

# The NICHD Connection

## May 2016

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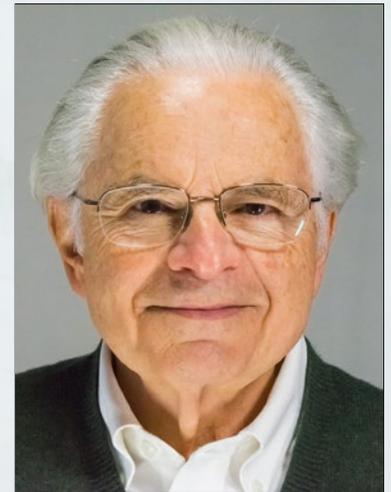
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Pushpanathan Muthuirulan, PhD  
Sudhir Kumar Rai, PhD

## Scientist as Scholar: Then and Now

By Shana R. Spindler, PhD

In the summer of 2006, *Current Biology* published an interview with Dr. Igor Dawid, now head of the Section of Developmental Biology, NICHD. During the interview, Dawid discussed his entrance into biology following World War II and his outlook on the “biological research enterprise.” Anyone who reads the interview will find that Dawid’s keen insight, humble attitude, and gentle humor make you feel as though you just chatted over a cup of coffee together. The take away message from the chat? That he’d do it all over again.



Now, ten years later, we pick his brain once more. In a Q&A with *The NICHD Connection*, Dawid offers his thoughts on success in research, his new favorite papers, challenges for current trainees, and a few other “scholarly” tidbits for our consumption. Enjoy!

**Q:** *Do you think there is a key to success in research, and maybe more importantly, what do you define as success?*

**A:** I don’t believe there is one key to success in science, but there are several factors that contribute. In no particular order, (i) aptitude does matter; inclination to logical thinking, intellectual curiosity, tenacity and flexibility in the “right” combination, and commitment to a research career all help. (ii) Luck helps as well, maybe better said, being at the right place at the right time. Of course, good judgment can get you to the right place as well. If you Google “luck favors the prepared,” you get lots of hits. Still, having the opportunity comes before seizing it. In looking back at my own career I always feel lucky to have had good opportunities. (iii) Picking the right subject is another important factor, although one could say that the first two factors already include this one.

Defining success altogether is more philosophical than I care to tackle. In a

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## Letter from the Editor

Life is hectic. Between feeding the dog, remembering to take out the trash, and the occasional call to Mom, many of us attempt to squeeze every useful minute out of the day. Sometimes we forget to slow down, to put our fast-paced endeavors into context. That's why we've themed this issue "Scientist as Scholar." The very word "scholar" pulls you into the depths of suspended time, floating in a sea of words penned by philosophers, scientists, and minds of past. Researchers all need to be scholarly every now and then, taking a moment to step away from the bench, or computer, to draw on knowledge from the past as you contemplate what your work means for the future.

Each article this month points to the scholarship of NICHD scientists. I won't hide my excitement with this issue. **Dr. Igor Dawid's generous Q&A with the newsletter** is one of my favorites we've published. A senior scholar himself, he offers several words of wisdom for NICHD trainees.

We certainly couldn't have scholars without publications. Dr. Pushpanathan Muthuirulan discusses **the secrets behind getting published** in her recap of Dr. Chris McBain's recent workshop on the topic. And because we rely on a peer review system, the entire process would fail if not for the efforts of scientific reviewers. Dr. Sudhir Kumar Rai, a regular contributor to *The NICHD Connection*, describes **his experience as a scientific reviewer and editorial board member** in our "Interesting Opportunity" column.

In the spirit of this issue, I ask you to email me your favorite article or book (fiction or nonfiction) to **Shana.Spindler@gmail.com**, and we'll publish your responses in a future month. Come on, let's see what we discover from each other, a bunch of scientist-scholars.

Your Editor in Chief,  
Shana R. Spindler, PhD

Please send questions and comments to **Shana.Spindler@gmail.com**.

## Scientist as Scholar: Then and Now

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purely professional sense, I guess one could say that achieving a goal you set for yourself would do it. But what goal to set? Is it too low, then you lack ambition, and some ambition is needed and should probably be an item in the paragraph above. Point it too high (Stockholm or bust) sets up the vast majority of us for failure. So perhaps I should say that picking ambitious but realistic goals is another factor needed to achieve success.

**Q:** *In your 2006 interview with *Current Biology*, you said that some things are easier for those pursuing a career in basic research, and some things are harder. What do you think is easier, and what do you think is harder compared to the time when you were pursuing your career?*

**A:** Most people, especially by 2016 rather than 2006, will say harder for sure, but is anything easier? I tend to agree that overall pursuing a research career got harder since the 1960's, and even since 2006. What got harder is obvious, it is more difficult to get a job, and the next paragraph will speak to this as well. What might have become easier is to choose a productive line of research. The vast expansion of technological capabilities in the half-century that I witnessed in the biological sciences means that good work can be done by many researchers in many fields. Fifty years ago, technical limitations meant that you could not approach most questions in biology you might have liked to investigate, and choosing a line of research was more daunting than it is now.

**Q:** *In the same interview, you said that a problem in the biological research enterprise is the ratio of good postdoctoral researchers to available long-term employment. Do you think that has improved, stayed the same, or worsened in the past ten years? Any ideas?*

**A:** I saw this as a problem in 2006, and it surely has gotten more serious since. It is also more widely discussed, testifying to its increasing impact on the field. By 2014 four very prominent colleagues published a perspective to highlight the problem and make some suggestions (Alberts et al., *PNAS* 111: 5773-5777). If I may be a bit irreverent I would say that the authors have been more successful in outlining the problem than finding solutions—but then, in the realm of societal issues, that is par for the course. And needless to say, I would not try to claim that I can offer a solution.

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## Scientist as Scholar: Then and Now

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**Q:** *What do you see as new challenges for NICHD trainees?*

**A:** I am not sure there is a unique set of problems facing NICHD trainees compared to their peers elsewhere. It is good that postdocs have the opportunities to learn about alternative careers, get advice on how to write a grant and how to look for a job. But the enhanced mentoring activities should not go overboard—sometimes it feels that the need to demonstrate that mentoring is happening outweighs the substantive interactions between scientists. I hope that's a misimpression

**Q:** *Do you have a favorite modern paper (let's say since 2000)?*

**A:** Much has happened since 2000. The human genome sequence is surely one key event, although choosing one paper to represent it would be difficult. Another key event is the invention of model system-independent genome editing. The favorite platform has definitely settled on CRISPR/Cas9. Again, picking one key paper is not easy, the first paper I read on the subject is Jinek et al., *Science* 337: 816-821, 2012. I'll pick this as my favorite modern paper.

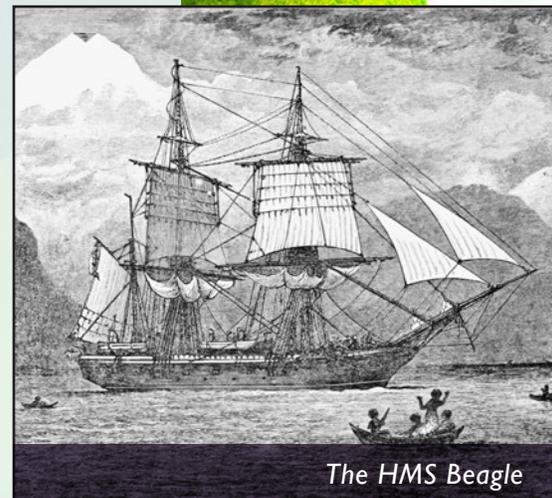
**Q:** *If you had a time machine that could travel to any scientific event, past or future, what discovery would you use the time machine to witness?*

**A:** Well, that's not a question I had ever thought about. It would be nice to go along on the *HMS Beagle* on its voyage of discovery, except that I am soft and the accommodations were pretty Spartan. So since this is fantasy I'll have a cabin from a modern luxury cruise ship, including kitchen service, attached to the *Beagle* so I could come along in comfort. Of course, my conscience would kill me to live it up while poor Charles has to make do with tight quarters—but you get the idea.

**Q:** *What are your favorite fiction and nonfiction books?*

**A:** A brief comment on my background will help explain these preferences. I spent my teens and half of my twenties in Vienna, studied there, and culturally have retained an affinity for Vienna, Central Europe more generally, and the early to

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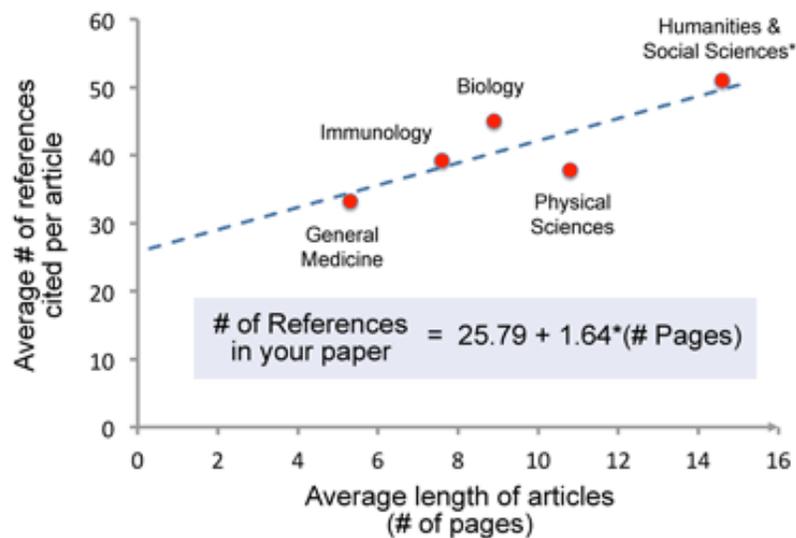
## Scientist as Scholar: Then and Now

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mid-twentieth century. In this context my favorite fiction book is the collection of short stories, or novellas, by Thomas Mann. Not every one is a masterpiece, but several are. Probably best known to an American audience might be "Death in Venice," made into an atmospheric 1971 movie, and "Tristan," a story you might call a theme and variations treatment of Wagner's "Tristan und Isolde." I re-read these stories about every decade of my life.

The nonfiction book I'll mention is the biography of Ludwig Wittgenstein by Ray Monk. Not that I am that much into philosophy, and even less do I claim to have digested Wittgenstein's thinking. But he was a fascinating personality, born in Vienna and living a large part of his life in England through terrible but interesting times. The book is very well written, with understanding and balance, and is altogether a fine read.

### Need more References?



Sources: Abt, H. A. and Garfield, E. J. Am. Soc. for Info. Science & Tech. 53(13):1108-1112, Nov. 2002; Halevi, G. Res. Trends (32), March 2013; Beck, M., beckmw.wordpress.com July 2014. Humanities data estimated. Based on 1000-word pages.

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## Interesting Opportunity: Serving as a Scientific Reviewer

By Sudhir Kumar Rai, PhD

Designing and conducting experiments are key components of biomedical research. Immortalizing crucial results in research publications carries a lot of backend tasks. One key aspect is the scientific review process. For the past seven years, I have served as a scientific reviewer.

I was raised in Mumbai, India and did my Bachelor of Science at Andhra University, Visakhapatnam, in Microbiology, Biochemistry and Medical Lab Technology. During my Master's program, I had my first exposure to research at the Bioengineering and Environmental Center (BEEC), Indian Institute of Chemical Technology (IICT), in Hyderabad, Andhra Pradesh, India. I was enthusiastic about experiencing an in-depth research environment. I obtained my Ph.D. in 2012 from the Department of Molecular Biology and Biotechnology (MBBT) at Tezpur University, Assam, India.

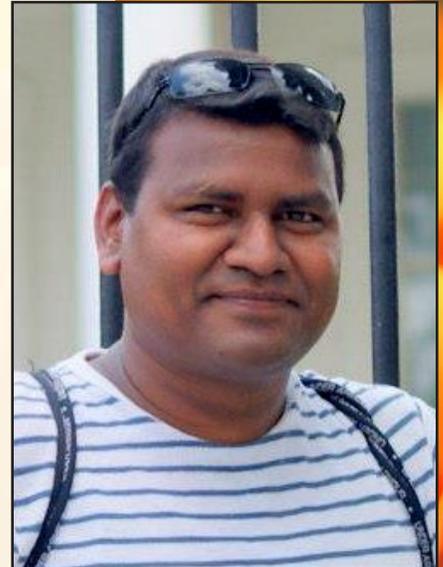
During my doctoral program, I spent my time going to seminars and reading papers in areas outside my own research. Reading recent articles from several journals gave me a broad idea of current research trends in biomedical research, and traveling to international annual meetings gave me an appreciation for what the field thought was interesting and who was competing to answer the "hot" questions in a given biomedical research area.

### SERVING AS A SCIENTIFIC REVIEWER

During my doctoral work in protein engineering, biochemistry, and drug formulation, I received an invitation from several international journals to serve as a scientific reviewer and editorial board member. My core responsibility as a reviewer was to examine the submitted manuscript and offer critical comments. On average I received two to three manuscripts in a two-month period. Working with different "flavors" of journals provided valuable information about journal formats and how they obtained reviewer comments.

Some journals provide scientific reviewers with a discount on article submission, or some journals may provide a one month Scopus/Elsevier/Springer subscription for downloading any scientific articles, in addition to the free articles from open access journals. The extra accessibility to research articles is a great resource for universities that have a limited volume of journal subscriptions.

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## Serving as a Scientific Reviewer (continued from page 6)

### SERVING AS AN EDITORIAL BOARD MEMBER

Editorial board members act as a backbone for journals. Their tasks mainly involve inviting scientists from around the globe by email to submit their work to the journal. They also encourage submissions by networking with other researchers at scientific conferences and meetings around the world.

Serving as an editorial board member provides the bonus of highlighting my scientific credentials for becoming a leader in my field of interest. Working on different scientific editorial boards allows me to communicate with other scientists, keeping myself updated with the latest biomedical problems and familiarizing myself with a combination of technologies that can address critical questions in my research area, such as in cancer genomics.

Being a budding scientist, I believe myself to be a great learner, and I'm always keen to learn new things every day. I personally feel that volunteering as a scientific reviewer and editorial board member for many journals gives me an enormous opportunity to build a network around the world and a chance to develop collaborations in respective research areas to reach my professional goal and contribute to the scientific development of my country.

If you would like to learn more about being a scientific reviewer and the commitment it entails, I'm happy to chat with you. My contact information is below.

[raisk@nih.mail.gov](mailto:raisk@nih.mail.gov)

Sudhir Kumar Rai

Visiting Fellow in the basic sciences

### NOTE FROM THE EDITOR:

The journals for which Dr. Rai serves on the editorial board are startup journals. Some of his experiences may differ from larger, well-established journals, which tend to use full-time hired editors or only senior scientists (tenured professor level) on the editorial board. The editorial board members of well-established journals may also play a more intense role in the reviewing and editing process, with a smaller focus on recruiting new submissions to the journal. Activities usually include writing editorials or comments for specific issues of the journal in addition to review work.

## Secrets Behind Publishing Success

By *Pushpanathan Muthuirulan, PhD*

In the academic world, publishing a “peer-reviewed” scientific manuscript is a source of anxiety and consternation to many researchers. Do you want to know the inside secret of publishing successes? For researchers struggling to publish their precious data to the scientific world, the NICHD Office of Education organized a “Getting Published: Strategies and Approaches” workshop. Dr. Chris J. McBain, Chief of the Laboratory of Cellular and Synaptic Neurophysiology, NICHD, shared his experiences as Senior Editor for *Neuroscience* and discussed the process of preparing and submitting manuscripts for publication. He emphasized strategies for figuring out the logistical steps associated with pre- and post-manuscript submission.

The workshop featured key strategies and approaches to publication, with a focus on getting published in highly reputed scientific journals. The workshop covered various topics related to writing processes, figures, article submission, editorial process from a reviewer’s perspective, specific period of time for publication, responses to critiques, and requests for revisions.

### **START WITH GOOD WRITING**

With respect to the manuscript writing process, Dr. McBain pointed out that the author should first and foremost have a “complete story” prior to writing a manuscript. This is highly critical for crafting a storyline that will attract a wide readership. The writing process should also parallel the creation of clearly defined figures, which are the driving force of every manuscript. Remember, said Dr. McBain, “A figure is worth a thousand words.” The manuscript should be well written, using plain language that emphasizes clarity, brevity, and avoidance of long-windedness. Plain English is 90 percent of a good and effective manuscript, according to Dr. McBain.

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## Secrets Behind Publishing Success

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### EDITOR'S TRIAGE ON SUBMITTED MANUSCRIPT

There is an enormous volume of manuscript submissions every year. The journal editors reject almost 70 percent of the submitted manuscripts during the initial screening process. Initial screenings help to prevent frustrating the authors by avoiding incubating their paper in a review process for a long time and then rejecting it. Often highly busy editors only look at three essential components of a manuscript to decide if an article should continue to the review process.

These three important components are:

1. Manuscript title (it should be a small, descriptive, and catchy one-line statement)
2. Abstract (it should be grammatically correct and concise to explain significant findings)
3. Figures (should be clear and effectively correlate with the scope of article)

### STRUCTURING A SUCCESSFUL SCIENTIFIC MANUSCRIPT FOR PUBLICATION

To organize an effective scientific manuscript, the first thing to consider is the order of sections, based on the order of items in the journal check list (this will be different for each journal). Authors should carefully go through the journal guidelines to avoid a delay in getting published. Structural components of most manuscripts include:

- a. Cover letter (not too long or long-winded)
- b. Title (concise and catchy)
- c. Abstract (grammatically correct and

describes only the findings)

- d. Compelling Introduction (start with a good review and end with a catchy statement and author contributions in the article)
- e. Methods (provide experimental details that are reproducible)
- f. Results (what you have found? Describe your research findings)
- g. Figure (clear and helps explain your research findings)
- h. Discussion (should confront your findings and convince readers)
- i. References (cite reference in format as per journal guidelines)

### RESPONSES TO CRITIQUES AND SUBMITTING REVISIONS

It's not always easy to respond to reviewers' comments. Get it right, and you could see your paper published! Get it wrong, and it could lead to rejection. To increase the chances of success, don't hesitate to write to the editor explaining, honestly, why you agree or disagree with the reviewer comments, which will help the reviewer and editor to understand your point of view, and ultimately help them make a better decision about your manuscript.

Overall the "Getting Published: Strategies and Approaches" workshop unmasked the secrets behind publishing success. As a participant, I strongly believe that this workshop can empower researchers to stand proudly in the scientific world by publishing their marvelous findings in highly reputed scientific journals.

NICHD Green Team



Life Outside Lab

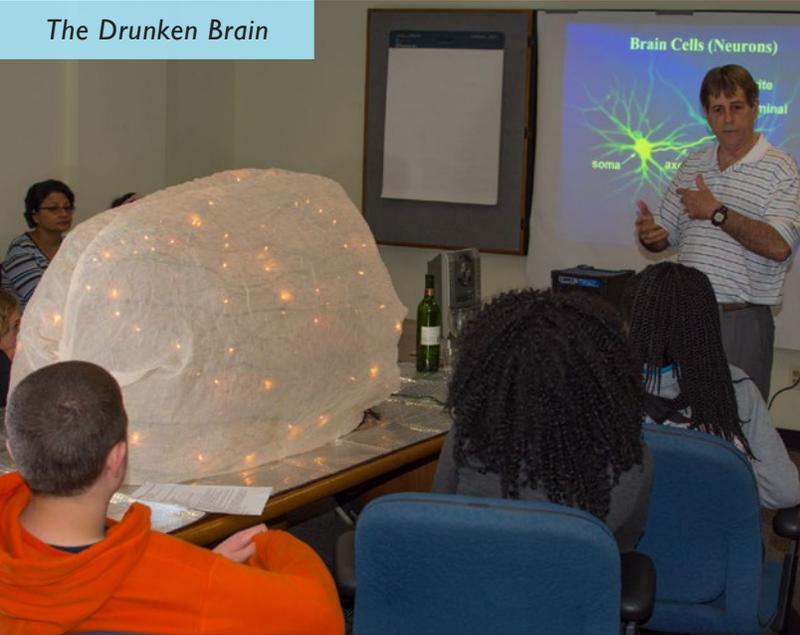
NIH Take Your Child to Work and Earth Day 2016



Yoga and Science Behind It



The Drunken Brain



NICHD Green Team





NIH Take Your Child to Work and Earth Day 2016

Zebrafish Facility Tour



What's that smell? Insects



Go Baby Go



For more photos, please check out our website at [newsletter.nichd.nih.gov](http://newsletter.nichd.nih.gov)

## May Announcements

### SAVE THE DATE: ANNUAL GRANT WRITING WORKSHOP, JULY 14

On **Thursday, July 14**, we will have our annual half-day grant writing workshop, in collaboration with four other institutes. The “Write Winning NIH Grant Proposals” workshop is from 9 am to 1:30 pm, and our institute has only 25 slots.

It will address both practical and conceptual aspects that are important to the proposal-writing process. Attendees will even receive the “Grant Writer’s Workbook”—an invaluable, up-to-date reference tool for those who intend to write NIH grants.

If you would like to register for the grants workshop on July 14, please email Yvette Pittman ([Yvette.Pittman@nih.gov](mailto:Yvette.Pittman@nih.gov)) before space fills up.

### SAVE THE DATE: OUR SUMMER COLLEGE TEACHING WORKSHOP SERIES, THIS JULY

From **July 7 to July 26**, this three-week series will take place on **Tuesdays and Thursdays**, from **3 to 5 pm**, here on campus.

Dr. Boots Quimby of the University of Maryland is coming back to NIH to give her summer workshop series, “College Teaching for the 21<sup>st</sup> Century.” The evaluations from previous years were outstanding, and for those of you anticipating a career involving teaching, this is a great learning opportunity for you! Plus it would be a great addition to your C.V., for professional development. Teaching institutions look for your training and experience when they are hiring.

Participants will read current research related to college teaching and learning, write well-designed learning outcomes, develop effective assessment strategies, and design active learning activities for the classroom. Also, to help you prepare for the academic job market, Dr. Quimby’s last session in July will focus on writing a teaching statement.

Since we only have **10 slots** for NICHD, **please contact me at [Yvette.Pittman@nih.gov](mailto:Yvette.Pittman@nih.gov) by Friday, June 10**, if you are interested. If necessary, we plan to have a lottery to decide on fellows’ participation.

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## May Announcements

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### SEEKING VOLUNTEER WRITER TO COVER UPCOMING NICHD EXCHANGE

The NICHD Exchange is a series of quarterly meetings designed to bring the NICHD community together and to foster thought-provoking discussions on scientific topics that cut across intramural and extramural boundaries.

Writing a recap of an NICHD Exchange meeting for *The NICHD Connection* is a great way to practice communicating to a general scientific audience. This will help you develop your skill set for writing grants, manuscript introductions, review articles, and the list goes on. Plus, it makes a great addition to your CV! If you're interested in covering the upcoming meeting, please email Shana Spindler ([Shana.Spindler@gmail.com](mailto:Shana.Spindler@gmail.com)). The topics and speakers are below:



#### **“ZIKA: An Emerging Epidemic”**

Nahida Chakhtoura – “Zika epidemiology and natural history: what we know so far”

Leonid Chernomordik – “Cell entry by Zika: lessons from dengue virus”

Melissa Parisi – “Déjà vu all over again: lessons from congenital rubella and other neurotropic viruses”

## May Events

**THURSDAY, MAY 12, 3:00 – 5:00 PM**

NICHD Exchange Quarterly Meeting  
“Zika – An Emerging Epidemic”  
Building 31, Conference Room 6C6

**THURSDAY, MAY 26, 3:30 – 4:30 PM**

Postbac Farewell Social Event  
Building 31, Room 2A48

All NICHD postbacs are welcome! We want to celebrate your accomplishments and applaud you all on your acceptances into professional school. This is a great opportunity for you to network with each other. We will raffle off a few gifts from the NIH store, enjoy some refreshments and good deserts, and listen as our Scientific Director offers a few inspiring words to prepare you for your next career move. Please let Yvette Pittman know if you plan to attend ([Yvette.Pittman@nih.gov](mailto:Yvette.Pittman@nih.gov)).



**ZIKA**  
an emerging epidemic



**NAHIDA CHAKHTOURA**  
Zika Epidemiology and Natural History:  
What We Know So Far

**LEONID CHERNOMORDIK**  
Cell Entry by Zika: Lessons from Dengue Virus

**MELISSA PARISI**  
Déjà Vu All Over Again: Lessons from Congenital  
Rubella and Other Neurotropic Viruses

The Zika virus was first discovered in the Zika forest of Uganda in 1947. Since that time it has existed in relative obscurity until the jump in rates of microcephaly in Brazil and association with Zika infection brought it into the global spotlight. The rapid spread of this mosquito-borne virus and potentially devastating consequences for pregnant women has led to a world-wide call to action. Join us as we discuss this emerging threat to global health.

THURSDAY, MAY 12, 2016 \* 3:00-5:00 PM  
BUILDING 31 \* CONFERENCE ROOM 6C6

