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The NICHD Connection

December 2015

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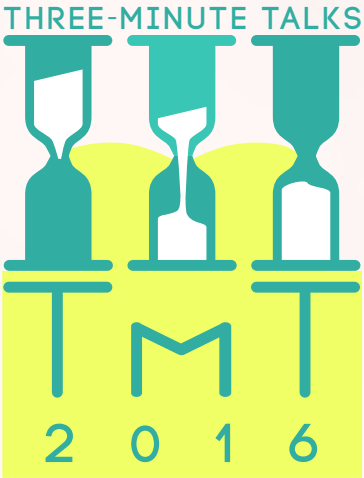
Three-minute Talks (TmT) Competition 2016

NOW SEEKING FELLOWS: SCIENCE COMMUNICATION TRAINING AND AWARDS PROGRAM

Learn how to explain your research, in three minutes or less, in a way that's meaningful to a broad scientific audience.

BENEFITS OF PARTICIPATION

- » Professional training in speech development and presentation delivery
- » One-on-one coaching and feedback in a supportive environment
- » The opportunity to showcase your research for NICHD leaders and the public
- » The chance to win up to $1,000 for approved training or travel to a scientific meeting
- » For finalists: A professionally produced video of your talk for NICHD promotional efforts and your own use



"Participating in the NICHD Three-minute Talk Competition was electrifying. All the participants created dynamic talks to showcase their research; it was a thrill to be a part of this competition. The workshops helped me tailor my research into an engaging and relevant story, which I can now summon when talking with researchers at conferences, potential collaborators, and members of the general public. The one-on-one practice sessions strengthened my presentation delivery. In addition, the video clip of my talk is a remarkable tool to broadcast my research to the community. I encourage others wishing to energize people with their own research to participate in this competition.

— DR. KATHRYN TABOR, 2015 1ST PLACE WINNER (CHECK OUT HER WINNING VIDEO)

2016 PROGRAM TIMELINE AND DETAILS

Fellows should be committed to participating in the full TmT Competition program, including the workshop trainings, NICHD TmT competition, and—if selected as finalists—the NIH TmT competition.

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Letter from the Editor

On behalf of the NICHD fellows, I'd like to wish a fond farewell to **Dr. Mark Mayer** and **Dr. Ralph Nossal** upon their retirements. Ashley Charest and Alex Szatmary profile Mayer and Nossal, respectively, in honor of their long and productive careers with the NICHD. The pair's dedication to the future generation of scientists is evident in the kind words offered by several of their former fellows.

We round out 2015 with our **NICHD Division of Intramural Research year in review**, a welcome to new fellows, fun photos from the latest **NICHD postbac outing**, and an important safety piece from Dr. Niamh Cawley on **Select Agents and the HealthRX tracking system**. Plus, get your communication cap on, because it's almost time for the third annual Three-minute-Talk (TmT) competition, a science communication training and awards program started by the NICHD Office of Education. Check out the announcement on **page 1** for details and important dates.

As the year comes to a close, I want to thank all of the NICHD fellows who have become a part of this newsletter during our last trip around the sun—as volunteer writers, idea contributors, and readers. I continue to be humbled by the talent in the NICHD fellow community. Cheers to you, the drivers of ingenuity and innovation. May your publications be plentiful and your goals be realized in the year ahead!

Your Editor in Chief,
Shana R. Spindler, PhD

Please send your questions and comments to **Shana.Spindler@gmail.com**. Article ideas are always welcomed!

Three-minute Talks (TmT) Competition 2016

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JANUARY 15, 2016

DEADLINE TO ENTER

To enter, email your completed submission form to yvette.pittman@nih.gov, which includes the title of your talk and a brief description of your research (2–3 sentences max).

Up to 15 DIR fellows (predoctoral, postdoctoral, visiting, and clinical) will be invited to join the TmT Competition program. All 2015 finalists are also welcome to participate.

Submission form can be found at Three-Minute Talks Webpage

JANUARY 20

WORKSHOP #1 – SPEAKING ABOUT SCIENCE

Led by public speaking coach Scott Morgan. This workshop will offer tips on storytelling and delivery, speaking in plain language, and creating an effective visual aid.

FEBRUARY 10

WORKSHOP #2 – IMPROVISATION FOR SCIENTISTS

Led by Alan Alda Center for Communicating Science. This workshop will teach you how to prepare a talk for a general scientific audience and explain the significance of your research as it relates to human health.

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Three-minute Talks (TmT) Competition 2016

(continued from page 3)

MARCH 4 & 16

INDIVIDUAL COACHING SESSIONS

You will have the opportunity to participate in a group coaching session with Scott Morgan and up to two one-on-one coaching sessions with NICHD communications staff. These practice sessions will provide you with additional help and feedback on speech development and delivery.

APRIL 6

NICHD TMT COMPETITION*

Of the NICHD's 15 contestants, five finalists will advance to the next round and be awarded $500 for approved training or travel.

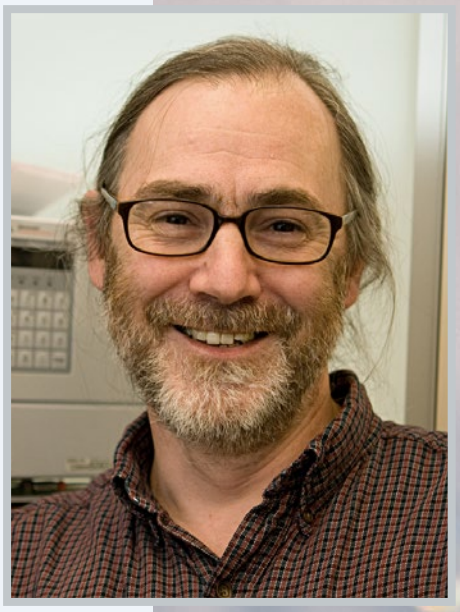
JUNE 14

NIH TMT COMPETITION*

Of all NIH finalists, 1st, 2nd, and 3rd place winners will receive additional training/travel support and the opportunity to have their talk professionally produced for video.

Keep Learning: A Profile of Dr. Mark Mayer

By Ashley Charest



Most careers, even those in science, follow a non-linear path. For Dr. Mark Mayer, retiring chief of the Laboratory of Cellular and Molecular Neurophysiology in the NICHD, his professional trajectory twisted through neuroscience, biophysics, and structural biology. Dr. Mayer was working on his PhD in neuropharmacology at the University College of London when he attended a departmental seminar on a potassium dependent regulator of neuron activity, called the M-current. "I remember getting a headache in this seminar," says Mayer, "but it was so exciting." From there, Dr. Mayer jumped into the world of biophysics and never looked back.

In the summer of 1983, Dr. Mayer performed perhaps the most defining work of his career. With Gary Westbrook, he found a way to study the voltage dependence of responses to glutamate recorded from spinal cord neurons. Their experiments led to the accidental yet monumental discovery of N-methyl-D-aspartate (NMDA) receptor blockage by extracellular magnesium. To date, this work has been cited over 4,300 times. Dr. Mayer's discovery is fundamental to understanding glutamate receptor ion channels and has left an enormous impact on the field.

Dr. Mayer continued to publish influential research throughout the 1980s and 90s, but he became increasingly dissatisfied with designing mutations and recording from cells without really understanding how the channels worked structurally. To rectify this dilemma, Dr. Mayer completed training with Eric Gouaux at Columbia University on X-ray crystallography in 2000. He admits this career change was risky, but as Dr. Mayer added: "In order to do good science, you need to learn something new." Currently, he utilizes X-ray crystallography and cryo-EM single particle analysis to understand glutamate receptor signaling at the molecular level.

Dr. Mayer is retiring this December, but one would be hard pressed to find evidence of such. He has continued to perform experiments throughout his career up until this month, having long been against what he refers to as "office science." Even after he officially retires, Dr. Mayer mentioned that he would probably spend the next six to nine months writing papers. In addition, Dr. Mayer is among the speakers slated to present in the day-long symposium titled "Three Decades of Neuroscience on Glutamate Receptors" to take place on December 7, 2015, in the Porter Neuroscience Center. The NIH, and surely the field of neuroscience, is forever indebted to Dr. Mayer's efforts and contributions.

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Keep Learning: A Profile of Dr. Mark Mayer

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RICHARD GREY, FORMER POSTBAC FELLOW, ON DR. MAYER:

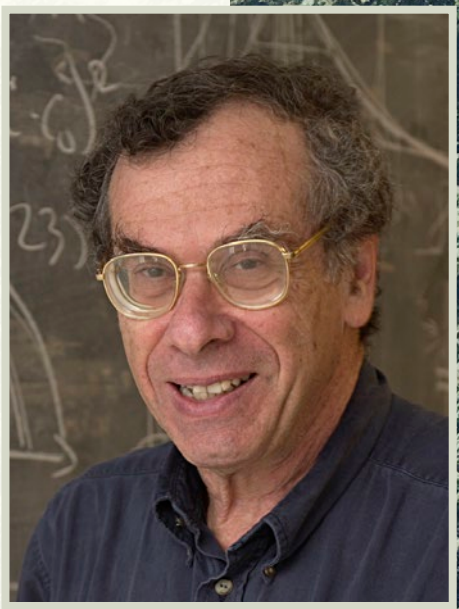
"When reflecting upon my time in Mark's lab, the first thing I think about is how I have become a better scientist. I'm planning to go to medical school, and I'm still not sure if I plan on staying in academia or joining a practice, but I know the scientific mindset I learned in Mark's lab will stay with me through my career. He's taught me to ask good questions that can be tested and to not overlook details. I remember during my first few months in the lab, I thought he was overly picky and that work we were doing was good enough to move forward. But I learned from him that the key to success is doing everything to the best of your ability from the start because it lays the groundwork for the future.

DR. SAGAR CHITTORI, FORMER POSTDOCTORAL FELLOW SAYS:

"Good mentors are special. They provide us with depth of knowledge, inspire us, help us pay attention to details, teach us how to multitask, and boost our confidence. Their impacts are infinite and cosmic in nature. I am glad to take this opportunity to thank my supervisor, Dr. Mark Mayer, and to express that his teachings have made a difference that will forever be a part of his trainees.

Be Prepared for an Interesting Life: A Profile of Dr. Ralph Nossal

By Alex Szatmary, PhD



Dr. Ralph Nossal, retiring head of the Section on Cell Biophysics at the NICHD, has contributed fundamental work on a broad range of biological phenomena, including the switching of voltage-gated ion channels, movement of cells, formation of supramolecular protein structures, and the use of light to assess *in vivo* physiology. But it was his initial interest in the physical sciences that paved the way for his fruitful career.

Dr. Nossal earned a PhD in nuclear science and engineering in 1963, after which he did postdoctoral work in statistical physics. In 1966, he came to the NIH and served as a founding member of the Physical Sciences Laboratory—in what was then the NIH Computer Division. Over the years, he developed models of biological phenomena that were focused on discerning broad principles in physical terms. Thirty-one years after arriving at the NIH, Dr. Nossal joined the NICHD in 1997, establishing the Laboratory of Integrative and Medical Biophysics with Drs. Bob Bonner, Peter Basser, and Amir Gandjbakhche.

Dr. Nossal's contributions to science reached beyond the lab and into the classroom. He taught classes at the University of Maryland, developed ways to connect physical sciences students with biological research at NIH, and wrote one of the first textbooks on biophysics. Dr. Nossal's passion for connecting diverse fields is echoed in the fellows he mentored. One of his mentees, Peter Krsko, left the NIH to bring art to public places. Dr. Nossal sees Peter's calling as wanting "to make the world around him a better place." This is in line with what Dr. Nossal sees for scientists, too: "We're lucky to be able to enrich the culture."

When asked for advice for young scientists, Dr. Nossal said, "Try to make yourself unique. It's important to work in an area that truly interests you. What are the compelling issues and problems? How might you be stimulated to discover something?" He said that his father-in-law, a scientist who earned his PhD during the 1930's when it was difficult to get a job, told him "Your career is shaped by your opportunities." But, Dr. Nossal then added, "You want to make those opportunities happen, and you want to be prepared for them."

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Be Prepared for an Interesting Life: A Profile of Dr. Ralph Nossal

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DR. SILVIYA ZUSTIAK, FORMER POSTDOCTORAL FELLOW, ON DR. NOSSAL:

"I was fortunate to spend almost three years as a postdoctoral fellow in Dr. Nossal's laboratory. I first met Dr. Nossal during my PhD when I was conducting a collaborative research project on a piece of equipment in his laboratory. Because I had to drive from Baltimore to use the equipment, I would usually plan six to ten hour sessions every time I visited. One late evening, Dr. Nossal asked me if I was doing well and offered me a cup of tea and a snack. He was concerned that I was getting tired—showing he cared about my well being.

That encounter was, in part, the reason I decided to join his laboratory as a postdoctoral fellow. During my time with Ralph, I juggled two pregnancies, and consequently two babies, alongside my research and, later on, my academic job search. Ralph was always extremely supportive and understanding of my situation and never once made me feel like "the elephant" in the lab. He is one of those mentors that I wish every young scientist would have the chance to encounter: knowledgeable and excited about science, caring and selfless, and just a great person to be around and learn from.

His attitude towards his work and towards life is quite contagious—just being around him made me want to be a better person and do good work. He is always full of interesting stories and great company for a stimulating conversation. I know I will miss coming back to NIH to meet with him when my travels bring me to DC. I wish a wonderful retirement to this very deserving scientist, mentor, and person.

Safety at NICHD: Select Agents and HealthRx

By Niamh Cawley, PhD

The new Safety Data Sheets (SDS) for chemicals contain pictograms that show, at a glance, dangers associated with the material. You can identify quickly when something requires extra attention to safety, both in use and storage. Add the word toxin to something and red flags go up. But what about microorganism strains that exhibit different levels of virulence? Biological agents that can potentially pose a threat to public health and safety are known as Select Agents.

One example of a Select Agent comes to mind: the Newcastle Disease Virus (NDV), an avian virus used in the field of immunology to induce interferons in dendritic cells. The highly virulent form of NDV, a Select Agent, could significantly impact the poultry industry in this country, and hence the economy.

After September 11, 2001, and the anthrax incidents, new regulations were introduced to mitigate the potential for biological terrorism. The use of Select Agents requires extra training and a high level of security. The registration comes under the auspices of the United States Department of Agriculture (USDA) and the Centers for Disease Control (CDC), and they take their registrations very seriously. Failure to adhere to these regulations can carry severe consequences.

How can we help? What do we need to do? We need to register all material and have more eyes on the information. We need to follow the regulations so that our fellow co-workers don't get sick—or worse—from being unaware. In addition, all experimental materials, especially Select Agents, need to be registered through HealthRx (https://oms.ors.nih.gov), a web-based system for entering information about

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WHAT IS HEALTHRX?

A PI-Dashboard interface where all PIs must register their experimental material.

DO I NEED A REGISTRATION?

Do you work with:

- Gene transfer experiment in humans
- Recombinant or synthetic nucleic acid molecules
- Biological agent that is potentially infectious or toxic for humans
- Blood, body fluids, or tissues (including primary cells) from humans or non-human primates
- A synthetic biology experiment.

Do you know if you work with a select agent?

HOW DO I REGISTER MATERIAL?

https://oms.ors.nih.gov

For more information contact your Safety Committee at niamh.cawley@nih.gov.

Safety at NICHD: Select Agents and HealthRx

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the kind of work we do and the reagents required. The NIH Biosafety Officer, Dr. Richard Baumann, and his team in the Division of Occupational Health and Safety (DOHS) monitor the HealthRx tracking system. It is their responsibility to carefully look at the information and assess the safety levels for use and storage.

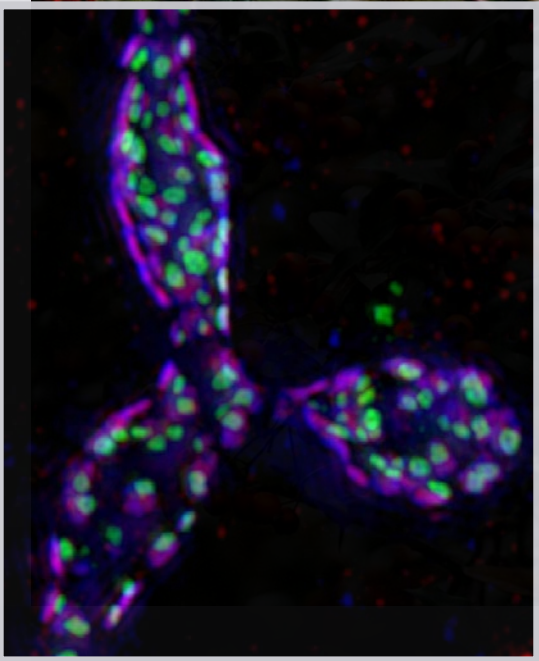
During the "Clean Sweep" initiative last year, it became obvious that many investigators either did not know about the HealthRX requirement or were only partially aware of it. However, it is important for us to know and use this system. With this safeguard in place, the difference between something that is highly virulent and not, such as for NDV, can be identified and proper precautions put in place for its safe use and storage.

NICHD DIR Year in Review for 2015

A look back at the numerous accomplishments belonging to fellows in the NICHD Division of Intramural Research (DIR) during 2015:

The NICHD DIR held the Eleventh Annual Meeting of Postdoctoral, Clinical, and Visiting Fellows and Graduate Students at the National Museum of the American Indian on May 1, 2015. Keynote speakers included Professor Graham Chedd, an acclaimed science documentary film producer, editor, writer, and visiting professor at the Alan Alda Center for Communication Science and Dr. Toby Freedman, the founder and president of Synapsis Search and author of Career Opportunities in Biotechnology and Drug Development.

DR. MIKOLAJ SULKOWSKI won the 2015 Fellows Retreat Image competition with his three images of 3D structured illumination microscopy of the *Drosophila* neuromuscular junction.



DR. CHAD MCCORMICK, nominated by postbac Rebecca Wachter, received the NICHD Fellow Mentor of the Year award. **DR. KARL PFEIFER**, nominated by postdoc Dr. Kevin Francis, received the NICHD Investigator Mentor of the Year award.

Twenty-eight NICHD fellows received the 2016 Fellows Award for Research Excellence at the 29th Annual NIH Research Festival (complete list **here**)

During the 2015 Postbac Poster Day, a total of eight NICHD postbacs received an overall top 20 percent poster award (NIH-wide) and/or one of the three "Best Poster" NICHD awards (complete list **here**).

DR. KATHRYN TABOR, postdoctoral fellow in the Burgess lab, received top prize during the second annual Three-minute-Talk (TmT) competition, which included postdoctoral fellows and graduate students from the NICHD, NHGRI, and NIDCR.

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NICHD DIR Year in Review for 2015

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For the second time in a row, graduate student **CAITLIN FOX** (Chitnis lab) received an NIH Graduate Student Research Award in the area of Biochemistry/Genetics/Cell & Molecular Biology at the 11th Annual Graduate Student Research Symposium.

DR. HYUN MIN JUNG, visiting fellow in the Weinstein lab, received a 2015 Merit Award for Outstanding Abstract in Vascular Biology from the North American Vascular Biology Organization.

DR. JULIAN LUI, research fellow in the Baron lab, received the Grant for Growth Innovation Award for his proposal entitled "Cartilage-Targeted Therapeutics for Growth Disorders" and the Endocrine Scholar Award in Growth Hormone Research from the Endocrine Society.

DR. PRASSANA SATPUTE-KRISHNAN, postdoctoral fellow in the Lippincott-Schwarz lab, received the Merton Bernfield award from the American Society of Cell Biology.

DR. KEVIN FRANCIS, former postdoctoral fellow in the Porter lab, received the Dr. Neil Buist Founder's Award for his presentation at the 2015 Society for Inherited Metabolic Disorders Annual Meeting.

DR. AMANDA DETTMER, postdoctoral fellow in the Suomi lab, received the Legacy Award from the American Society of Primatologists.

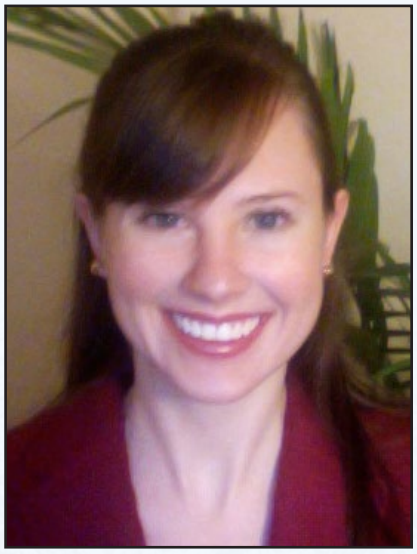
Please submit your accomplishments for publication in the newsletter throughout the year to Shana.Spindler@gmail.com.

Meet Our New Fellows

Please join *The NICHD Connection* in welcoming the following fellows to the NICHD family:

SAROJ REGMI

Hometown: Kathmandu, Nepal
PhD Institution: Dartmouth College
NICHD Mentor: Mary Dasso
Area of Research: Cell Cycle Regulation



ALLISON DENNIS

Hometown: Bowie, Maryland
College: B.S. from University of Maryland, College Park, currently a PhD student in the NIH, Johns Hopkins Graduate Partnerships Program
NICHD mentor: David Clark
Area of research: Nucleosome positioning in yeast

If you are new to the NICHD and would like to be introduced in this newsletter, please send your name, home country or state, College/PhD/MD institution, NICHD mentor, and area of research to our Editor, Shana Spindler, at Shana.Spindler@gmail.com.

First row (left to right): Jackie Picache, Katy Burkert, Joanna Cross, Saunam Vij, Emily Lazowick, and Grace Weon
Second row: Daniel Uscatu, Daniel Gehle, Antony Cougnoux, and Alana Gibson

Life Outside Lab

This October, NICHD postbacs had a great time pumpkin picking at Butler's Orchard. At the orchard, the postbacs went on a hayride, meandered through a corn maze, and visited the petting zoo.

Left to right: Joanna Cross, Saunam Vij, Alana Gibson, Jackie Picache, Grace Weon, Katy Burkert, Daniel Gehle, Emily Lazowick

December Announcements

CALLING UNDERGRADS, GRADS, AND POSTDOCS: BECOME A MENTOR!

Through our Chief Officer for Diversity, Dr. Hannah Valantine, a new National Research Mentoring Network consortium, NRMN, has been established. It is dedicated to mentoring to diversify the biomedical workforce. Investigators and trainees are invited to become involved, to mentor others. Training, workshops, and online courses are provided.

You are invited to register at **www.NRMNet.net**. Questions may also be directed to 617-552-3901.

AN OPPORTUNITY TO SERVE YOUR INTRAMURAL NICHD COMMUNITY

The Office of Education is forming an advisory committee, and we are seeking several dedicated fellows to help us develop and initiate academic support programs for the institute. Both domestic and visiting fellows are needed. We want to achieve a broad representation, culturally and academically, so we can address the needs of all our trainees at NICHD. We are planning for monthly lunchtime meetings, starting in January 2016, which will allow us to exchange ideas and informally discuss ways we can enhance and tailor the training experience within the NICHD intramural program.

Some potential topics for our committee are how to:

- » Increase the participation for training activities
- » Expose fellows to various careers in science
- » Identify teaching opportunities, and internal and external research funding mechanisms
- » Establish a structure for sharing scientific and career resources within the institute

Please contact Yvette Pittman at **yvette.pittman@nih.gov** by the extended deadline of December 30 if you are interested in joining the committee. After the group is established, we can select a day and time that works with everyone's schedule.

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December Announcements

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GET YOUR IMAGE FEATURED ON THE DIR ANNUAL REPORT

The NICHD Division of Intramural Research (DIR) will feature exciting scientific images, from basic and clinical research laboratories, on the cover and web site of the 2014 DIR Annual Report. To submit images for consideration, please email your file to Nicki Swan (jonasnic@mail.nih.gov) or contact her if the file is too large to send by email. All entries are due by December 18, 2015.

SAVE THE DATE: JANUARY 12, 10 – 4 PM, NIH GRADUATE STUDENT RESEARCH SYMPOSIUM

The 11th Annual NIH Graduate Student Research Symposium will be held on Thursday, January 15, 2015, at Natcher Conference Center. The daylong event includes:

- Student talks
- Poster presentations of dissertation research
- Keynote address from Dr. Pauline Rose Clance, author of *The Impostor Phenomenon: Overcoming the Fear that Haunts Your Success*
- Presentation of the annual Outstanding Mentor Awards
- The annual GPP graduation ceremony

All graduate students performing their doctoral dissertation research at NIH are eligible and encouraged to participate (500-word abstracts). All poster presenters are eligible to compete for the NIH Graduate Student Research Awards (NGSRAs, travel awards). To submit an abstract, please visit https://www.training.nih.gov/gsc/symposium/12th.

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December Announcements

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CALLING ALL FELLOWS OF NICHD—IT'S IMAGE COMPETITION TIME!

The 12th Annual NICHD Fellows Meeting will be held on April 22, 2016 and we are looking for an image to feature, representing some of the great work being done in our institute.

The winning image will be showcased on the retreat website and posters, and used as the front cover of our program. Also, to highlight everyone's work, all submissions we receive will be used to produce an image collage posted on the 2016 retreat website. You can always take a look at the image submissions from previous years at http://retreat.nichd.nih.gov.

In addition to image resolution and quality, selection criteria includes the relevance to our institute's mission and artistic view of the image.

All submissions (at the highest possible resolution) should be send to Nicki Swan (jonasnic@mail.nih.gov) by Friday, January 15th, with a brief caption for the image.

December Events

FRIDAY, DECEMBER 11, 3 – 4:30 PM

OITE Holiday Party for Trainees
Building 10, FAES Terrace
Please register here.