

On Pg. 2 NTP student, Maia Pujara recaps her summer fellowship experience with AAAS

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On Pg. 4 Pictures and a recap of the annual NTP Picnic!

BRAIN WAVES

Neuroscience Training Program ~ Fall 2015



WELCOME NEW STUDENTS!

Margaux Kenwood

Vanderbilt University
Major Professor: Rotating

David White

Wayne State University
Major Professor: Rotating

Russell Taylor

University of Minnesota-Twin Cities
Major Professor: Rotating

Edwin Suarez-Zayas

Universidad Metropolitana
Major Professor: Timothy M. Gomez

Mroj Al Assaf

University of Wisconsin-Madison
Major Professor: Rotating

Inca Dieterich

Occidental College
Major Professor: Rotating

Taylor Fields

Indiana University
Major Professor: Rotating

Jasenia Hartman

Brandeis University
Major Professor: Ruth Litovsky

Martin Hsu

University of California-Irvine
Major Professor: Rotating

'Lazy eye' may bully the brain into altering its wiring

By Chris Barncard, UW-Madison News

Colorful and expressive, the eyes are central to the way people interact with each other, as well as take in their surroundings.

That makes amblyopia — more commonly known as “lazy eye” — all the more obvious, but the physical manifestation of the most common cause of vision problems among children the world over is actually a brain disorder.

“Most often in amblyopia patients, one eye is better at focusing,” says Bas Rokers, a University of Wisconsin-Madison psychology professor. “The brain prefers the information from that eye, and pushes down the signal coming from the other, ‘lazy’ eye. In a way, it’s better to think of the better eye as a bully, rather than the poorer eye as lazy.”

As the brain develops its preference for the dominant eye’s input, it alters its connections to the weaker eye, according to a study Rokers and colleagues published this week in a special edition of the journal *Vision Research*.

“If you continually have that bullying happening, that changes the signals coming from the lazy eye,” Rokers says. “We wondered, if you don’t have as many signals traveling back and forth, does that come with a physical change in those passageways?”

Using a brain scanning method called diffusion-weighted imaging, the researchers mapped three sets of pathways known to carry visual information from the eyes to the brain. In people with amblyopia, the researchers saw water diffusing more easily down the brain’s visual pathways.

“What we think may be happening in amblyopia is that the conductive sheath around neurons becomes thinner,” Rokers says. “In order to conduct information from one location to another, neurons have a sheath of material called myelin around them to insulate and speed up processing. When the myelin is thinner, there is less of it in the way and the water diffuses more easily.”

Awards and Recognitions

Congratulations to the following students and faculty on their recent achievements:

Sara Berman was featured on Maria Shriver's blog, *Tales of Alzheimer's & Caregiving* with her article, "[When There Isn't a Cure for a Disease, How Can We Help?](#)" on April 13, 2015

Robin Fropf completed an internship at Encoded Genomics in San Francisco, California

Carlton Frost is serving as the Communications Specialist for the Catalysts for Science Policy student group

Jasenia Hartman was awarded the National Science Foundation Graduate Research Fellowship Program

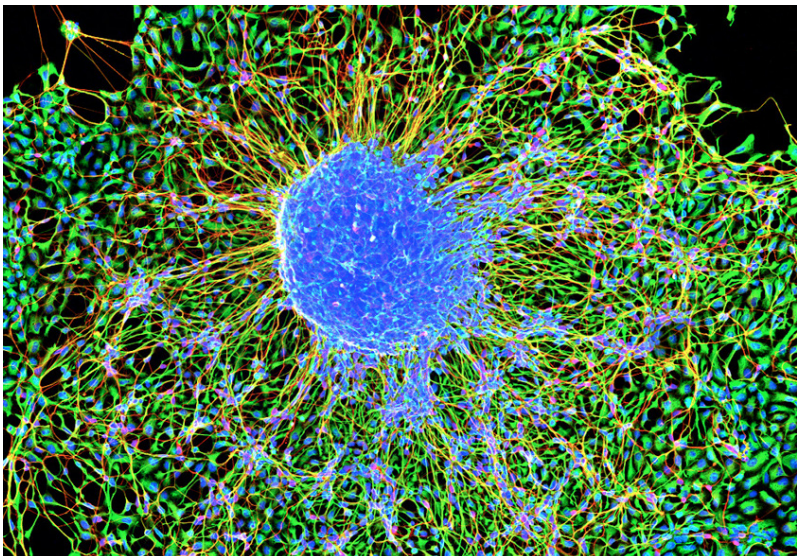
Rikki Hullinger completed an internship in patent law at Michael Best & Friedrich, LLP in Madison, Wisconsin

Sofiya Hupalo was awarded the Ruth L. Kirchstein National Research Service Award

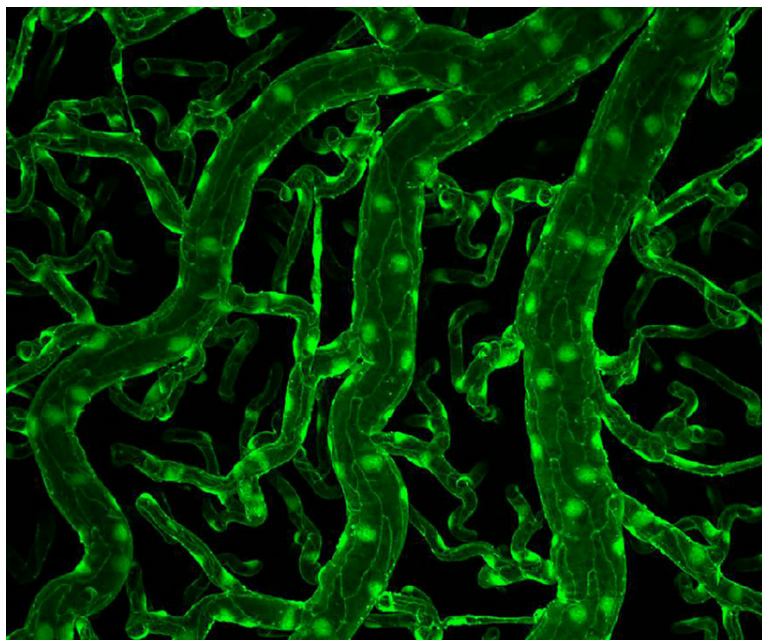
Corinne Jones was awarded the new Century Scholars Doctoral Scholarship from the American Speech-Language-Hearing Association

TaeHee Kim was awarded the 2015 NTP Travel Award

Andrew Merluzzi was awarded the SfN 2015 Trainee Professional Development Award and the American Society for Pharmacology and Experimental Therapeutics Graduate Student Travel Award; his article, "[It's time to prime the pump for young scientists](#)" was published in the *CapTimes*, July 28, 2015



2015 Cool Science Winning Image by Scott Vermilyea



2015 Cool Science Winning Image by Jessica Plavicki
Abby Rajala was awarded the 2015 Jersey Rose Award

Aditya Rayasam was awarded the American Heart Association Pre-Doctoral Fellowship

David Ruhl was awarded the SfN 2015 Trainee Professional Development Award

Ryan Selleck was awarded the 2015 NTP Travel Award

Kate Sprecher was awarded the 2015 NTP Travel Award and the Ruth L. Kirchstein National Research Service Award

Katie Yang was awarded the Gilliam Fellowship for Advanced Study from the Howard Hughes Medical Institute (HHMI), and is a panelist/producer for the BrainonAir podcast

Joseph Wszalek, Esq. completed his law degree (cum laude, Dean's Academic Achievement), UW-Madison, May 2015, was elected as Senior Articles Editor for the Wisconsin International Law Journal (for academic year 2015-16) and was awarded the International Neuroethics Society's Student Essay Award

Ian Duncan was awarded the 2015 Lifetime Excellence in Research Award from the American Veterinary Medical Association

Ned Kalin was awarded the Anna-Monika Prize for neuroscience research

Marina Emborg is the new president-elect of the American Society of Neural Therapy and Repair

Summer as a AAAS Mass Media Fellow By NTP student, Maia Pujara (Koenigs Lab)

In my fifth year, I started exploring career options outside of academia, knowing the tenure-track faculty career path was not for me. I enjoyed writing and outreach throughout grad school and had majored in Neuroscience and English in college. When a fellow NTP student told me about the AAAS Mass Media Science and Engineering Fellows Program, it sounded like the perfect fit. The fellowship gives scientists-in-training an opportunity to improve their science communication skills through a 10-week experience at a major media outlet (hosts include NPR, WIRED, Slate, and the Los Angeles Times).

When I got accepted to be a Fellow at the Voice of America (VOA) in Washington, DC, my advisor, Mike Koenigs, was extremely supportive and allowed me to take the summer out of lab to explore this opportunity. I'm very grateful that he did. I spent the majority of my summer at VOA interviewing other scientists and writing news stories about scientific findings outside my field through various media (digital, radio and TV). This thrilling and affirming experience gave me a realistic sense of how I could apply the skills I acquired in graduate school – reading scientific papers, thinking critically, talking to other scientists – to a career in science communications.

Career Chats with NTP Alumni

NTP student, Sofiya Hupalo (Berridge lab), interviewed NTP alumnus, Michael Zorniak, on career tips and advice for recent graduates.

Michael Zorniak, PhD, carried out his dissertation research in the NTP from 2007 - 2013 in Dr. John Kuo's lab, studying molecular prognostic markers of human glioblastoma cancer stem-like cells. After defending in 2013, Michael spent a year as a postdoctoral researcher in the laboratory of Carlos F. Barbas III at The Scripps Research Institute in La Jolla, California. There, Michael examined synthetic approaches to enhance chimeric antigen receptor T cell therapies for cancer.

"Throughout my scientific training, I've focused on delivering a real clinical impact. When I joined my postdoc with Professor Barbas, I had a moon-shot dream of starting a company with him if my projects went well," Michael said. Unfortunately, things took an unexpected turn when Dr. Barbas passed away last year. As the lab at Scripps was closing, Michael reached out to his graduate advisor and the Scripps community in search of other opportunities. Inspired to maintain a translationally-relevant career, Michael applied and interviewed for scientist and medical science liaison (MSL) positions with Bristol Meyers Squibb, Intrexon, Abbvie, and Teva Pharmaceuticals. To learn more about the MSL role, Michael networked with Scripps alumni who held these positions at other companies. An MSL develops, maintains, and manages relationships with external experts to identify potential investigators and/or labs for company-sponsored clinical research. An attractive role for Michael, the MSL allowed him to combine his passions for learning, educating, and connecting with colleagues. After four interviews for an MSL position in clinical neuroimmunology with Teva Pharmaceuticals, Michael received an offer.

"Although I don't have direct experience in the traditional sense of the discipline, I believe my graduate training in neuroscience within a clinical department and immunological engineering involvement as a postdoc gave me a unique competitive advantage for the position (in clinical neuroimmunology) with Teva," Michael said.

In addition to having relevant research experience, Michael polished up his LinkedIn profile and devoted time to studying what the MSL role entails. A revised LinkedIn profile attracted the attention of a recruiter, which is how Michael got the interview. In addition, he sought out the local career services at Scripps to help him prepare for the interviews.

"To get hired as an MSL you first need to be an excellent communicator. Being the scientific face of the company requires both technical and social agility," Michael said. "I don't think I had any innate abilities in this arena, it was years of constructive criticism from my mentors in college and graduate school which nurtured my scientific reasoning and confidence."

Michael's position is largely field-based, granting him the freedom to work from his home in San Diego, CA. His advice to students approaching graduation is to try to identify your own strengths, prioritize your values, and make sure that the two align with your potential career. And then the hard work begins!



October 8-11, 2015, NTP students, faculty and staff helped with the annual [Bioscience Opportunities \(BOPs\) Preview Weekend](#) at UW-Madison. Here are a few pictures of NTPers interacting with the BOPs students!



CONGRATS SUMMER GRADUATES!

Sharon Dubois graduated from Jon Levine's lab.
Pat Kerstein graduated from Timothy Gomez' lab.
Bryan Krause graduated from Matthew Banks' lab.
Abby Rajala graduated from Luis Populin's lab.
Lisa Sudmeier graduated from Barry Ganetzky's lab.

CONGRATS TO THE STUDENTS THAT HAVE RECENTLY PASSED THEIR PRELIMS!

Sofiya Hupalo
Katie Yang
Annie Racine

Do Tromp
Brittany Young

Annual NTP Picnic

The 2015 NTP Annual Picnic was held August 30, 2015 at James Madison Park in Madison. Once again it was a great event helping introduce our new students and faculty to the rest of the program! We decided to continue the student vs. faculty volleyball game that we started at last year's picnic and the students were hungry for a win after last year's loss. Student co-captains Annie Racine and Drew Sheldon even held a practice session a week before the picnic to ensure victory! Unfortunately, for faculty co-captains, Mary Halloran and Erik Dent, there were not enough faculty players at game time. Therefore, Annie and Drew and the student team can claim a victory for the NTP picnic 2015! Pictures from the senior students versus the first years and faculty game are posted on the right!



(Article Continued from page 1)

This understanding of the structural effects of amblyopia may improve treatments for amblyopia and similar vision disorders in which sufferers have trouble judging distance and location of objects in parts of their visual field.

The most common medical response to lazy eye is to correct the cause — most often muscular misalignment of the eyes, but sometimes a misshapen lens — through surgery, and put a patch over the amblyope's strong eye to force the brain to adapt to using the formerly lazy one. But that treatment is usually limited to children.

"You don't see any adults walking around with patched eyes, because adults' brains are less plastic, less trainable, and we think the patch approach doesn't have any effect late in life," says Rokers, whose group's work has been funded by the Wisconsin Alumni Research Foundation and the Netherlands Organization for Scientific Research. "But that belief is changing, and this diffusion-weighted imaging approach will help us understand whether, and how much, brain training treatments work."

It will also aid in the development of new treatments — like some Rokers and ophthalmologists are developing using video games and virtual reality headsets.

"You can put patients in the scanner and see if your treatment actually has an effect," Rokers says. "We haven't tried many different kinds of treatments, but with a way like this to assess success, you can reward experimentation."



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Contributions to the Program

Funds given to the program are used to support recruiting activities, guest speakers, the graduate travel award for professional conferences and the annual program picnic. For additional information, please contact the program office at (608) 262-4932. To contribute, please contact the UW Foundation at:

<https://www.myuwconnect.org/give?id=9E933A87-82C0-449E-B62E-6476CF0A0A93>

Thank you to all those who have contributed and continue to support the Neuroscience Training Program and its students.

CONNECT WITH US!



2015 Cool Science Image Photos
courtesy of whyfiles.org