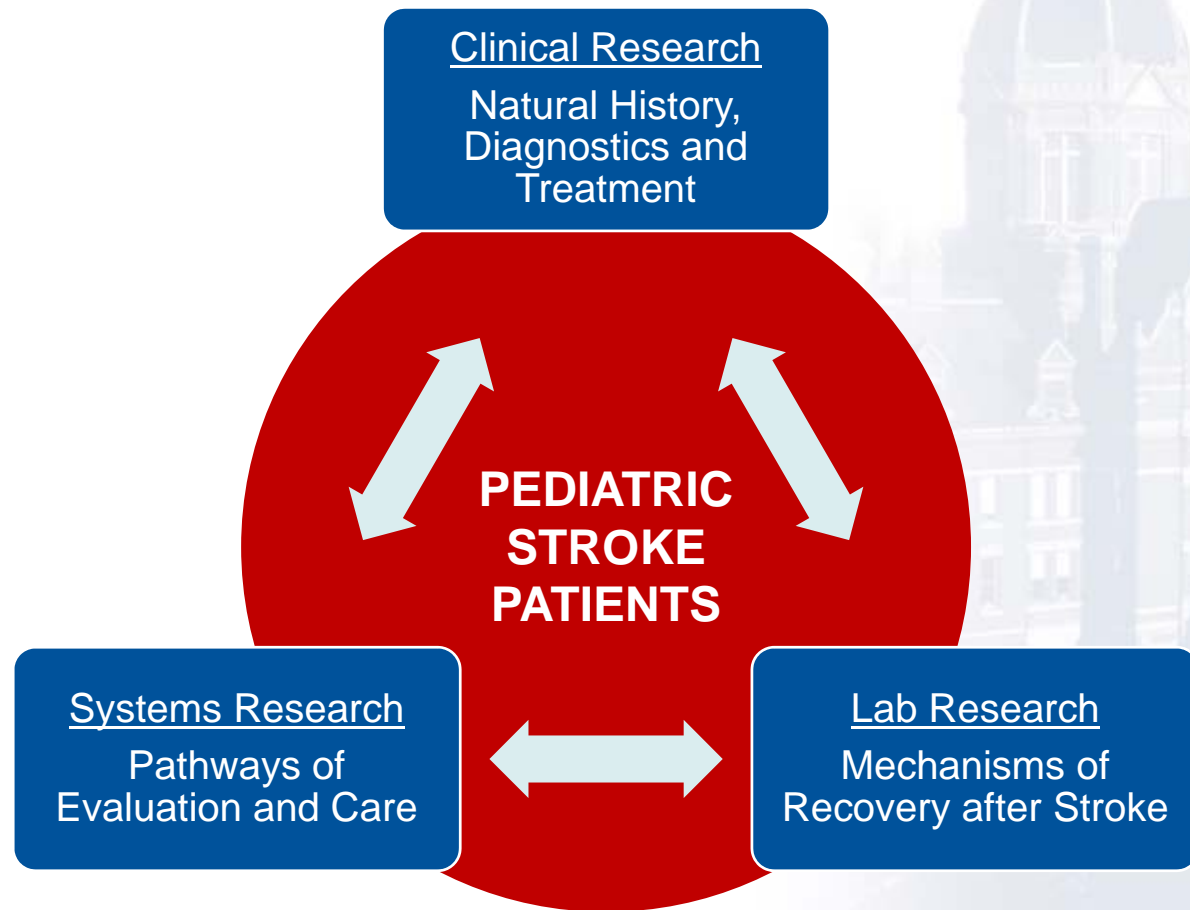


# Establishing MY Research Program

Felling and Song, 2015

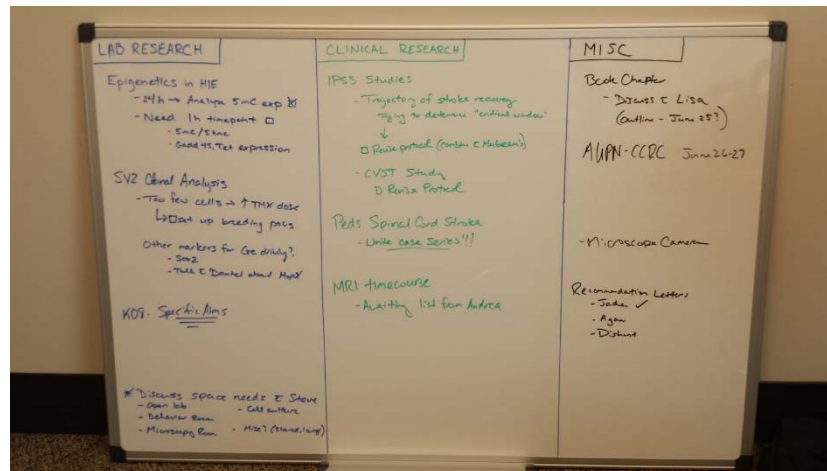


# My Career Vision



# Get (and Stay) Organized

- Disclaimer: I'm completely disorganized (but getting better!)





# Seize Opportunities

- Develop an “elevator pitch”
- You will be in a unique position as a clinician/researcher
  - Inspiration, Philanthropy, Resources
- Keep an idea book!
  - You never know where your next grant idea may come from





# “Failure”

---

- It will happen – patients with poor outcomes, research ideas that flop, grants that don’t get funded, papers that don’t get accepted
- Use these as opportunities to learn and improve

# An Obligatory Metaphor



# Take Home Points

---

- You are heading for an incredibly rewarding career
- Mentors will always be important in your development as an independent clinician-scientist
- Your patients can be a source of inspiration for your scientific inquiry
- Remain inquisitive and find those questions that keep you up at night
- Find a niche that allows your clinical effort and your research effort to synergize

# Acknowledgements

## AUPN, NINDS, ANA

### Research Mentors

Hongjun Song  
Frances Northington

### Song Lab

Qingfeng Wu  
Daniel Berg  
Michael Bonaguidi  
Ran An

### Northington Lab

Debbie Flock

## Funding Sources

NIH-NINDS K12 Neurological  
Sciences Academic Development  
Award





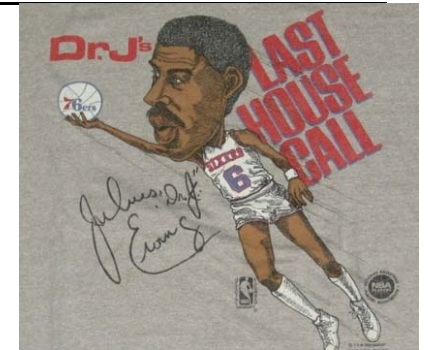
# NINDS Career Development- the NINDS Perspective

Walter Koroshetz, M.D..  
Acting Director  
NINDS



# So you want to be a Physician-Scientist? What's that all about?

- The big three questions:
  - What do you want to do with your life?
    - NBA is out, you already chose to be a neuro doc! It's important to remember why?
  - How much fulfillment do you get out of figuring things out?
  - How important is it to you that you advance the field?
    - The impact factor.



# We need you to integrate patient care and research.

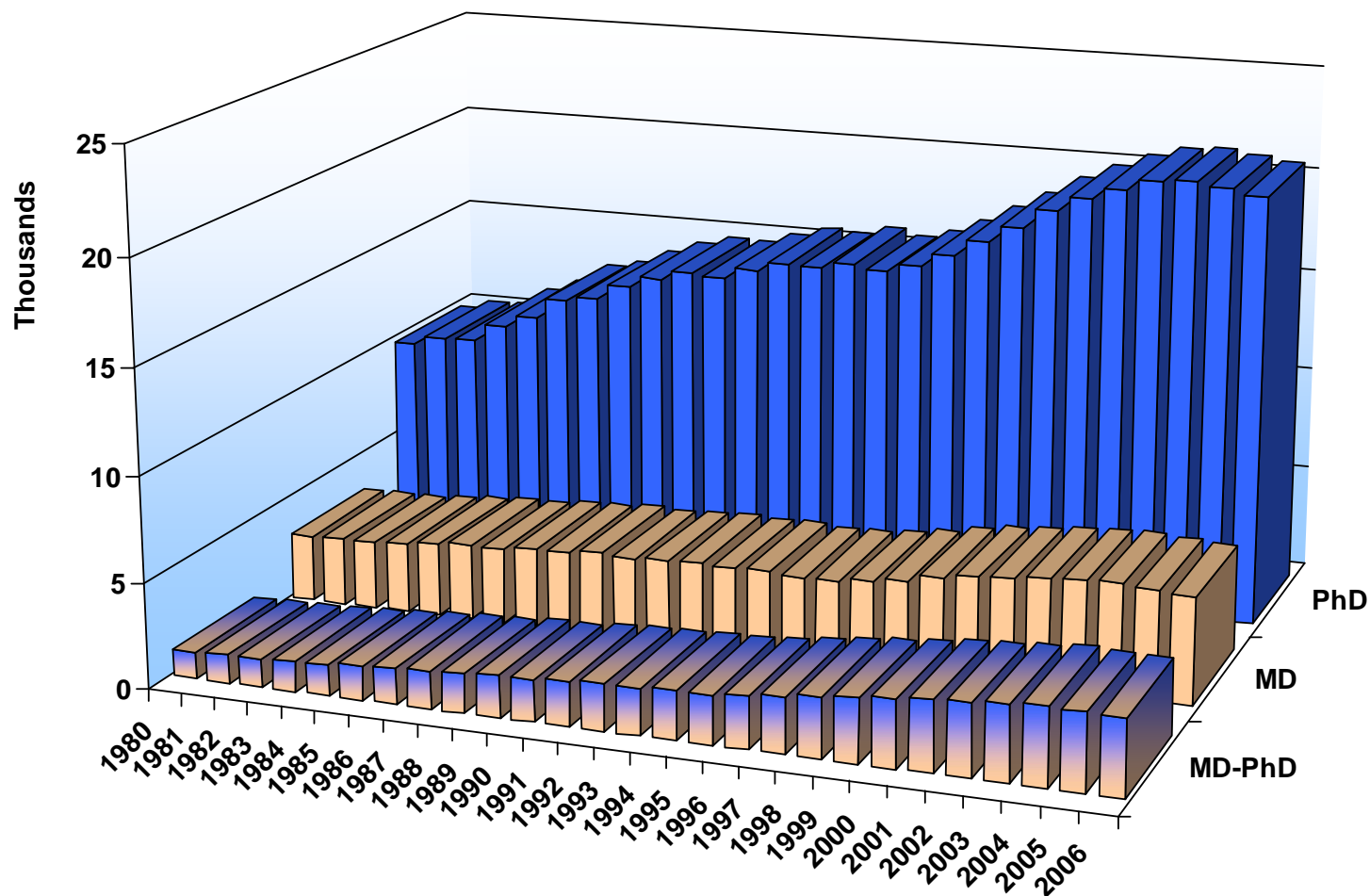


- ❑ The advance of neurological treatment is marred by the exclusion of research from the culture of patient care.
  - Patients don't know about research, most doctors don't promote patient participation in research. Patients are wary of participating in research.
- ❑ The “*epiphany*”: Most neurological breakthroughs have come from patient care under the eye of a “researcher”.
- ❑ The “*real thing*”: knowing when a science advance can really make a difference.



# Number of NIH R01-Equivalent

Awards by Applicant's Degree, FY 1980 - 2006





# We need you to play your position on the American Research Team.

---



## Components of the Modern Academic Research Team\*.

### A. Basic laboratory

(MD/PhD, Ph.D, fellows- MDs, MD PhDs or PhDs);

### B. Subspecialty clinic

(MD, MD. Ph.D, health professional, ie. nurse, Phys/Speech Therapist); MD fellows in clinical training.

### C. Clinical research

(MD, MD PhD, clinical coordinator, research nurse, data base managers), MD fellows in research. collaboration with interdepartmental clinical research- ie. clinical labs, imaging, genomics, etc.

**\* Team composed of people at various levels of expertise so inherent to medical teams is mentoring.**

# We need you to lead.

---

- ❑ Hospital, Medical School, NeuroSocieties,
- ❑ Government- Federal, State, Local.
- ❑ Non-Governmental Organizations
- ❑ Community- schools, politics

\*Someone has to make the **big** decisions, why not you?



# We need you to persist.

---



- ❑ Failure is part of the game.
  - It's going to work, just not on the first try.
  - It's going to work, but can't convince someone to pay for it.
  - Just not going to work.
  
- ❑ Re-inventing yourself can be invigorating.

# We need you to be scientifically honest.

---

- ❑ Bad data is destructive to the overall effort.
- ❑ Even if you get some early mileage from dressing up bad data it will eventually drag you down.





It's a good time to be a  

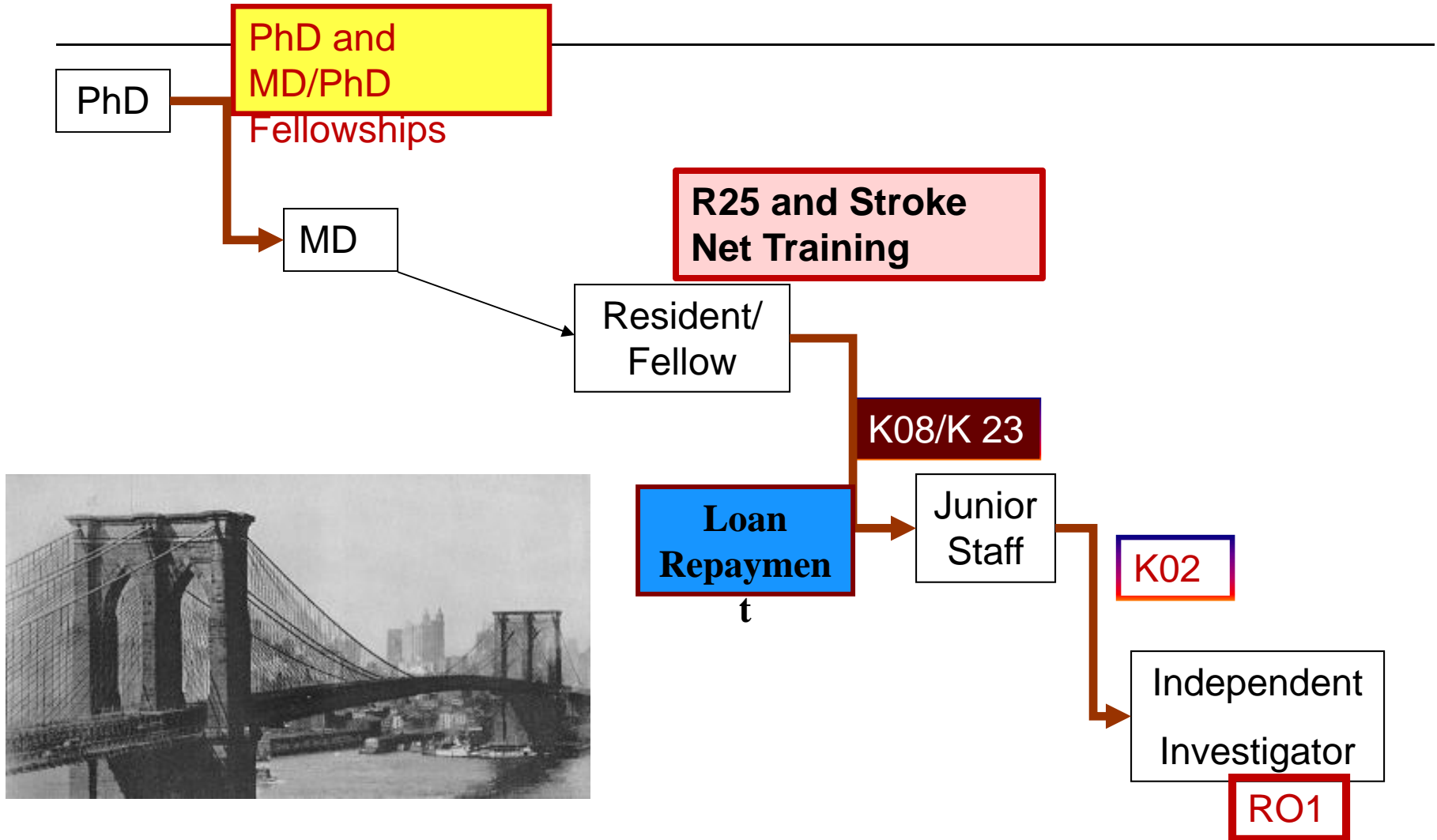
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new investigator

Really!

But we need you to write good  
grants.

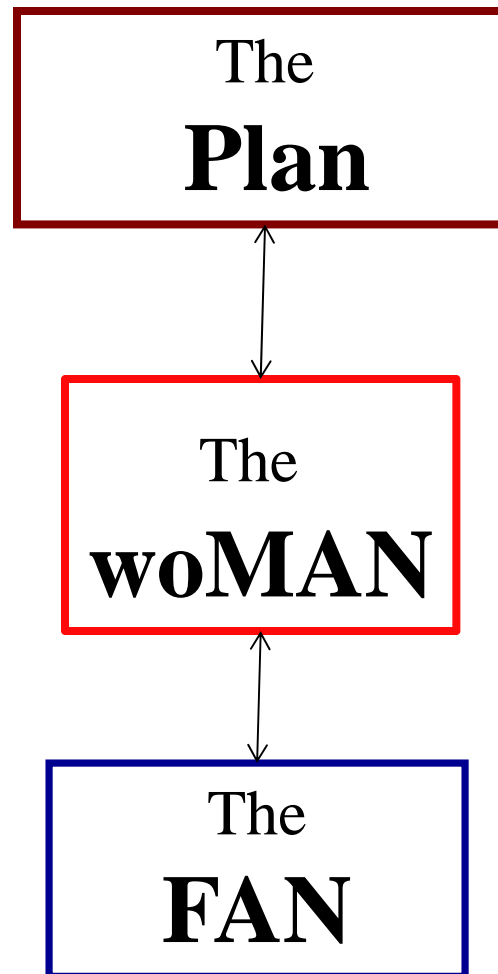
# Bridging the Gaps



# Research Career Development

## The 3 Things

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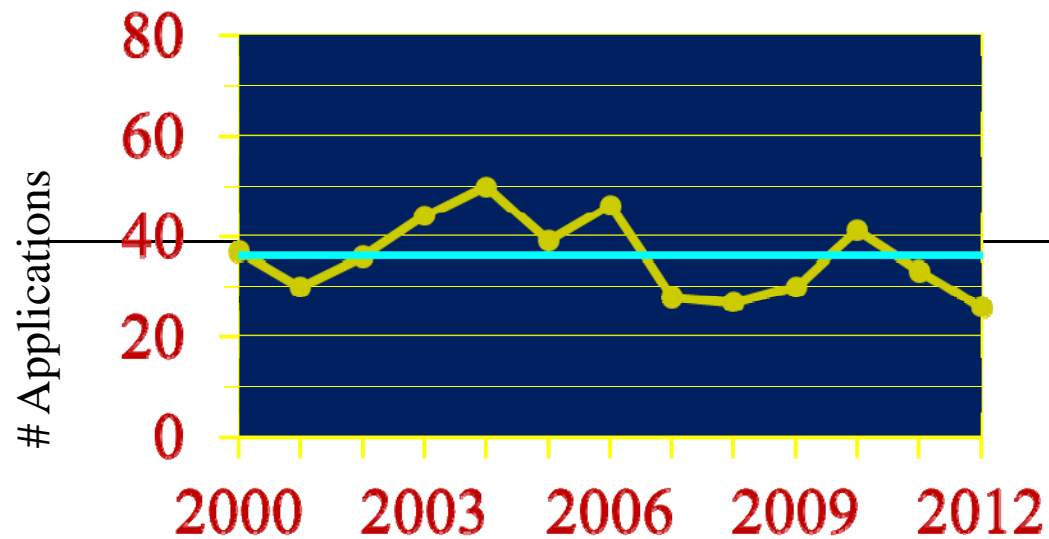




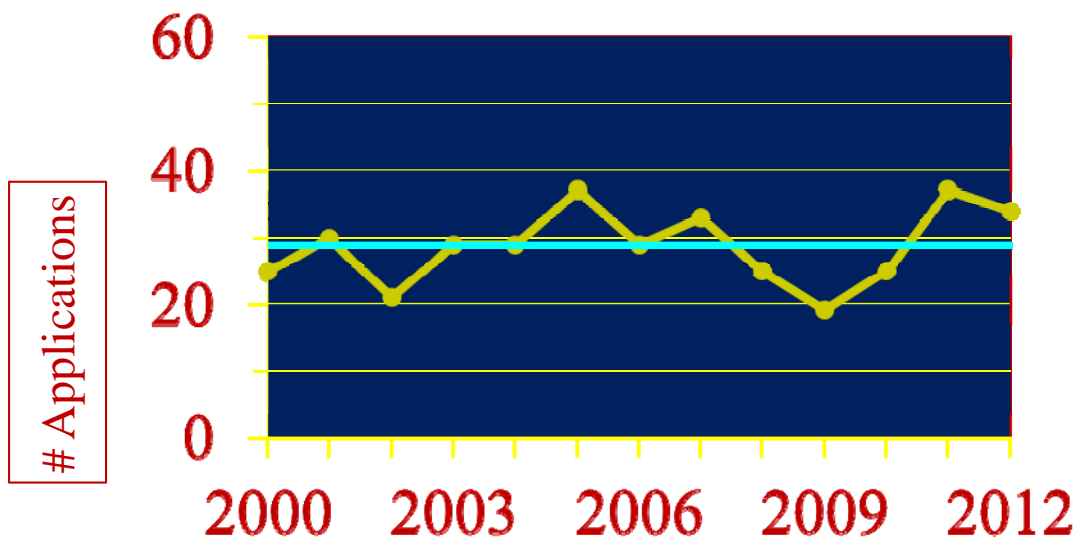
## K08 and K23

---

- 5 years, 75% protected time (salary/fringe)
- \$50,000 research costs
- Invited to 2 NINDS/ANA workshops over 5 years
- Goal is independent research career
- Can apply for R01 at any time
- Applicant success rate = ~55%
- Must be US citizen or permanent resident
- NINDS does **not** have a payline for K awards



# unique K08  
Applications



# unique K23  
Applications

Fiscal Year



# Are NINDS K Awardees Still Doing Research?

For K awards terminating 2003-2008

(N = 114 K08s, 65 K23s)

---

## Currently in Academic Position

K08s: 86%      K23s: 88%

## Published between 2010-May 2012

K08s: 88%      K23s: 85%

## In Academic Position and Published

K08s: 95%      K23s: 96%



# NINDS K to R01 transition

For K's terminating 2003-2011 (N =189 K08s, 110 K23s)

---

42% of all K08s got R01s

53% of all K08s that applied got R01s

40% of all K23s got R01s

58% of all K23s that applied got R01s

For both K08s and K23s, ~75% have  
post-K independent funding



# Loan Repayment Program (LRP)

- Congressionally-mandated

---

- 5 Eligible Research Areas  
(Clinical, Pediatric, Contraception/Infertility, Health Disparities, Disadvantaged Background)
- Purpose is to encourage health professionals stay in research rather than leave for a more lucrative activity because of debt
- NINDS Supports Clinical and Pediatric Research
- Applications are peer-reviewed



# NIH

---

- ❑ Committed to developing clinician scientists.
- ❑ In the end however extramural NIH is a granting agency and not an employer.
  - Based on peer review.
  - Institutes will attempt to steer a small portion of research in pursuit of the common good.
    - ❑ Networks, Tools for Science, Stimulate research to overcome bottlenecks, fill needs (RFAs, Workshops)



DO NOT TAKE REJECTION  
PERSONALLY!

---

And don't get frustrated (for too long).

PERSIST!



# Advice

❑ **Never give up, never surrender.**



# Physician-Scientist: Career and Family: Can You Have it All?

Christina M. Marra, MD

Neurology and Medicine (Infectious Diseases)  
University of Washington School of Medicine

No, but you can have a lot...

# Qualities of a Great Mentor

- Smart
- Accomplished
- Funded
- Committed
  - Explain the system
  - Write an abstract
  - Give a talk
  - Review a manuscript
  - Write a manuscript
  - Write a grant
- Generous

# Comments on Choosing a Mentor

- A single mentor may not be optimal
- Identify several role models or mentors
  - Based on attributes or expertise
- Ideally, your mentor should not be your immediate supervisor

# Work-Life Balance





# Work-Life Balance

No one on his deathbed ever said “I wish I’d spent more time at the office.” Don’t get me wrong. Work is a wonderful thing. It can be very fulfilling and can provide meaningful service to others. But personal relationships are the most important things in our lives. It’s through relationships with others that we learn about ourselves, about how to make choices, how to self correct, how to grow and develop, how to contribute to the human community, how to turn dreams into reality. –Rodger Duncan



# Life Choices: Figure Out Your Priorities

- Jappreet Sethi, LinkedIn
  - What is your focus for the next 5 years?
  - If you could have an extra hour in a day, how would you spend it?
  - Would you be comfortable not spending a lot of time with your kids as they grow up?
  - Are your family members on board with your work-family choices?
  - What gives you the greatest satisfaction, and can you get it at least twice a week?
  - What do you want to be remembered for when you die?

Are your family members on board with your work-family choices?



Choose wisely

# Understanding the Medical Marriage

- Perlman R.L. et al. Acad Med 2015;90
  - Interviewed 25 physicians and spouses using appreciative inquiry
    - 12 women
    - 13 men
    - 3 nonphysician spouses

# Themes

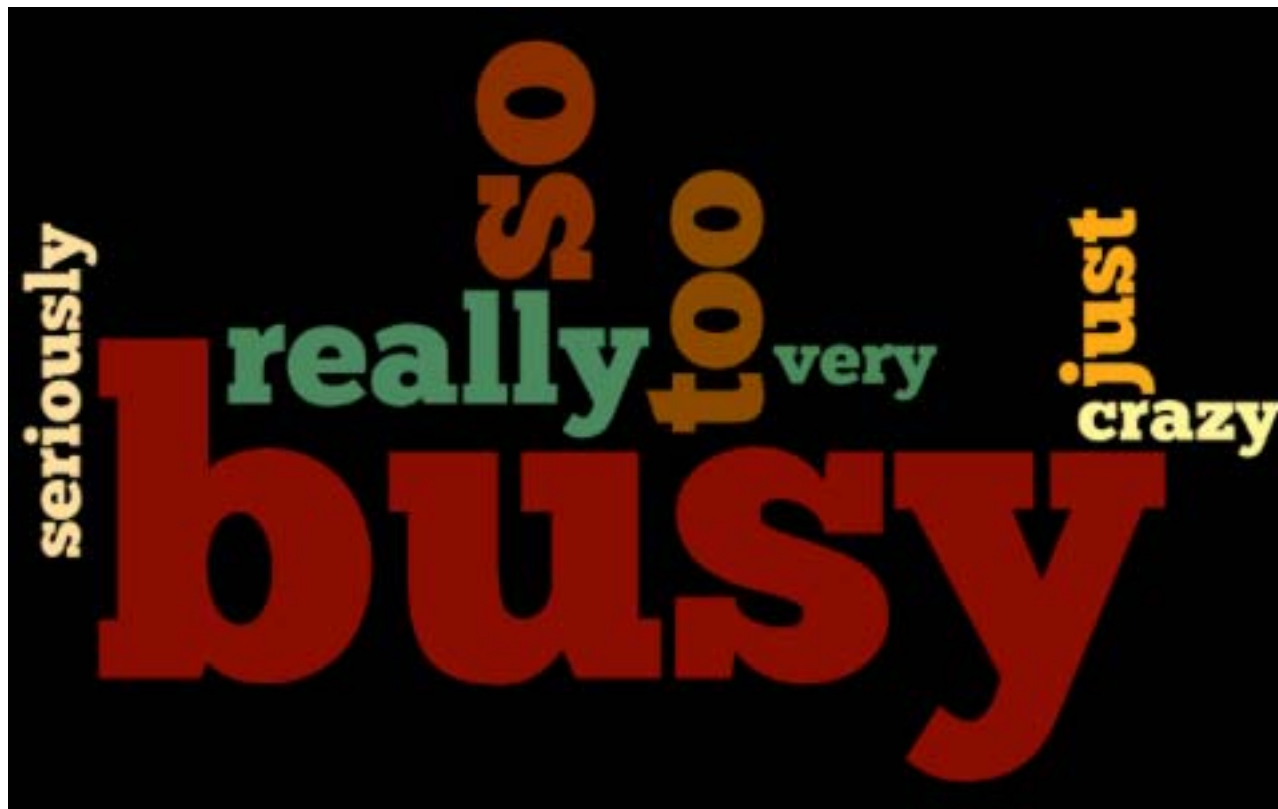
Theme	Description
We rely on mutual support in our relationships	Reciprocal emotional, mental, occupational support
We recognize the important roles of each family member	Importance of role clarity
We have shared values	Shared values provide foundational structure
We acknowledge the benefits of being a physician to our relationships	Medical and financial security

# Priority Setting: a (bad) Example

- Sapey E. Lancet 2015;385 (Suppl 1)
  - “I wrote a list of how I prioritize my time, and it went like this:
    - Children/patients/research
    - Grant and paper writing
    - Husband/collaborators (no particular order)
    - Dog
    - People I barely know or will never meet but who email me (a lot)
    - Me”

# Nonwork Practical Advice

- Really good childcare/adultcare
  - Plan ahead for snow days, sick days, teacher conference days
- If all else is equal, consider living near extended family
- Consider your commute
- Early risers...
- Schedule recurring social activities
- Exercise
- When you're away from work, be away
- Appreciate your partner/s
- Outsource the unimportant stuff



Replace “I’m too busy” with  
“that’s not important to me right now”



# Work Practical Advice

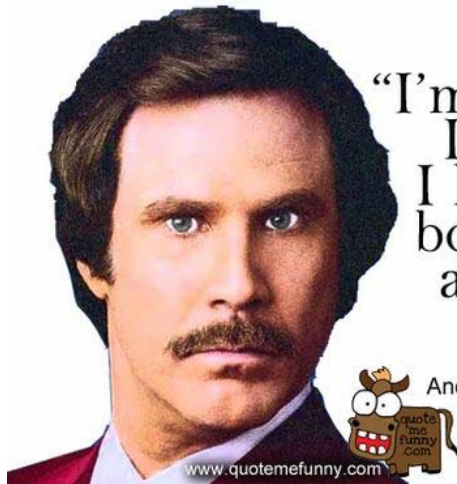
- “Uber organized”
- Take advantage of promotion postponement
- Don’t be intimidated by the success of others
  - Learn from their experiences

# Flexibility



- Things are going to change whether you want them to or not
- Avoid
  - Catastrophizing
  - Guilt

# Citizenship



“I’m kind of a big deal.  
I’m very important.  
I have many leather-  
bound books and my  
apartment smells of  
rich mahogany.”

Anchorman: The Legend of Ron Burgundy (2004)  
– Ron Burgundy (Will Ferrell)

- We are all special
- Humility
  - Respect other people’s time
  - Participate in departmental life
- Generosity
  - Students

# Say YES

- Is this interesting to me?
- Can I use it again?
- Will it be published/indexed?
  - Avoid predatory publishers:  
<http://scholarlyoa.com/publishers/>
- Ask others if unsure
- Say no selectively

## Recent Posts

- o Another Strange New OA Publisher with a Strange Name
- o New Open-Access Publisher Launches with Fake Scholarly Articles
- o OMICS Group Now Charging for Article Withdrawals
- o Watch Out for Publishers with "Nova" in Their Name
- o Counterfeit Australian Society Recycles and Renames Researchers' Images

## ARCHIVES

Select Month



# The Takeaway

Shana Lebowitz, Greatist.com

“The most important thing to remember in the quest for work-life balance is that we’ll never achieve perfection...What matters is that we create a personally meaningful life that helps us feel happy and healthy overall.”

# References



- LaVoie MJ. Career building as a neuroscientist at a research hospital. *Annals of Neurology* 2015;77:367-370.
- Schwingshackl A. The fallacy of chasing after work-life balance. *Frontiers in Pediatrics* 2014;2:26.
- Surawicz CM. J. Edward Berk distinguished lecture: avoiding burnout: finding balance between work and everything else. *The American Journal of Gastroenterology* 2014;109:511-514.

# Overview of NINDS Funding Mechanisms

## Research Project, Center Grants, and Cooperative Agreement Awards:

Mechanism – Program	Program Synopsis	Salary/ Stipend	Budget Info.	Duration/ Renewal
<a href="#"><u>R01: Research Project Grant</u></a>	This program supports a focused research project conducted by a principal investigator. Also supported are <i>Pilot Clinical Trial Grants for Neurological Disease</i> to gather preliminary data and conduct clinical studies to support the rationale for a subsequent full-scale clinical trial of intervention to treat or prevent neurological disease.	Prorated based on PI % effort.	Modular up to \$250K. NINDS approval for over \$500K.	Up to 5 years. May be renewed.
<a href="#"><u>R03: Small Grant Program</u></a>	This program supports new research projects that: 1) lead to a defined product, resource or “deliverable” that has inherent value to the neuroscience community; 2) will generate an important and potentially publishable unit of information or dataset; or 3) focus on secondary analysis of clinical data sets.	Prorated based on PI % effort.	Modular up to \$50K.	Up to 2 years. Not renewable.
<a href="#"><u>R15: Academic Research Enhancement Award</u></a>	This award provides support for research projects by faculty who are located in health professional schools or other academic components that have not been major recipients of NIH research grant funds.	Prorated based on PI % effort.	Detailed budget up to \$300K. (Modular up to \$250K.)	Up to 3 years. May be renewed.
<a href="#"><u>R21: Exploratory/ Developmental Grant</u></a>	This program supports new research projects that: 1) assess the feasibility of a novel avenue of investigation; 2) involve high risk experiments that could lead to a breakthrough in a particular field; or 3) demonstrate the feasibility of new technologies that could have major impact in a specific area.	Prorated based on PI % effort.	Modular up to \$275K.	Up to 2 years. Not renewable.
<a href="#"><u>P01: Research Program Project Grant</u></a>	This program supports broadly based multidisciplinary research programs with a well-defined central research focus or theme. Program projects must have a minimum of 3 interrelated projects that contribute to the program objective, as well as shared resources (Cores).	Prorated based on PI % effort.	Program staff approval for over \$500K.	Up to 5 years. May be renewed once.
<a href="#"><u>P30: Center Core Grant</u></a> -	This program supports shared resources and facilities used by investigators with NINDS funded grants. An institution is eligible for a maximum of one NINDS Core Grant. These awards will support basic, translational, and clinical research, but will not be used to support clinical trials or to provide patient services.	Prorated based on PI % effort.	Up to \$400K.	Up to 5 years. May be renewed.



<b><u>P50: Specialized Center Grant</u></b>	This Center Grant supports any part of the full range of research and development activities comprising a multidisciplinary attack on a specific disease entity or biomedical problem area within the mission of NINDS. Consultation with NINDS Program staff is crucial to the development of a P50 application.	Prorated based on PI % effort.	Program staff approval for over \$500K.	Up to 5 years. May be renewed once.
<b><u>U01: Research Project - Cooperative Agreement</u></b>	Supports cooperative agreements that will have milestone-driven projects focused on the identification and pre-clinical testing of new therapeutics. This cooperative agreement supports a focused research program conducted by a principal investigator with substantial involvement by NINDS staff in research activities.	Prorated based on PI % effort.	Depends on specific announcement.	Up to 5 years. May be renewed.
<b><u>U10: Cooperative Clinical Research Grant</u></b>	This cooperative research grant supports the clinical evaluation of various methods of therapy and/or prevention in specific disease areas. There is substantial involvement by NINDS staff in research activities.	Prorated based on PI % effort.	Depends on specific announcement.	Up to 5 years. May be renewed.
<b><u>U24: Resource-Related Research Project - Cooperative Agreement</u></b>	This cooperative agreement aims to improve the capability of resources to serve biomedical research. The project includes substantial involvement of NINDS staff, and may serve a local, regional, or national user group. The project will normally include shared resources, technical expertise, and scientific expertise. Supports cooperative agreements that will have milestone-driven projects focused on the identification and pre-clinical testing of new therapeutics.	Prorated based on PI % effort.	Depends on Specific RFA.	Up to 3 years. May be renewed.
<b><u>U54: NINDS Cooperative Program in Translational Research</u></b>	This cooperative agreement supports a specialized center that will have milestone-driven projects focused on the identification and pre-clinical testing of new therapeutics. The program will facilitate review and administration of projects and will accelerate the translation of discoveries in basic research to treatment in the clinic. The center may serve as a regional or national resource for special research purposes.	Prorated based on PI % effort.	Program staff approval for over \$500K.	Up to 5 years. May be renewed.
<b><u>U54: Specialized Center - Cooperative Agreement</u></b>	This program is designed to augment and strengthen the research capabilities of faculty, students, and fellows at minority institutions by supporting the development of new, and/or the enhancement of ongoing, basic and clinical projects and programs. All projects are milestone driven.	Prorated based on PI % effort.	Up to \$1M per year. (basic)  Up to \$1.5M per year. (clinical)	Up to 5 years. Renewal under administrative consideration.

## Research Education Programs

<b>Mechanism – Program</b>	<b>Program Synopsis</b>	<b>Salary/ Stipend</b>	<b>Budget Info.</b>	<b>Duration/ Renewal</b>
<b><u>R25: NINDS Diversity Research Education Grants in Neuroscience</u></b>	The National Institute on Neurological Disorders and Stroke (NINDS) Research Education grant is a flexible and specialized mechanism designed to foster the development of neuroscience researchers through creative and innovative educational programs. R25 Education Projects enable grantee organizations to provide research, mentorship and related experiences for undergraduate, graduate and medical students, postdoctoral fellows and other junior scientists to broaden their skills and enhance their career development opportunities. Funding support for the R25 Diversity Education Programs should lead to increased recruitment, mentoring, training and retention of diverse researchers in the scientific and technology workforce. This mechanism of support is not to be used to substitute	Prorated based on the PI % effort.  All personnel costs associated with directing, coordinating, administering and implementing the program may not	Up to \$250K Direct Costs per year.	Up to 5 years.

	the Ruth L. Kirschstein National Research Service Award training and fellowship mechanisms supported by the NIH.	exceed 25% of the total direct costs in any year of the project.		
<b>R25: Research Education Programs for Residents and Fellows in Neurology, Neurosurgery, Neuropathology and Neuroradiology</b>	These research education grants will create an opportunity for medical residents and fellows to participate in an intensive 9 to 24 months of mentored research education experience during residency and fellowship years. This opportunity will include the necessary training for successful competition for independent mentored research awards and will facilitate the transition from fellow/resident to clinician-scientist. In addition to laboratory research skills, participants in the program will develop the critical skills necessary to design and conduct research experiments and write competitive grant applications.	Participants may be paid salary plus fringe for 80% full-time professional effort (4 days per week during the M-F workweek) for between 6 and 12 months per year plus up to \$3000 for travel to a scientific meeting and an NINDS-sponsored workshop.	Up to \$10,000 per year is provided to the institution for administrative costs.	9-24 months. Not renewable.
<b>R25: Summer Research Experience Programs</b>	These research education grants provide a high quality research experience for high school and college students during their summer academic break. The NIH expects that such programs will: help attract young students to careers in science; provide opportunities for college students to gain valuable research experience to help prepare them for graduate school. The programs would also contribute to enhancing overall science literacy. (This program at NINDS does not support science teachers.)	Participant costs are based on a maximum 15 weeks. Salary and fringe benefits up to \$5,000 per high school student and up to \$6,000 per college student. For programs shorter than 15 weeks, these amounts will be prorated accordingly.	Up to \$100K Direct Costs per year.	Up to 5 years.

### Conference Grants:

<b>Mechanism – Program</b>	<b>Program Synopsis</b>	<b>Salary/ Stipend</b>	<b>Budget Info.</b>	<b>Duration/ Renewal</b>
<b><u>R13: Conference Grant</u></b>	This granting program provides support for scientific meetings, conferences, and workshops that are relevant the scientific mission of the NINDS. Support of these meetings is contingent on the interests and priorities of the NINDS.	May request partial salary for PI and other staff.	No limit, but typically in the range of \$10K-	Up to 5 years, but generally 1 year. May be

	Consultation with Program staff and subsequent letter of intent is essential to the development of an R13 application.		\$25K.	renewed.
<b><u>U13: Cooperative Conference Grant</u></b>	This granting program provides support for scientific meetings, conferences, and workshops that are relevant the scientific mission of the NINDS. The U13 requires close collaboration with and input from NINDS Program staff in the conceptualization and administration of the program, e.g., agenda, speakers, and post-meeting publications.	May request partial salary for PI and other staff.	No limit, but generally less than \$100K.	Up to 5 years, but generally 1 year. May be renewed.

### Small Business Grants:

<b>Mechanism – Program</b>	<b>Program Synopsis</b>	<b>Salary/ Stipend</b>	<b>Budget Info.</b>	<b>Duration/ Renewal</b>
<b><u>R41: Small Business Technology Transfer (STTR), Phase I</u></b>	To support cooperative R&D projects between small business concerns and research institutions, limited in time and amount, to establish the technical merit and feasibility of ideas that have potential for commercialization. Awards are made to small business concerns only.	Prorated based on PI % effort.	Up to \$100K for phase I.	1 year, followed by STTR phase II.
<b><u>R42: Small Business Technology Transfer (STTR), Phase II</u></b>	To support in-depth development of cooperative R&D projects between small business concerns and research institutions, limited in time and amount, whose feasibility has been established in Phase I and that have potential for commercialization. Awards are made to small business concerns only.	Prorated based on PI % effort.	Up to \$750K.	2 years.
<b><u>R43: Small Business Innovative Research (SBIR), Phase I</u></b>	To support projects, limited in time and amount, to establish the technical merit and feasibility of R&D ideas that may ultimately lead to a commercial product(s) or service(s).	Prorated based on PI % effort.	Up to \$100K for phase I.	6 months, followed by SBIR phase II.
<b><u>R44: Small Business Innovative Research (SBIR), Phase II</u></b>	To support in-depth development of R&D ideas whose feasibility has been established in Phase I and which are likely to result in commercial products or services. SBIR Phase II are considered Fast-Track and do not require National Council Review.	Prorated based on PI % effort.	Up to \$750K.	2 years.
<b><u>U44: Cooperative Small Business Awards in Translational Research</u></b>	This Cooperative Agreement aims to provide support for Phase II, and Fast-Track projects that directly address identification and pre-clinical testing of new therapeutics. Cooperative agreements include substantial involvement of NINDS staff.	Prorated based on PI % effort.	Up to \$300K for Ph I of Fast-Track  Up to \$750K  Up to \$1M if include IND or IDE filing	Up to 2 years for Ph I of Fast-Track  Up to 3 years

### Institutional NRSA Training Grants:

<b>Mechanism – Program ↓</b>	<b>Program Synopsis</b>	<b>Salary/ Stipend</b>	<b>Budget Info.</b>	<b>Duration/ Renewal</b>
<b><u>T32: Institutional Training Awards</u></b>	This training grant supports advanced (dissertation stage) predoctoral Ph.D. and M.D. students, postdoctoral fellows, or a mix of both. All applications to this program must have a central focus or theme. Funds should be used to support novel and/or expanded training opportunities.	Predocs: \$22,476 per year. Postdocs: \$42,000-\$55,272 per year.	Predocs: \$4,200 per year. Postdocs: \$7,850 per year.	5-year award. Renewable.
<b><u>T32: Jointly Sponsored Predoctoral Training in</u></b>	This training grant is jointly sponsored by NINDS and 9 other NIH Institutes. It provides broad training in the Neurosciences focused on the early years of	Predocs: \$22,476 per year.	Predocs: \$4,200 per year.	5-year award. Renewable.

<a href="#">Neuroscience</a>	training before full-time thesis research is started and allows institutions to consolidate their predoctoral training.			
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## Individual NRSA Fellowships:

<b>Mechanism – Program ↓</b>	<b>Program Synopsis</b>	<b>Salary/ Stipend</b>	<b>Budget Info.</b>	<b>Duration/ Renewal</b>
<a href="#">F30: Individual Predoctoral Fellowships for Students in MD/PhD Programs</a>	The Kirschstein-NRSA F30 award supports research and clinical training that leads to the MD/PhD degree or another dual-doctoral degree. Because the F30 program is intended to support individuals in an integrated, dual-degree program during both their graduate research training and clinical training, the F30 cannot be used to support only the clinical training years. Eligible applicants must be within the first 48 months of their dual-degree program at the time of application, and will not be supported after year 8 of dual-degree training.	\$22,476 per year.	Up to \$4,200 per year.	Up to 6 years. Non-renewable.
<a href="#">F31: Individual Predoctoral Fellowships for Students in MD/PhD Programs</a>	This fellowship is designed to support up to 5 years of predoctoral research training for students in combined MD/PhD programs. This mechanism does not support medical school education. Individuals must be enrolled in an M.D. program at an accredited medical school, accepted in a related scientific Ph.D. program, and supervised by a mentor in that scientific discipline at the time of submission. Applicants must have a minimum of 1 year of dissertation research remaining at the time an award is made. The final receipt date for new applications was April 8, 2014. Resubmissions will be accepted through the December 8, 2014 receipt date after which this mechanism will be discontinued.	\$22,476 per year.	Up to \$4,200 per year.	Up to 5 years. Non-renewable.
<a href="#">F31: Individual Predoctoral Fellowships</a>	This program is an individual NRSA for doctoral candidates that have successfully completed their comprehensive examinations and will be performing dissertation research and training. The NINDS will provide up to 3 years of support for candidates within their first 6 years of graduate school.	\$22,476 per year.	Up to \$4,200 per year.	Up to 3 years. Non-renewable.
<a href="#">F31: Predoctoral Fellowships to Promote Diversity</a>	NINDS will provide up to 5 years of support for research training leading to the Ph.D. or equivalent research degree; the combined M.D./Ph.D. degree; or other combined professional doctorate/research Ph.D. degrees in the biomedical or behavioral sciences. These fellowships (F31) are for well-qualified students from diversity groups found to be underrepresented in the biomedical and behavioral sciences in the United States (as defined in the program announcement). The overall goal of this program is to increase the number of scientists from diverse population groups who are prepared to pursue careers in biomedical, behavioral, social, clinical, or health services research.	\$22,476 per year.	Up to \$4,200 per year.	Up to 5 years. Non-renewable.
<a href="#">F32: Individual Postdoctoral Fellowships</a>	This individual NRSA targets individuals seeking postdoctoral research training in the basic and clinical neurological sciences.	\$42,000-\$55,272 per year.	Up to \$7,850 per year.	Up to 3 years. Non-renewable.
<a href="#">F05: International Neuroscience Fellowship Program</a>	This program provides a unique opportunity to qualified foreign neuroscientists, at the junior or mid-career level, to receive up to three years of research training in the United States (U.S.). Eligible individual applicants include non-immigrant foreign scientists with a doctoral degree (or its equivalent) and a sponsor in the U.S. who is affiliated with an eligible U.S. organization. This individual must also have an endorsement from their home institution, and an appointment in an institution in their home country upon completion of the fellowship. The	\$42,000-\$55,272 per year.	Up to \$7,850 per year.	Up to 3 years. Non-renewable.

	proposed research training must be within the scope of biomedical, behavioral, or clinical research as it relates to neuroscience, and should enhance the trainee's knowledge and skills to conduct independent research in his or her home country.			
<b><u>F33: Individual Senior Fellowships</u></b>	This senior NRSA fellowship is for individuals beyond the new-investigator stage who wish to: 1) make major changes in their research direction; 2) broaden their scientific background; or 3) acquire new research skills.	Commensurate with base salary that would be paid by the institution with which the awardee is permanently affiliated.	Up to \$7,850 per year.	Up to 3 years. Non-renewable.

### Career Development Awards:

<b>Mechanism – Program ↓</b>	<b>Program Synopsis</b>	<b>Salary/ Stipend</b>	<b>Budget Info.</b>	<b>Duration/ Renewal</b>
<b><u>K01: NINDS Faculty Development Award to Promote Diversity in Neuroscience Research</u></b>	The NINDS Faculty Development Award to Promote Diversity in Neuroscience Research (K01) provides junior faculty support and protected time (up to three years) for an intensive, supervised career development experience in neuroscience research. The goal of the NINDS K01 is to diversify the pool of independent neuroscience research investigators and to enhance the probability of success in obtaining independent NIH or other independent research support. Mentoring is expected to be appropriate for this stage of career and should focus on enhancing tenure track (or equivalent) activities or metrics (i.e., helping the junior faculty member to navigate institutional expectations, scientific networks, and practices that are relevant to productivity and advancement at the institution). Individuals from backgrounds underrepresented in biomedical research are eligible for support under this award if they have doctoral research degrees (Ph.D. or equivalent) and are in the first 3 years of a faculty position at the time of award.	Up to \$85,000 per year.	Research and career development costs up to \$100,000 per year.	Up to 3 years. Not renewable.
<b><u>K02: Independent Scientist Award</u></b>	This program provides a period of intensive research focus for newly independent clinical-scientists. The award provides salary and research costs for the first three years, and continued salary support for years four and five, contingent on successful competition for an R01 or equivalent award. In contrast to requirements of other institutes, applicants are not eligible for this award if they have a major, independent, peer-reviewed research grant (R01, subproject on a P01, or equivalent) prior to receiving the K02 award. Awardees are encouraged to apply for R01 support at any time after they've received the K02 award.	Years 1-3: Up to \$105,000 per year.  Years 4-5: Up to 80% of institutional base	Years 1-3: Up to \$50,000 per year.  Years 4-5: N/A	Up to 5 years. (Years 4/5 require R01). Not renewable.

<b><u>K08: Mentored Clinical Scientist Research Career Development Award</u></b>	This award provides "protected time" for clinically trained persons to participate in an intensive, supervised training program in biomedical research. Candidates must apply within 3 years of completing clinical training.	Up to \$95,000 per year.	Up to \$50,000 per year.	3-5 years. Not renewable.
<b><u>K12: Neurological Sciences Academic Development Award (NSADA)</u></b>	Institutional award to train pediatric neurologists for careers in research. Newly trained pediatric neurologists are selected and appointed to this program by the sponsoring institution. It is expected that individuals appointed to the NSADA program will subsequently apply for their own Mentored Clinical Scientist Development Award (K08), the Mentored Patient-Oriented Career Development Award (K23), an NINDS Research Scientist Development Award (K02) or an R01, to continue their research training.	Up to \$85,000 per year.	Up to \$30,000 per year.	Up to 5 years. May be renewed.
<b><u>K23: Mentored Patient-Oriented Research Career Development Award</u></b>	Supports the career development of clinically trained investigators with an M.D. or equivalent degree who have made a commitment to patient-oriented research. For the purposes of this award, patient-oriented research is defined as research conducted with human subjects (or on material of human origin such as tissues, specimens, and cognitive phenomena) for which an investigator directly interacts with human subjects. This area of research includes: 1) mechanisms of human disease; 2) therapeutic interventions; 3) clinical trials; and 4) the development of new technologies.	Up to \$95,000 per year.	Up to \$50,000 per year.	3-5 years research. Not renewable.
<b><u>K24: Midcareer Patient-Oriented Research Career Development Award</u></b>	Supports clinicians (M.D. degree or equivalent) devoted to patient-oriented research and to mentoring of beginning clinical investigators in this area of research. Candidates must have independent research support at the time of application and maintain independent research support for the duration of the career award. NINDS has detailed programmatic priorities with regard to the mentoring component of the K24 award. Potential applicants are urged to contact the <u>NINDS Director of Training and Career Development</u> <b>before</b> preparing an application.	Salary of 25 to 50% full-time professional effort consistent with the established salary structure at the institution	Up to \$50,000 per year for mentoring activities.	Up to 5 years. May be renewed.

<b><u>K22: NINDS Advanced Postdoctoral Career Transition Award to Promote Diversity in Neuroscience Research</u></b>	The NINDS Advanced Postdoctoral Career Transition Award to Promote Diversity (K22) is designed to increase the number of highly trained early career investigators from diverse backgrounds underrepresented in neuroscience research. This opportunity provides individuals from diverse backgrounds underrepresented in neuroscience with the resources and tools that will help facilitate a transition to a stable and productive independent research position. Individuals are eligible for support under this award if they have doctoral research degrees (Ph.D., Ph.D./M.D. or equivalent) and between 2 and 5 years of postdoctoral research experience at the time of application. This award is divided up into two phases: an advanced postdoctoral training period (Phase I) and a subsequent independent position (Phase II). Transition from Phase I to II is contingent on the awardee securing an independent faculty position by the completion of Phase I.	Phase I: Follows NRSA salary guidelines based on years of experience  Phase II: Up to \$85,000 per year	Phase I: research and career development costs up to \$25,000 per year  Phase II: research and career development costs up to \$100,000 per year	Phase I: 2-3 years.  Phase II: up to 3 years.  Total duration of Phase I and II may not exceed 5 years.  Not renewable.
<b>K99/R00: Pathway to Independence Award</b>	The intent of this program is to increase and maintain a strong cohort of new NIH-supported independent investigators. Investigators complete supervised research and publish findings during the mentored phase. Transition to the independent phase is contingent on the awardee securing an independent research position prior to completion of the mentored phase. Award recipients will be expected to obtain R01 support from the NIH during the independent phase of the award.	Up to \$50,000 per year.  (Intramural candidates will be supported by DIR funds)	Up to \$20,000 per year.  (Intramural candidates will be supported by DIR funds)	Up to 2 years for the mentored phase, up to 3 years for independent phase. Not renewable.

### Training for Diverse Populations:

<b>Mechanism – Program ↓</b>	<b>Program Synopsis</b>	<b>Salary/ Stipend</b>	<b>Budget Info.</b>	<b>Duration/ Renewal</b>
<b>NINDS Research Supplements to Promote Diversity in Health-Related Research</b>	<p>Supplemental funds to active NINDS research grants are available from the NINDS for supporting individuals a) from underrepresented ethnic or racial groups, b) from disadvantaged backgrounds, or c) with disabilities. This program is part of an NIH initiative to increase diversity in the biomedical research workforce. Institutions are encouraged to identify candidates who will increase diversity on a national or institutional basis. This program targets six educational groups: High School Students, Undergraduate Students, Post-Baccalaureate and Post-Master's Degree Students, Graduate Students, Postdoctoral Candidates, and Faculty Members.</p> <p>In all cases, the proposed research experience must be an integral part of the approved, ongoing research of the parent grant and it must have the potential to contribute significantly to the research career development of the candidate. In addition to an outlined training plan for the candidate, the principal investigator must demonstrate that they are willing to provide appropriate mentorship.</p> <p>These programs have been designed to attract individuals from underrepresented groups into research careers and are not intended to provide an alternative or additional means of supporting individuals who already receive support from an NIH research grant, an NIH National Research Service Award (NRSA), or any</p>	Salary for the different educational groups should be consistent with the institutional salary policies.	Varies depending on the career level of the candidate. Information can be found on FOA Section 111.3.	Minimum of 2 years/not renewable



	other DHHS funding mechanism. Applications may be submitted at any time by investigators holding NINDS grants (see program announcement for eligible grant mechanisms). Though supplements are received on a rolling basis NINDS implemented three review cycles per fiscal year for funding decisions (see NOT-NS-08-004).			
<b>Research Supplements to Promote Re-Entry into Biomedical and Behavioral Research Careers</b>	The Office of Research on Women's Health (ORWH), participating Institutes and Centers (ICs) of the National Institutes of Health (NIH), and the Office of Dietary Supplements (ODS) announce a continuing program for administrative supplements to research grants to support individuals with high potential to re-enter an active research career after a qualifying interruption for family or other responsibilities. The purpose of these supplements is to encourage such individuals to re-enter research careers within the missions of all the program areas of NIH. This program will provide administrative supplements to existing NIH research grants for the purpose of supporting full-time or part-time research by these individuals in a program geared to bring their existing research skills and knowledge up to date. Though supplements are received on a rolling basis NINDS implemented three review cycles per fiscal year for funding decisions. (see NOT-NS-08-004).	Must be in accordance with the salary structure of the grantee institution	Up to \$10,000	1-3 years/not renewable.
<b><u>F31: Predoctoral Fellowships to Promote Diversity</u></b>	See Individual NRSA Fellowships for more information.			
<b><u>K01: NINDS Faculty Development Award to Promote Diversity in Neuroscience Research</u></b>	See Career Development Awards for more information.			
<b><u>K22: NINDS Advanced Postdoctoral Career Transition Award to Promote Diversity in Neuroscience Research</u></b>	See Career Development Awards for more information.			



# **Writing a Grant Application: An Informal Guide**

## **1. Essentials**

- a. Significance
- b. Sound, clear hypotheses
- c. Productivity and demonstration of feasibility -- high quality results and figures
- d. Logical development of experimental design – experiments address stated hypotheses
- e. Can you do everything you propose to do in the time requested -- “Overly Ambitious” is one of the most common criticisms of young investigators.
- f. Plan ahead and don't rush -- give yourself at least 2-3 months to prepare the grant application.
- g. Arrange with colleagues or mentors to review a first draft of your specific aims early (6 weeks or so). You want the harshest critiques before you submit.

## **2. Specific aims**

- a. Do the aims address interesting and significant issues?
- b. Are they hypothesis-based?
- c. Are they "win-win" – i.e., will an outcome consistent with the null hypothesis still be a contribution to the field?

## **3. Preliminary results**

- a. Preliminary results should support feasibility of study and hypotheses.
- b. Make sure that the major methods to be used in the proposed work are reflected by preliminary results. If you do not have expertise or preliminary results with a technique, make sure you list a solid, experienced consultant or collaborator and include a letter agreeing to the collaboration, and a specific statement about what the collaborator will contribute.
- c. Put time and effort into preparing meticulous figures, graphs, or tables; this is your chance to demonstrate rigor and organization that will increase the reviewer's confidence that you can carry out the project. This cannot be overemphasized: a high quality application reflects high quality work (and vice-versa).

## **4. Experimental design**

- a. This is one of the most common places where the text is insufficient. This is not just a place to tediously list group sizes, detailed methods, etc. This is the place to demonstrate your ability to think knowledgeably and logically.
- b. Develop your aims; of all the sections this may well be the part of the grant application upon which you spend the most time.
- c. What happens if your first specific aim doesn't work out as you have predicted? Will aims 2, 3 and 4 then be rendered useless? Where do you go if the first step fails? Have multiple working hypotheses.

- d. One method that often works is to divide this section into subheadings after *each* specific aim is restated, as follows:

*Specific Aim #*

- i. **Rationale:** How does this design relate to your hypotheses? What is your reasoning (in detail)?
- ii. **Methods:** List general approaches first, explaining why the methods you propose are the best available for your questions. (*caveat*: if you realize that you do not have the best, most direct methods for your questions, you need to rethink your aims or incorporate collaborators or new preliminary data showing feasibility with the necessary techniques.) \*\*Don't forget to address statistical analysis.
- iii. **Anticipated results:** You need to devote a great deal of thought, and text, to potential outcomes and their likelihood of realization. Explain how you will interpret the different outcome scenarios and how these results relate back to your hypotheses. This is an opportunity to demonstrate creativity and enthusiasm for the data to be obtained, and show that you have considered the interpretation of alternative outcomes.
- iv. **Problems and pitfalls:** Be honest with yourself. If this section feels horribly uncomfortable, it is because you are probably trying an experiment that is not feasible. All experiments have pitfalls, but you should be able to recover from them in a satisfactory way. Explain the pitfalls, and how alternate approaches will be used to overcome them if they occur. Do not think that avoiding mentioning a pitfall is a good strategy - it usually doesn't work. The reviewer will very likely notice the pitfall and believe that you are not aware of it, decreasing confidence in your ability to conduct the study.

## 5. Timetable

This is a worthwhile exercise, but does not need to take up an inordinate amount of space. The idea is to take a serious look at the amount of work you've proposed and demonstrate to reviewers that this amount is appropriate.

## 6. Responsible Conduct of Research (RCR)

In order to receive an award, applicants must comply with the NIH RCR policy. Pay close attention to the instructions listed in the notice (NOT-OD-10-019: <http://grants.nih.gov/grants/guide/notice-files/not-od-10-019.html>).

## 7. Contact an NIH Program Director

Not all institutes support all grant mechanisms. Moreover, institutes use grant mechanisms differently. Be sure that an institute will support your research/training with the mechanism you are applying to. Institute websites and web links in program announcements describe institute interests. You should also contact an institute program director if you plan to apply for a training award other than an F32 (which all institutes support).

# Common Mistakes in NIH Grant Applications

The five review criteria for most NIH grant applications are Significance, Approach, Innovation (not necessary, but the results should have compelling significance), Investigator and Environment:

## ***Problems with Significance:***

Not significant, exciting, or new research  
Lack of compelling rationale  
Incremental and low impact research

## ***Problems with Approach:***

Too ambitious, too much work proposed  
Unfocused aims, unclear goals  
Limited aims and uncertain future directions

## ***Problems with Experimental Design:***

Inappropriate level of experimental detail  
Feasibility of each aim not shown  
Little or no expertise with approach  
Lack of appropriate controls  
Not directly testing hypothesis  
Correlative or descriptive data  
Experiments not directed towards mechanisms  
No discussion of alternative models or hypotheses  
No discussion of potential pitfalls  
No discussion of interpretation of data  
Inadequate description of statistical approach/analyses

## ***Problems with Investigator:***

No demonstration of expertise or publications in approaches  
Low productivity, few recent papers  
No collaborators recruited or no letters from collaborators  
Lack of funding

## ***Problems with Environment:***

Inadequate institutional support

# NIH Websites

## THE FUNDING COMPONENTS OF NIH

The NIH Homepage:  
<http://www.nih.gov>

Homepages of the NIH Institutes, Centers & Offices:  
<http://www.nih.gov/icd/>

## THE NIH GUIDE FOR GRANTS AND CONTRACTS:

Program Announcements (PAs) and  
Request for Applications (RFAs):  
<http://www.nih.gov/grants/guide/index.html>

Institutes, Centers, & Offices at the NIH  
<http://www.nih.gov/icd/>

NIH Grants Policy Statement  
<http://grants.nih.gov/grants/policy/nihgps/>

## THE APPLICATION PROCESS

NCI's Quick Guide to the Preparation of  
NIH Grant Applications:  
<http://deainfo.nci.nih.gov/extra/extdocs/gntapp.pdf>

Application Receipt, Referral and Review,  
Center for Scientific Review:  
<http://www.nih.gov/grants/funding/submissionschedule.htm>  
and  
<http://www.csr.nih.gov/>

NIH Grant Application Instructions, Guidelines and Forms:  
<http://www.nih.gov/grants/forms.htm>

NIH Modular Grant Information, Q&A,  
Sample Budget and Biosketch:  
<http://www.nih.gov/grants/funding/modular/modular.htm>

NIH "How To" website for developing a grant application:  
<http://funding.niaid.nih.gov/researchfunding/grant/pages/aag.aspx>

## THE REVIEW PROCESS

The Five Review Criteria for Most NIH applications:  
<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-09-025.html>

Descriptions of Initial Review Groups at the  
Center for Scientific Review:  
<http://www.csr.nih.gov/review/irgdesc.htm>

NIH Center for Scientific Review Study Section Rosters:  
<http://www.csr.nih.gov/committees/rosterindex.asp>

## DATA ON ACTIVE GRANTS

Research Portfolio Online Reporting Tool (RePORT) of NIH  
awarded grants  
<http://projectreporter.nih.gov/reporter.cfm>

NIH eRA commons:  
<https://commons.era.nih.gov/commons/>

## THE SPECIAL PROGRAMS AT NIH

The K Awards:  
<http://www.nih.gov/training/careerdevelopmentawards.htm>

Application Guidelines for the K Awards:  
<http://grants.nih.gov/grants/funding/424/index.htm>

Ruth L. Kirschstein National Research Service Awards  
Institutional Research Training Grants  
Individual Fellowships  
<http://grants.nih.gov/training/nrsa.htm>

R03/Small Grant Program  
<http://www.nih.gov/grants/funding/r03.htm>

AREA or R15 for Non-Research-Intensive  
Colleges and Universities:  
<http://www.nih.gov/grants/funding/area.htm>

SBIR/STTR Homepage:  
<http://www.nih.gov/grants/funding/sbir.htm>

# **Where to find Help**

## **NINDS Office of Training, Career Development and Workforce Diversity**

The NINDS supports training opportunities in basic, clinical and translational research. Career development programs (K awards) are designed primarily to support clinician-scientists doing either basic or clinical research, but are also used for other specialized purposes. Fellowships (F awards) are available for predoctoral and postdoctoral scientists, as well as for established investigators who wish to change career direction or gain new skills for their research. The NINDS Training website ([http://www.ninds.nih.gov/funding/areas/training\\_and\\_career\\_development/index.htm](http://www.ninds.nih.gov/funding/areas/training_and_career_development/index.htm)) provides the following types of information:

- ❖ Grant mechanisms and other funding opportunities
- ❖ Policy updates affecting training and career development programs
- ❖ Application information and forms
- ❖ Program Contacts
- ❖ Grant-writing tips
- ❖ Events of Interest

## **How can I find out about grant opportunities at the NIH?**

There are a variety of ways to find out about current funding opportunities offered by the NIH. If you know the Institute to target with your application, you can visit their website directly to find funding opportunities. A list of the NIH Institutes and their respective websites can be found here:

<http://www.nih.gov/icd/>

If you would like to search for a specific NIH funding opportunity or review new NIH program announcements, you can query the NIH Guide for Grants and Contracts:

<http://grants.nih.gov/grants/guide/index.html>

For all federal funding opportunities, you can query Grants.gov:

[www.Grants.gov](http://www.Grants.gov)

The Career Award Wizard is designed to help applicants determine what Career (K) Award programs they may be eligible for based on their level and type of training:

<http://grants1.nih.gov/training/careerdevelopmentawards.htm>

New Table of Page Limits For all NIH funding opportunities:

[http://grants.nih.gov/grants/forms\\_page\\_limits.htm](http://grants.nih.gov/grants/forms_page_limits.htm)

The F Kiosk is designed to help applicants discern which fellowship programs are appropriate for their career stage: [http://grants1.nih.gov/training/F\\_files\\_nrsa.htm](http://grants1.nih.gov/training/F_files_nrsa.htm)

The NIH New Investigator Resource Page provides timely updates regarding grant opportunities for new investigators:

[http://grants1.nih.gov/grants/new\\_investigators/index.htm](http://grants1.nih.gov/grants/new_investigators/index.htm)

Funding opportunities through the NIH Roadmap for Medical Research and the NIH Blueprint for Neuroscience Research are posted on their respective websites:

- ❖ NIH Roadmap: <http://nihroadmap.nih.gov/>
- ❖ NIH Blueprint: <http://neuroscienceblueprint.nih.gov/>

Loan repayment programs are available for some candidates.

- ❖ NIH Loan Repayment Program:



- ❖ <http://www.lrp.nih.gov>
- ❖ NINDS Loan Repayment Program: [http://www.ninds.nih.gov/funding/areas/training\\_and\\_career\\_development/NINDS\\_Loan\\_Repayment\\_Guidelines.htm](http://www.ninds.nih.gov/funding/areas/training_and_career_development/NINDS_Loan_Repayment_Guidelines.htm)

### **How can I find out about training opportunities at the NIH?**

There are opportunities for students, postdocs, clinicians, and other investigators to come to the NIH for a research training experience.

- ❖ For opportunities across the NIH: <http://www.training.nih.gov/>
- ❖ For opportunities at NINDS: <http://intra.ninds.nih.gov/training.asp>

### **What must I know before I apply?**

After identifying grant opportunities that suit your research interests and career stage, familiarize yourself with appropriate forms and deadlines. You may also want to contact program staff to ensure that the proposed research is in line with the mission of the Institute(s) targeted by your application.

NIH Forms and Applications

<http://grants.nih.gov/grants/forms.htm>

Grant Submission Deadlines and Review Timelines

<http://grants.nih.gov/grants/funding/submissionschedule.htm>

Electronic Submission of Applications General Information:

<http://era.nih.gov/ElectronicReceipt/index.htm>

Timeline for Required use of Electronic Submission:

[http://era.nih.gov/ElectronicReceipt/files/Electronic\\_receipt\\_timeline\\_Ext.pdf](http://era.nih.gov/ElectronicReceipt/files/Electronic_receipt_timeline_Ext.pdf)

To apply for a grant, your organization must be registered with Grants.gov:

[www.grants.gov](http://www.grants.gov)

The NIH eRA Commons allows applicants to track the status of their application and monitor their award. Registration is required:

<https://commons.era.nih.gov/commons/>

### **Where can I find grant-writing tips?**

Several Institutes have developed materials to guide new investigators through process of grant-writing. A few of these resources are listed below with a reference to the

authoring Institute.

Grants Tutorials (NIAID)

<http://funding.niaid.nih.gov/researchfunding/grant/pages/aag.aspx>

Tips for new NIH Grant Applicants (NIGMS)

<http://www.nigms.nih.gov/Research/Application/Tips.htm>

Common Mistakes in NIH Applications (NINDS)

[http://www.ninds.nih.gov/funding/grantwriting\\_mistakes.htm](http://www.ninds.nih.gov/funding/grantwriting_mistakes.htm)

Grant Writing: A 12-Step Program (NIMH)

[http://www.ninds.nih.gov/funding/NLD\\_SfN\\_Oct\\_2005.pdf](http://www.ninds.nih.gov/funding/NLD_SfN_Oct_2005.pdf)

A Short Guide to the Preparation of an NIH R01 Grant Applications (NCI)

<http://deainfo.nci.nih.gov/extra/extdocs/gntapp.pdf>

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## **Understanding Peer Review**

Several online resources are available to demystify the review process.

The Peer Review Process

<http://cms.csr.nih.gov/AboutCSR/OverviewofPeerReviewProcess.htm>

Video on Peer Review at NIH

<http://cms.csr.nih.gov/ResourcesforApplicants/InsidetheNIHGrantReviewProcessVideo.htm>

Review Group Descriptions

<http://cms.csr.nih.gov/PeerReviewMeetings/CSRIRGDescription/>

Study Section Rosters

<http://www.csr.nih.gov/Committees/rosterindex.asp>

## **Contacts:**

Be sure to review the contact list associated with the funding opportunity announcement through which you are applying.

*Institute-specific requirements and contacts for parent Career Award Programs*

K01: [http://grants.nih.gov/grants/guide/contacts/parent\\_K01.html](http://grants.nih.gov/grants/guide/contacts/parent_K01.html)

K08: [http://grants.nih.gov/grants/guide/contacts/parent\\_K08.html](http://grants.nih.gov/grants/guide/contacts/parent_K08.html)

K23: [http://grants.nih.gov/grants/guide/contacts/parent\\_K23.html](http://grants.nih.gov/grants/guide/contacts/parent_K23.html)

K25: [http://grants.nih.gov/grants/guide/contacts/parent\\_K25.html](http://grants.nih.gov/grants/guide/contacts/parent_K25.html)

K99/R00: [http://grants.nih.gov/grants/guide/contacts/parent\\_K99\\_R00.html](http://grants.nih.gov/grants/guide/contacts/parent_K99_R00.html)

K02: [http://grants.nih.gov/grants/guide/contacts/parent\\_K02.html](http://grants.nih.gov/grants/guide/contacts/parent_K02.html)

K24: [http://grants.nih.gov/grants/guide/contacts/parent\\_K24.html](http://grants.nih.gov/grants/guide/contacts/parent_K24.html)

In addition, each Institute has appointed contact persons for Extramural (E) and Intramural (I) Training Programs: [http://grants.nih.gov/training/tac\\_training\\_contacts.doc](http://grants.nih.gov/training/tac_training_contacts.doc)

## **Other useful websites:**

NIH OER Human Subjects Website

<http://grants1.nih.gov/grants/policy/hs/index.htm>

NIH OER Office of Laboratory Animal Welfare Website

<http://grants2.nih.gov/grants/olaw/olaw.htm>

NIH Office of Research Integrity Website

<http://ori.dhhs.gov/>

Howard Hughes Medical Institute (HHMI) Materials for Successful Laboratory Management

<http://www.hhmi.org/resources/labmanagement/resources.html>

# M System Map

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- No Dangerous or Flammable Items

## **Contact Information**

### **National Institute of Neurological Disorders and Stroke (NINDS)**

National Institutes of Health  
Building 31, Room 8A07 • 31 Center Drive, MSC 2540  
Bethesda, MD 20892-2540  
Phone: (301) 496-5751  
Email: [braininfo@ninds.nih.gov](mailto:braininfo@ninds.nih.gov)  
Website: [www.ninds.nih.gov](http://www.ninds.nih.gov)  
Director: Walter Koroshetz, MD  
E-mail: [koroshetzw@ninds.nih.gov](mailto:koroshetzw@ninds.nih.gov)

### **Association of University Professors of Neurology**

5841 Cedar Lake Road, Suite 204 • Minneapolis, MN 55416  
Phone: (952) 545-6724 • Fax: (952) 545-6073  
E-mail: [neuro@aupn.org](mailto:neuro@aupn.org)  
Website: [www.aupn.org](http://www.aupn.org)  
Executive Director: JoAnn Taie

### **American Neurological Association**

15000 Commerce Parkway, Suite C • Mount Laurel, NJ 08054-2212  
Phone: (856) 638-0423 • Fax: (856) 439-0525  
E-mail: [velliott@aneuroa.org](mailto:velliott@aneuroa.org)  
Website: [www.aneuroa.org](http://www.aneuroa.org)  
Executive Director: Victoria Elliott

### **Child Neurology Society**

1000 W. County Road E, Suite 290  
Saint Paul, Minnesota 55126  
Phone: (651) 486-9447 • Fax: (651) 486-9436  
Email: [nationaloffice@childneurologysociety.org](mailto:nationaloffice@childneurologysociety.org)  
Website: [www.childneurologysociety.org](http://www.childneurologysociety.org)  
Executive Director: Roger Larson