

# The NICHD Connection

## December 2016

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## A Fond Farewell to Brenda Hanning

By Yvette Pittman, current fellows, and former fellows of NICHD

The NICHD Office of Education was established in 2004 and has been thriving ever since. Brenda Hanning's vision and passion have been the driving forces to achieve its mission every year—to support the training needs of our intramural scientists, fellows, and students at all levels. Countless lives have been positively impacted through her 12 years of service at NICHD, and we will forever be grateful for the knowledge she has imparted to us. Brenda's influence carries on through our successes in various scientific careers. Whether it was one-on-one career counseling sessions she conducted or the many personal statements she has edited, Brenda was always supportive, encouraging, and truthful—wanting fellows to be prepared for what's ahead in their careers.



Brenda Hanning

PHOTO: ALEJANDRA VALLEJO

Because of her strong commitment to training, the Division of Intramural Research has had 12 annual Fellows' Retreats, offered 11 series of our postbac course "Being an Effective Scientist," given 18 Mentor of the Year Awards, and published 79 issues of *The NICHD Connection*. She has also created new training initiatives related to science communication, interviewing, grant writing and review, teaching, and lab management while providing numerous resources so every fellow can build a portfolio of skills and abilities. In order to encourage grantsmanship, and in support of our career development, Brenda initiated the Fellows Intramural Grants Supplement Award. Moreover, she has been actively involved in the NICHD Developing Talent Scholars and Fellows Recruitment Incentive Award programs. Both were recently launched to promote the diversity in the scientific workforce, recruiting trainees from backgrounds underrepresented in science.

Brenda Hanning has truly made a difference in DIR and the Office of Education will diligently work to continue all of her efforts.

(continued on page 3)

## Letter from the Editor

With the warmest wishes, I offer a fond farewell to Brenda Hanning as she retires from 12 years of service with the NICHD. Throughout my time as an undergraduate student, graduate student, and postdoc, I have never met another person who cares more about the wellbeing and success of individuals in the scientific community.

On a personal note, I owe a large part of my own career successes to Brenda. Her willingness to help establish this newsletter allowed me to realize my love of writing and editing in this format. Brenda not only found existing opportunities for fellows to pursue professional activities, she *made* opportunities available.

The NICHD Office of Education, under the leadership of Brenda, has been paramount in aiding fellows with exposure to today's varied employment opportunities for scientists. Fellows who have benefited from Brenda's expertise are now policy makers, school principals, professors, principal investigators, program directors, industry scientists, writers, editors, and more!

I hope that as we all read the **farewell comments from former fellows**, we can realize the impact a single person can have on so many lives. Brenda's actions and thoughtful contributions to the NICHD will carry on in infinite ways. May we all strive to make impressions as impactful and meaningful as Brenda has.

As we say our farewells, we also have a few

hellos. We are happy to profile our newest principal investigator, **Dr. Katie Drerup**, and we welcome **several new NICHD Fellows**—from the postbaccalaureate to the postdoctoral level of training.

For a special bonus, Jeremy Swan has prepared another how-to article for "The Arts" column. What could be more fitting for an end-of-year issue than **a tutorial on making time-lapse movies** using your microscopy data? This is a *must read* article if you are planning to study development over a long period of time.

Looking ahead, be sure to check out the **Three-minute-Talk (TmT) announcement** for next year's competition and this month's **announcements** and **events**. And of course, save the date to celebrate Brenda Hanning's career—please join the party on **January 6, from 3:30 – 4:30 p.m. in Building 31, room 6C6.**

Thank you to all of the fellows who helped make *The NICHD Connection* a great newsletter throughout 2016. I'll never tire of saying this publication is *for you and by you*. I'm looking forward to another year of working with this highly talented group of individuals.

Your Editor in Chief,  
Shana R. Spindler, PhD

Have ideas for next year? Please send all of your questions, comments, and suggestions to **Shana.Spindler@gmail.com**.

## A Fond Farewell to Brenda Hanning

*(continued from page 1)*

Brenda, we honor your service and best wishes on your retirement. It's so well deserved! Enjoy our library of sentiments from current and former intramural scientists, expressing their gratitude.

Your impact reaches far!

We would like to take a moment to cherish our times together. We have enjoyed working with you and appreciate having had this wonderful opportunity to learn from you. Thank you for all the support you have provided us during the past years. Through your encouragement and guidance we have been able to excel at various projects. Your constant positivity and love for science and education is contagious and has made a tremendous impact on our NIH community. With you, we have shared a unique camaraderie, which we hope will continue in the years to come even though you shall not be here with us. We wish you well on your next endeavor, which will be challenging, although in all honesty sure sounds pretty awesome! Yes, retirement. Something we look forward to as well, someday...

### Rim Mehari and Fady Hannah-Shmouni

*NICHHD Postbac Rep and Clinical Postdoc Rep, respectively*

.....

Brenda guided me through my stickiest and trickiest moments as a postdoc. Looking back, I think she was integral in my success. She is 100% genuine and I can't help but smile whenever I think of her.

### Prasanna Satpute-Krishnan

*Assistant Professor,  
Uniformed Services University of the Health Sciences*

.....

Brenda was instrumental in providing opportunities to grow my resume beyond laboratory techniques and publications, enabling me to gain a position in my chosen profession. I am incredibly thankful for her assistance, sincere caring, and sage advice.

### Thomas Miller

*Scientist I, Meso Scale Diagnostics, LLC*

If not for Brenda I would not have gotten my postdoc! She was so positive and welcoming when I met her, I felt like I was making a good choice in going somewhere where she would be resource outside of my lab. Brenda still is a mentor to me today, years later as an Associate Professor.

### Sydella Blatch

*Associate Professor of Biology,  
Stevenson University*

**"This is the best job at NIH, working on behalf of the fellows."**

———— BRENDA HANNING ————

Brenda has been an advocate for the NICHHD Fellows Retreat. Through going to the retreat, I was able to talk with a faculty member at a predominantly undergraduate institution (PUI). I'm currently teaching at a PUI and finding this experience to be a great fit for my personality. Without Brenda, I don't know that I'd have found a job that I love as much as the one I'm doing right now.

At one of the retreats, out of concern for us fellows, Brenda provided information on resources for wellbeing and mental health. Scientists would benefit from mentors encouraging them to seek support and encouragement as we engage in our demanding work. Brenda brought this encouragement with warmth and positivity. Thanks, Brenda!

### Alex Szatmary

*Visiting Assistant Professor, Department of  
Mechanical Engineering, Bucknell University*

*(continued on page 4)*

## A Fond Farewell to Brenda Hanning *(continued from page 3)*

Brenda helped us in so many ways. She recognized that NICHD postdocs needed teaching experience and that IRTA fellows needed guidance analyzing primary literature, and from that we brainstormed the NICHD post baccalaureate course. That teaching experience was such a big help as we then applied for academic positions.

### Mark Bayfield

*Associate Professor, York University and previously the first course director for the NICHD postbaccalaureate course*

.....

Brenda Hanning is such a special person. I called her my "angel" because if it weren't for her, I wouldn't have been able to conduct my thesis work for my Ph.D. at the NIH. I felt like I received so much support from her during the three years that I was there. She was always there when I called or emailed. She was always there to give sound advice. She was always there to comfort. I will always have a special place in my heart for Ms. Hanning. I hope you have a wonderful next chapter, Brenda!

### Ashleigh Bouchelion

*Howard University College of Medicine Class of 2017*

Brenda's smile and words of encouragement are some of the brightest memories of my decade at the NIH. Brenda provided cheer and helpful advice during my years as a pediatric endocrinology fellow, and then she assisted me in my transition to senior clinical fellow and eventually Assistant Clinical Investigator. When I finally launched into my first faculty position outside of the NIH, Brenda was also there to guide and support me and I will be forever grateful for her kindness.

### Joan C. Han

*Director, Pediatric Obesity Program, Le Bonheur Children's Hospital and Associate Professor, Division of Pediatric Endocrinology, Department of Pediatrics, University of Tennessee Health Science Center*

.....

Brenda had such a positive impact on me during my time at NIH. She always encouraged me to excel and provided an abundance of resources. Wishing her all the best.

### Stephanie M. Cologna

*Assistant Professor, Department of Chemistry, University of Illinois at Chicago*

*(continued on page 5)*



## A Fond Farewell to Brenda Hanning (continued from page 5)

Greetings from Stockholm!

When I received the news that Brenda Hanning will retire in the end of December, it brought back fond memories of my time at NICHD, and of course of Brenda!

What a lady! As a visiting postdoctoral fellow from Australia, my time spent at NICHD spanned 2004 – 2009. I met Brenda by being part of organizing the NICHD retreats for fellows. We were both new to NICHD in our roles. Brenda has such a friendly, calm approach to all things and at that time it was a real inspiration for me to work with her. She represented a strong-willed, intelligent and resourceful career-minded woman that she instantly and unexpectedly became an informal mentor and coach to me.

During my time working with Brenda on the retreats and with summer student projects, we discussed science, education, and well a number of other issues related to careers and development. She has been my go to person for references and interview prep in all my career moves. She encouraged my acceptance of the Vinnmer Marie Curie Vinnova mobility grant for young professional female researchers to Karolinska Institutet in Sweden in 2009. In 2011, when I decided to move away from research and into education as a School Principal, Brenda was extremely supportive in that decision and encouraged me to combine my skills and passion to education and working with people. In line with Brenda's wise words, I continue to promote sciences in schools and with outside communities such as Karolinska Institutet, Stockholms Universitet, and European Synchrotron Radiation Facility in Grenoble. Thank you Brenda for your inspiration and continued support! Wishing you all the best in your retirement! Come and visit now you have some time 😊

Best wishes / Med vänlig hälsning

**Rachel Heimeier**

*School Principal, Internationella  
Engelska Gymnasiet Södermalm*

*(continued on page 7)*

## A Fond Farewell to Brenda Hanning *(continued from page 6)*

Brenda Hanning was a great source of support for my professional development during my time as a postdoctoral fellow at NICHD. She offered excellent advice and was always willing to help postdoctoral fellows with their career aspirations and was a great source of encouragement throughout the process.

**Margaret Ochocinska**  
*Program Director, NIH in the  
National Heart, Lung, and Blood Institute*

I am so grateful that I met Brenda during my postdoc years at NICHD. Over the years, she helped me and multiple postbac and graduate students from our lab. NICHD wouldn't be the same without Brenda!

**Elena Makareeva**  
*Staff Scientist, Section on  
Physical Biochemistry, NICHD*

There is no doubt that I wouldn't be where I am without Brenda. She helped to expand my network, gave me the chance to lead, and opened doors to an experience that was critical for my transition to science policy.

**Kristofor Langlais**  
*Program Lead, Genomics and Health, Office  
of Science Policy, Office of the Director, NIH*

Brenda has been for me an understanding friend, an always reliable resource, a guide, and a ready smile for many years. She has helped me, and been an invaluable advisor for students that have worked with me. Of course, I wish her all the best in her new adventures, but will acutely miss her ready counsel and reliable smile.

**Dan Sackett**  
*Senior Researcher  
and Trainee Advisor, NICHD*

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**A Fond Farewell to Brenda Hanning**  
*(continued from page 7)*



**Join us for a celebration to  
honor Brenda Hanning upon  
her retirement from the NIH**

When: Friday, January 6, 2017, from 3:30 to 4:30 pm

Where: Building 31, Room 6C6 (C-wing, 6<sup>th</sup> floor)

Light refreshments will be served.

Contact Francie Kitzmiller at [franciek@mail.nih.gov](mailto:franciek@mail.nih.gov) or Sara King at [mullends@mail.nih.gov](mailto:mullends@mail.nih.gov) with questions



## The Questions That Drive You: Dr. Katie Drerup Joins the NICHD

By *Gülcan Akgül, PhD*

As a student at Bowling Green University in Ohio, Dr. Catherine “Katie” Drerup was preparing to go to veterinary school when she welcomed an unexpected opportunity to change her entire career—and maybe life. Drerup attended an animal behavior class from Dr. Robert Huber, who studied serotonergic modulation of aggressive behavior in crayfish. When Drerup got involved in Huber’s research, she was completely blown away by science. She turned down her vet school offer and joined the Huber lab for a master’s project. And that, she said, is where her story began.

After finishing her master’s degree, Drerup joined the Neuroscience Program at Northwestern University in Chicago for graduate work with Dr. Jill A. Morris, who by that time had already cloned and characterized the infamous Disc1 gene, a mouse ortholog of human DISC1 (Disrupted-in-Schizophrenia 1). Drerup analyzed the functional significance of the zebrafish Disc1 ortholog during development. In addition, she cloned and characterized the Ndel1 and Lis1 genes in zebrafish, which code for the molecules in the dynein/dynactin complex responsible for neuronal migration in the developing cortex.

Even after a productive PhD experience, Dr. Drerup hesitated to pursue a research career in academia. “Towards the end of my PhD, I was really considering if I wanted to continue in

science. My [doctoral] lab was new to developmental biology, and it took a while to get things off the ground, although we had collaborations with wonderful scientists. I was wondering if I was cut out for it, given my struggle accepting the failure rate. My advisor encouraged me to do a postdoc to be sure. My time as a postdoc was wonderful, and my advisor was supportive in so many ways. It gave me the time I needed to grow as a researcher and find the questions that really drive me. After less than a year, I was confident that I wanted to pursue a career in science.”

For her postdoctoral research, Drerup worked with Dr. Alex Nechiporuk in the Department of Cell and Developmental Biology at the Oregon Health and Science University. She continued to use zebrafish as a model organism due to its advantages in genetic manipulations and imaging, and she dug deeper into the molecular and cellular biology of intracellular transport in neurons. Several years into her postdoctoral work, Drerup received the prestigious NIH Pathway to Independence Award (K99/R00).

In addition to striving to be a good mentor and perform high-level research,

*(continued on page 10)*



*Dr. Katie Drerup*  
PHOTO: JEREMY SWAN



## Dr. Katie Drerup Joins the NICHD

*(continued from page 9)*

Drerup also feels a responsibility to represent and support women in science. She serves on the Women Scientists Advisors (WSA) Committee at NICHD to help deal with gender-related issues. One particular area of interest for her is the “drop-off point” that exists for women in science. “Increasing numbers of women are going to graduate school but the same proportion does not progress to the level of principal investigator. The reasons behind this are unclear but need attention.”

For Drerup, her research track started with the study of behavior and eventually transitioned into the microscopic world of cell biology. Now, she hopes her own lab can encompass all levels. Drerup sees biology in two ways: from a cell biology perspective and a whole organism perspective and hopes to interact with the rich neuroscience faculty at NIH to enhance her ability to bridge this gap.

Drerup’s research will focus on cargo transport in axons with a particular focus on retrograde movement governed by the dynein/dynactin complex. She wants to understand how unique cargos attach to this single motor protein complex for transport. In addition to being interested in understanding the mechanisms of cargo-motor interaction, she is interested in studying the similarities and differences in this cellular mechanism in sensory versus motor neurons. Even though research is her priority, Drerup is excited about additional professional opportunities, such as teaching and outreach, for NIH investigators.

Drerup is at the beginning of her independent research, but she pointed out that her training thus far has given her the skill set necessary for this career, including accepting the natural experimental failure rate, managing several different projects at the same time, and the high pressure/high paced lifestyle in general. “It becomes natural after a while and you start thinking this is not so hard to manage really...you work because you want to be here. Some days will be miserable, an experiment you were really excited about fails for some inexplicable reason, but it is the underlying questions—they drive you.”



## The Arts: Bending the Space-Time Continuum

By Jeremy Swan

Ever wanted to control time like Marvel Comics' Dr. Strange? While you can't go back in time (creating alternate universes in the process), you can control time in extraordinary ways with data images.



Time-lapse and slow motion are extremely useful techniques for understanding the world around us and under the microscope. High-speed photography is often used to create slow motion effects, which is useful for understanding the mechanics of motility. For example, the *Horse in Motion* by Eadweard Muybridge, ca. 1886, helped usher in an era of animation and walk cycles. Or we better understand the zebrafish startle response from slow motion videos from the Burgess lab. Time-lapse, on the other hand, appears to speed up time—such as in *Fertilization and Development of the Sea Urchin Egg* by Julius Ries, an early time-lapse microcinematographic film from 1907.

These age old techniques are easier than ever to create and distribute. The next few articles in “The Arts” column will provide several approaches to enable you to directly control time (in video)!

One straightforward approach involves the use of Photoshop, which is a staple application for photographers and also fairly common in imaging circles. There has been a proliferation of specialized, simple apps for capturing and assembling time lapses for photographers using digital single lens reflex cameras (SLRs), mobile phones, or connected computers. Many of these are free, inexpensive, or easy to use but also have limited capabilities and complexity, such as cropping, image manipulation, export dimensions and format. Here, we will focus for now on using Photoshop to create movies, which gives you a good deal of control and flexibility.

*(continued on page 12)*



# The Arts: Bending the Space-Time Continuum

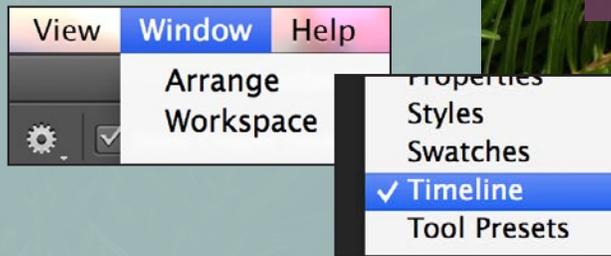
(continued from page 11)

## HOW TO CREATE A SIMPLE TIME-LAPSE MOVIE USING PHOTOSHOP:

Preparing your images (based on second half of this tutorial: <https://www.youtube.com/watch?v=-ZHXXsZ4K8g>):

1. Collect sequentially named image files together in a folder (with no gaps in the sequence numbers)

2. Launch Photoshop and click *Window > Timeline*

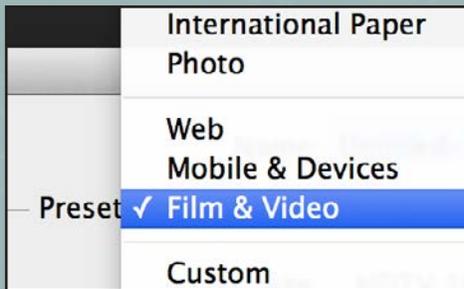


3. Create new file:

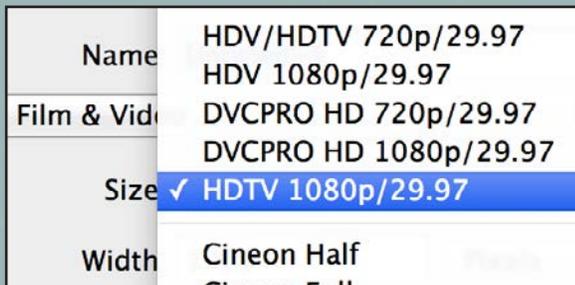
- a. Click *Edit > New File*



- b. Change Document Preset to "Film and Video"

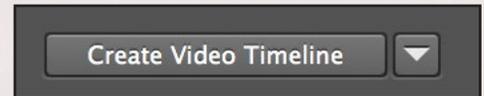


- c. Change Size to "HDTV 1080P 29.97"



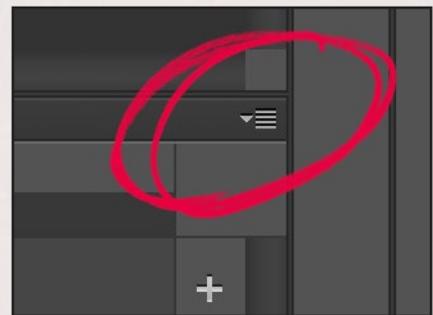
*These instructions are based on Photoshop CC. Your own workspace may differ. Please contact Jeremy Swan with questions: [swanjere@mail.nih.gov](mailto:swanjere@mail.nih.gov)*

4. Click "Create Video Timeline" (bottom-center of window)



5. Set Timeline Framerate:

- a. Click dropdown menu in lower right hand side of window



- b. Click "Set Timeline Frame Rate" and choose 29.97 FPS

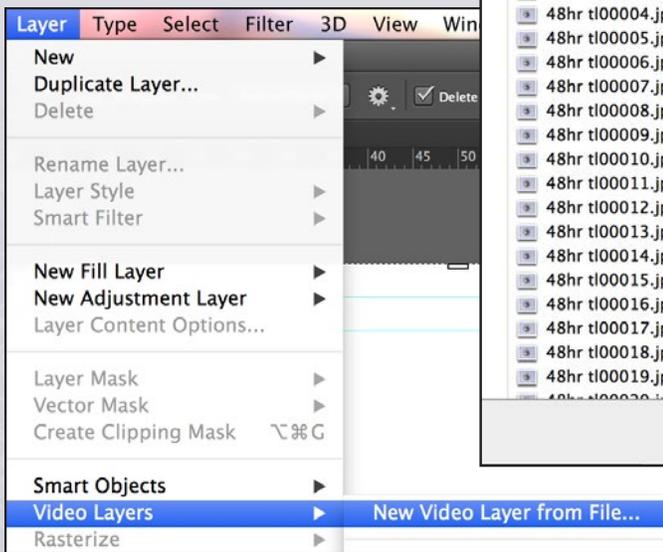
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# The Arts: Bending the Space-Time Continuum

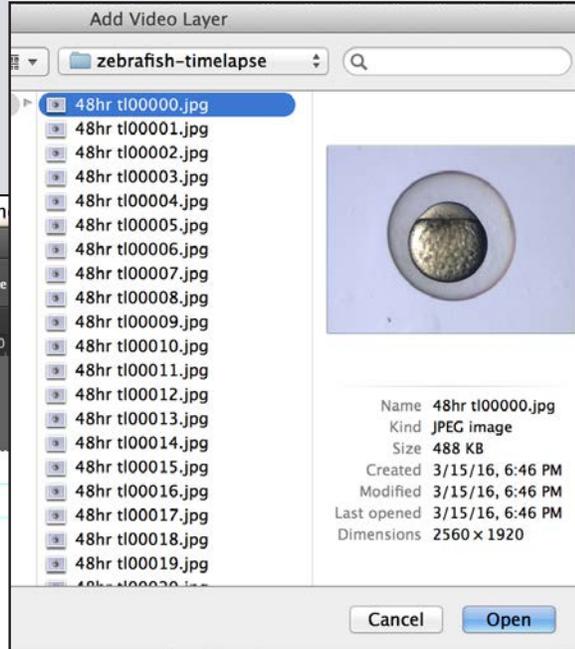
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## 6. Add Video Layer:

**a.** Click *Layer > Video Layers > New Video from File*



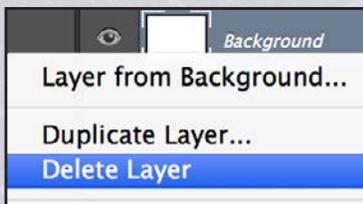
**b.** Navigate to folder containing images (named sequentially)



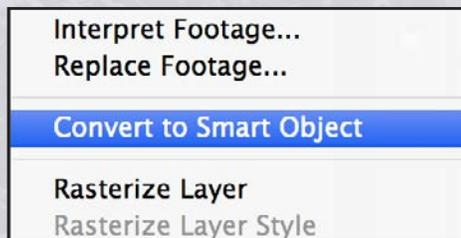
**c.** Choose first image in sequence (*note: problems will arise if there is a gap or deviation in sequence*)

## 7. Prepare Layers:

**a.** Click on "Layer 0" to select it and press the *delete* key to remove it (or right-click and select "Delete Layer")



**b.** Right click (⌘ on **Apple** or **Ctrl** on PC + click) on Layer 1 (the layer containing the photo sequence) and select "Convert to Smart Object"



(continued on page 14)

To follow along with this tutorial, you can download [8,500 microscope images \(3.8GB\)](#), which were provided by Daniel Castranova from the Weinstein Lab, NICHD. These images represent the first 24 hours of a fertilized zebrafish egg developing.

The full 48 hours can be viewed here: [zebrafish-timelapse.mp4 \(2.2GB\)](#).

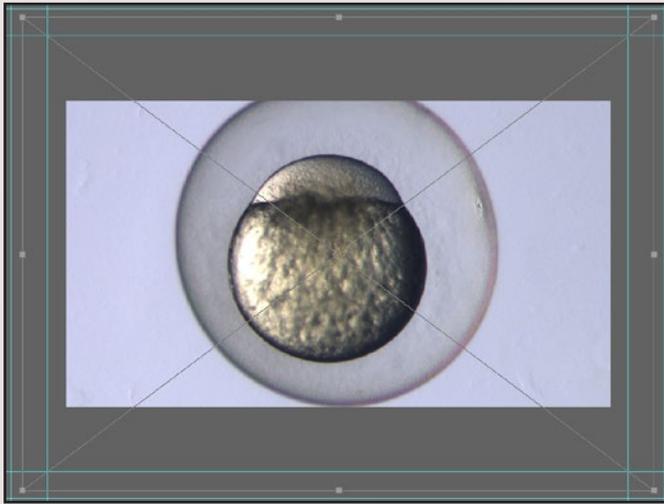


# The Arts: Bending the Space-Time Continuum

(continued from page 13)

## 8. Transform (non-destructively)

**a.** To enter transform mode, press: ⌘/Ctrl + T key



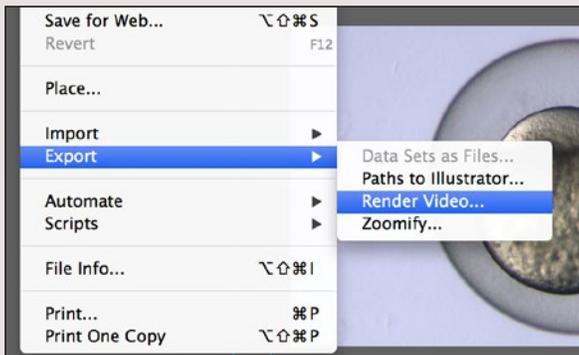
**b.** To zoom out, press: ⌘/Ctrl + 0 (zero) key

**c.** Press and hold shift and grab corner to scale the layer to the frame

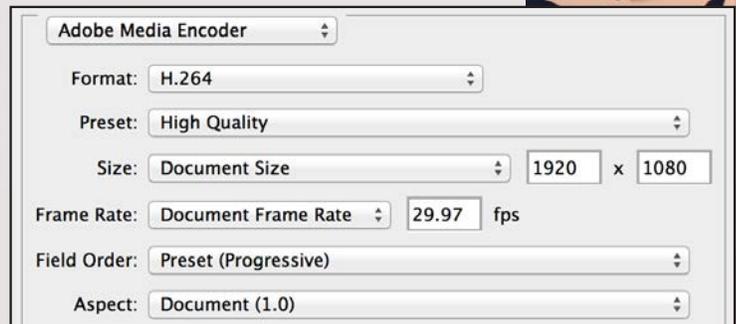
**d.** Decide whether to crop part of the image in order to accommodate the frame size. If part of the frame is left empty, that portion will be rendered as black.

## 9. Export video:

**a.** Click *File > Export > Render Video*



**c.** Choose Adobe Media Encoder with these settings: H.264, High Quality, 1920x1080, 29.97 fps, progressive, 1.0



**b.** Select folder to export to (generally not in the source images folder)

**d.** Click "Render" and then view resulting video

## Meet Our New Fellows

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



### Zelia Ferreira Worman

*IRTA Postdoctoral Fellow*

*Home city and country:* Porto, Portugal

*Degree institution:* University of Porto, Portugal with a two-year special volunteer appointment at NHGRI (Eric Green's lab) and a six-month visiting graduate student appointment at Cornell University (Andrew G. Clark's lab)

*NICHD Mentor:* Dr. Henry Levin

*Area of research:* I study the potential role of polymorphic transposable elements in the development of mental illness. I am also the lead chair of the Service and Outreach subcommittee for FelCom.



### Lingyu Bao

*Graduate student*

*Home city and country:* Xi'an, China

*Degree institution:* PhD student, Xi'an Jiaotong University (China)

*NICHD Mentor:* Dr. Yun-bo Shi

*Area of research:* I study the molecular factors involved in the stem cell development of intestine using the frog and mouse line.



### Shelby Newsad

*IRTA Postbaccalaureate Fellow*

*Home city and country:* Beverly, Ohio

*Degree institution:* The Ohio State University

*NICHD Mentor:* Dr. Michaela Serpe

*Area of research:* I study the proteins involved in the clustering of synaptic factors using model organism *Drosophila melanogaster*.

## Three-minute Talks (TmT) Competition 2017

### 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 1<sup>st</sup> place winner (check out her [winning video](#))

*(continued on page 17)*



# Three-minute Talks (TmT) Competition 2017

(continued from page 16)

## 2017 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.

### FRIDAY, FEBRUARY 3

#### 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 2016 finalists are also welcome to participate.

Submission form can be found at the [Three-Minute Talks Webpage](#)

### FEBRUARY 6

#### “SPEAKING ABOUT SCIENCE” WORKSHOP

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.

### MARCH 10 AND 22

#### 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 11

#### NICHD TmT COMPETITION\*

Of the NICHD’s 15 contestants, five finalists will advance to the next round, be awarded \$500 for approved training or travel, and the opportunity to present their three-minute talks at the 13<sup>th</sup> Annual Fellows Retreat on May 1<sup>st</sup>.

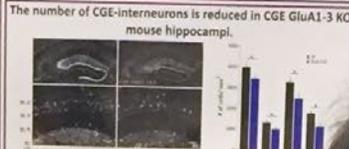
### JUNE 29

#### NICHD TmT COMPETITION\*

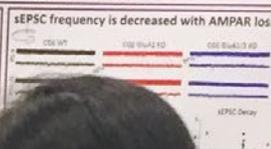
Of all NIH finalists, 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place winners will receive an additional \$500 training/travel support and the opportunity to have their talk professionally produced for video.

*\*Competition rules and judging criteria are available at <https://science.nichd.nih.gov/confluence/display/fellows/Three-Minute+Talks>*

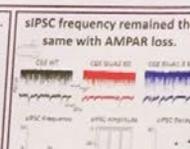
Disrupting excitatory synaptic recruitment of GABAergic inhibitory interneurons can promote an excitatory-inhibition imbalance within cortical microcircuits. In models of autism spectrum disorders and epilepsy in the mouse, loss of inhibitory interneurons in the hippocampal CA1 and CA2 regions (CGE and MGE), contribute to microcircuit dysfunction. We investigate the role of AMPAR activity in the development and function of CGE-derived interneurons and its relationship to the loss of these cells in the hippocampus. We created two mouse lines that lack either the GluA1 or GluA2 subunit of AMPARs (GluA1<sup>-/-</sup> and GluA2<sup>-/-</sup>) specifically in CGE.



**FIGURE 1.** CGE-derived interneurons were labeled with tdTomato and quantified in WT and CGE GluA1-3 KO mouse hippocampi. Loss of AMPAR subunits correlates with a significant reduction in fluorescent signal in brain regions including hippocampus, and in the number of CGE interneurons in all layers of CA1.

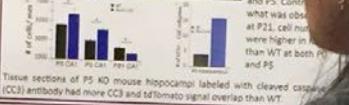


**FIGURE 2.** sEPSC frequency is decreased with AMPAR loss. sEPSCs were recorded from CGE-derived interneurons in WT and KO mice. sEPSC frequency was significantly reduced in KO mice compared to WT.



**FIGURE 3.** sIPSC frequency remained the same with AMPAR loss. sIPSCs were recorded from CGE-derived interneurons in WT and KO mice. sIPSC frequency was not significantly different between WT and KO mice.

**Reduced cell numbers in KO hippocampi result from apoptotic cell death during postnatal development.**



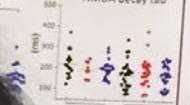
**FIGURE 4.** Reduced cell numbers in KO hippocampi result from apoptotic cell death during postnatal development. Tissue sections of P5 KO mouse hippocampi labeled with cleaved caspase-3 (CC3) antibody had more CC3 and tdTomato signal overlap than WT.

**AMPA loss resulted in morphological changes in CGE-derived Basket cells.**

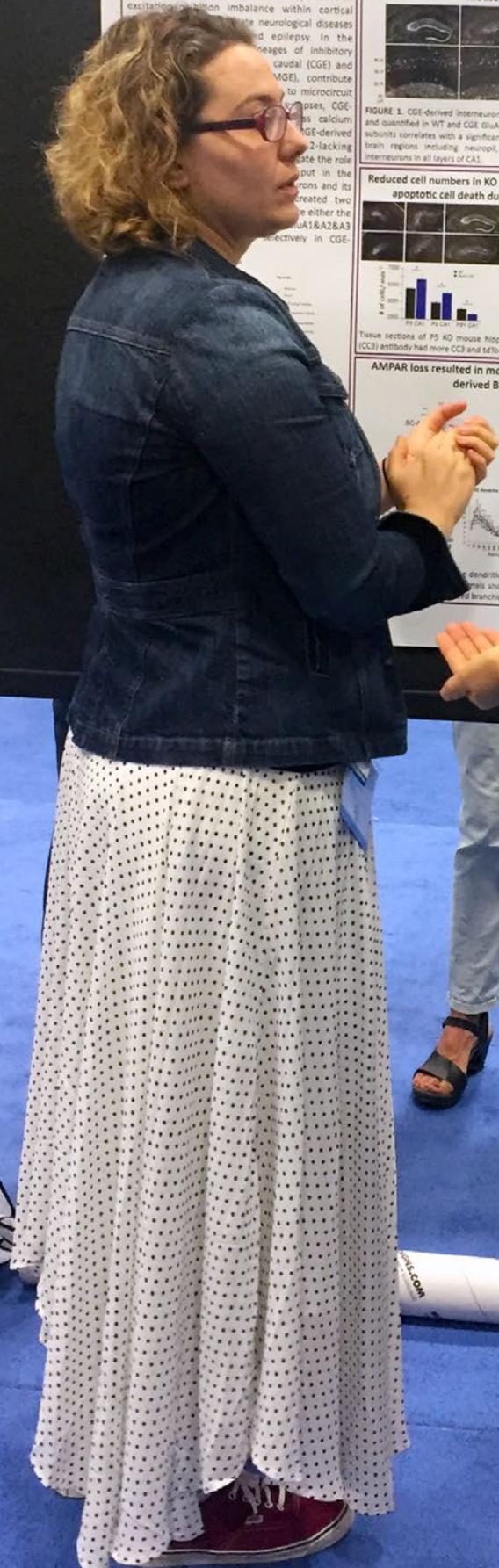


**FIGURE 5.** AMPA loss resulted in morphological changes in CGE-derived Basket cells. Dendritic trees of recorded cells were reconstructed and analyzed. Loss of AMPARs resulted in a significant increase in dendritic branching and lengthening.

**AMPA loss resulted in changes in CGE interneurons of KO mice.**



**FIGURE 6.** AMPA loss resulted in changes in CGE interneurons of KO mice. AMPA ratio and NMDA decay tau were significantly different between WT and KO mice.



## Life Outside Lab: Talking Science on the Other Side of the Country

Postdoctoral Fellow Dr. Gülcan Akgül (McBain lab) chats with a conference attendee during the Society for Neuroscience Annual Meeting held November 12-16, 2016, in San Diego, California.

## NICHD DIR Year in Review for 2016

A look back at the numerous accomplishments belonging to fellows in the NICHD Division of Intramural Research (DIR) during 2016:

The NICHD DIR held the Twelfth Annual Meeting of Postdoctoral, Clinical, and Visiting Fellows and Graduate Students at the National Museum of the American Indian on April 22, 2016. Keynote speakers included Eric Betzig, 2014 Nobel Prize Laureate in Chemistry and group leader at HHMI's Janelia Research Campus, and Dr. Jorge Cham, the creator of *PhD Comics*.

**Drs. Sarah Cohen and Alex Valm** (Lippincott-Schwartz Lab) won the 2016 fellows retreat image competition with their image "Multicolor organelles in an African Green Monkey kidney cell."

**Greg Marquart** (Burgess Lab) won the 2016 Scientific Retreat Image competition with his image "18 Fish in 1: Expression patterns from 18 larval zebrafish show distinct subsets of neurons within the brain."

**Dr. Shlomo Krispin**, nominated by postbac fellow Margaret Burns, received the NICHD Fellow Mentor of the Year award. **Dr. Julian Lui** (Staff Scientist), nominated by postbac fellow Michal Ad, received the NICHD Investigator Mentor of the Year award.

Twenty NICHD fellows received the 2017 Fellows Award for Research Excellence at the 30<sup>th</sup> Annual NIH Research Festival (complete list [here](#))

During the 2016 Postbac Poster Day, a total of 14 NICHD postbacs received an overall top 20 percent poster award (NIH-wide) or one of the three "Best Poster" NICHD awards (complete list [here](#)).

**Dr. Alex Szatmary**, postdoctoral fellow in the Nossal lab, placed third in the 2016 Three-minute-Talk (TmT) Competition.

**Dezmond C. Taylor-Douglas**, graduate student in the Yanovski lab, was selected for an oral presentation at the 2016 NIH Graduate Student Symposium.

*(continued on page 20)*

## NICHD DIR Year in Review for 2016

*(continued from page 19)*

**Dr. Neelam Dabas Sen**, postdoctoral fellow in the Hinnebusch lab, received the 2016 WSA Scholar Award from the NIH Women Scientist Advisory Committee.

**Dr. Parmit Kumar Singh**, postdoctoral fellow in the Levin lab, received the 2016 Intramural AIDS Research Fellowship and the 18<sup>th</sup> Annual Norman P. Salzman Memorial Award in Virology.

**Dr. Dan Benjamini**, postdoctoral fellow in the Basser lab, won the 2016 Giulio Cesare Borgia Prize at the 13<sup>th</sup> International Bologna Conference Magnetic Resonance in Porous Media.

A big **THANK YOU** to all of our 2016 newsletter contributors (in no particular order):

Courtney Kurtyka, Afrouz Anderson, Si Young Lee, Yvette Pittman, Marina Venero Galanternik, Jeremy Swan, Nicki Swan, Brenda Hanning, Daniel Flores, Suna Gulay, Pushpanathan Muthuirulan, Sudhir Rai, Smriti Aryal, Arnab Datta, Uma Neelathi, Neelam Dabas Sen, Alessandro Albano, Libby Barksdale, Melissa Cunningham, Thomas Miller, Mahua Mukhopadhyay, Ramona Neunuebel, Margarito Rojas, Marci Rosenberg, Ajay Sharma, Lauren Wooddell, Mihail Zilbermint, Sourav Haldar, Gülcan Akgül, Anna Roberts-Pilgrim, Amy Palin, Marina Venero Galanternik, Laura Gorrell, Raghuveer Kavarthapu, Vivek Mahadevan, Fardin Ghobakhlu, Amra Saric, Zelia Ferreira Worman, Lingyu Bao, Shelby Newsad, Parmit Kumar Singh, Dan Benjamini, Greg Palardy

Please submit your accomplishments for publication in the newsletter throughout the year to [Shana.Spindler@gmail.com](mailto:Shana.Spindler@gmail.com).

## December Announcements

### SAVE THE DATE! BRENDA HANNING'S RETIREMENT CELEBRATION, JANUARY 6, 2017

Building 31, Room 6C6, 3:30 – 4:30 p.m.

Join us for a celebration to honor Brenda Hanning upon her retirement from the NIH. Light refreshments will be served. Please contact Francie Kitzmiller at [franciek@mail.nih.gov](mailto:franciek@mail.nih.gov) or Sara King at [mullends@mail.nih.gov](mailto:mullends@mail.nih.gov) with questions.

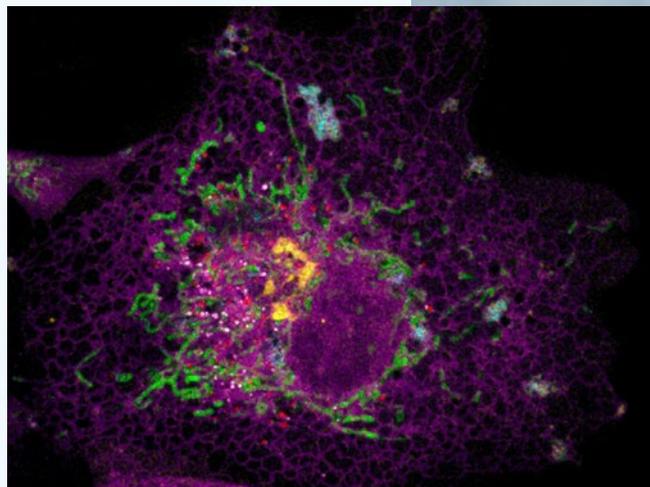
### CALLING ALL FELLOWS OF NICHD—IT'S IMAGE COMPETITION TIME!

*The 13<sup>th</sup> Annual NICHD Fellows Meeting will be held on May 1, 2017, and we are looking for an image to feature.*

The winning image, chosen by the Retreat Steering Committee, will be showcased on the retreat website, on posters, and used as the front cover of the event program. Also, to highlight everyone's imagery, all submissions we receive will be used to produce a collage posted on the 2017 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 include the relevance to our institute's mission and artistic view of the image. All submissions (at the highest possible resolution) should be sent to Nicki Swan ([jonasnic@mail.nih.gov](mailto:jonasnic@mail.nih.gov)) by Friday, January 13<sup>th</sup>, with a brief caption for the image.

*[At right, last year's winning image by Drs. Sarah Cohen and Alex Valm, Lippincott-Schwartz Lab]*



## December Events

**MONDAY, DECEMBER 5, 10 AM – 12 NOON**

Chalk Talks Workshop

Chalk Talks are an increasingly important component of science communication. Once reserved for academic interviews, they are now common in industry and for tenure-track positions, such as the NIH Earl Stadtman Investigators program. This workshop will focus on the components that make an effective chalk talk and provide a safe place to practice new skills.

Topics include:

- » Connection to job talks
- » Relevance to faculty
- » What to draw on the white/blackboard
- » Levels of detail
- » Question anticipation
- » Tone and delivery

To learn about the next Chalk Talk Workshop opportunity, please contact Yvette Pittman ([yvette.pittman@nih.gov](mailto:yvette.pittman@nih.gov)).

