The University has now entered the Mark Schlissel era and signs are that President Schlissel, an M.D., Ph.D. Immunologist, will make his mark on the University. He has recently announced major initiatives to revitalize Biosciences on campus that will include creation of a new position of Vice Provost for Biological Sciences, the creation of 30 new faculty positions in biological sciences across the university, and a $130 million investment in biological research and education. These initiatives, which were based in part on a report by a President’s Advisory Panel on the Biosciences, should reinforce and perhaps forge new connections across the campus and strengthen the University’s reputation in biological research and education. 

A second theme that is emerging is an emphasis on diversity and inclusiveness at the University. The past week has seen a series of workshops on diversity open to the University community, culminating in a Diversity Summit held on November 10th, as part of a larger strategic-planning process “to create a vision for a diverse, equitable, and inclusive campus.” The success of this effort will require the active and enthusiastic participation at all levels – students, faculty and staff. In this context, I’d like to point out the successful creation of a University of Michigan Chapter of SACNAS (Society for Advancement of Chicanos/Hispanics and Native Americans in Science) led by CMB students Carla Ramos and Ray Joe and PIBS student Jackie Graniel. This organization, which is open to all regardless of ethnic background, will both promote diversity and opportunity for graduate students and, it is hoped, serve as a mechanism for STEM outreach to both undergraduates at the University and pre-college students in Southeastern Michigan. The goal of a tolerant and inclusive culture at the University and beyond is something that I think we can all embrace.

2. [http://diversity.umich.edu/](http://diversity.umich.edu/)

Bob Fuller
It was, well, magical. At the Watson School of Biological Sciences at CSHL I did my thesis with Greg Hannon, studying how transposons are suppressed by small RNAs in the germline. Greg Hannon was a superb mentor and an amazing scientist, who taught me how to focus on big questions in science. Greg’s lab was really big, so for my postdoc I wanted to experience a smaller lab, so I joined a junior lab at the Skirball Institute of Biomolecular Medicine at the NYU School of Medicine. The lab studied olfactory avoidance, but I started a project to look at how animals can sense nutrients. I discovered that while the mouth senses taste but not nutrients, the brain can process both independently. This means that your brain isn’t fooled by diet sugars and it “knows” if you just had a diet soda compared to “real” sugar.

What advice would you give new students choosing a thesis lab?
I always tell people to read Ben Barres’ Neuron article on how to choose an academic advisor. The article is really, well, perfect. Pick someone who is in line with both your scientific and personality flavors, someone who can be a role model and someone who is invested in your growth as much as you are invested in the lab.

What advice would you give graduate students for getting the most out of their PhD training?
Be absolutely committed. More often than not, science has to come first and you have to figure out if that’s okay with you and the people around you. You must have a network of support. That can be challenging for international students, so you have to begin building it here. Make alliances and friendships with the people in your lab and cohorts. This is your scientific family. Second, be in love with what you do. Only love for your question will propel you through some of the unpleasant situations you will face (like, cough cough, reviewer #3). Third, don’t give up, let challenges inform you about strategies to help you overcome them.

What advice would you give senior students choosing a postdoc lab?
Find someone who is a great mentor and a great scientist, someone that is invested in your career and will prepare you for the future. Set milestones, publish a small paper to get a fellowship first, then focus on a bigger impact article, and so forth. Seek outside mentorship and don’t wait for people to come talk to you, go talk to them, in your department, at meetings, etc. Mentorship doesn’t really start and end with a postdoc advisor, there are many scientists who can be role models and teachers for different things: be inspired by all of them.

Tell us about your training before becoming a faculty member.
I’m originally from Italy and came to the U.S. for college. My first true research experience was at the California Institute of Technology with Seymour Benzer. Seymour is the father of fly neurogenetics, he pioneered the idea that complex behaviors were genetically determined and could be dissected using genetic tools and simple, quantitative behavioral assays. It was such an amazing experience to have as a young scientist! After that I did research on DNA methylation in the Timothy Bestor lab at Columbia, where I was a visiting student for a year, and then completed my honors thesis at UC Riverside working on RNA interference in mosquitoes in the Shouwei Ding lab. My dream when I left Italy was to one day go to CSHL; in many ways CSHL was the place where molecular biology was born and, being a romantic about science, I really wanted to experience it. I still remember the first time I walked down 1 Bungtown Road and pictured Barbara McClintock and Salvatore Luria walking there.

Besides neuroscience, Monica loves dogs.
**Paul Jenkins**

**What are your research interests?**
The Jenkins laboratory studies the basic cellular and molecular mechanisms underlying complex neuropsychiatric diseases, such as bipolar disorder and schizophrenia, as well as general mechanisms of plasma membrane organization in polarized cells. Our laboratory utilizes transgenic mouse models, human stem cell-derived models, confocal microscopy, molecular and cell biology, and biochemistry.

**What is your favorite thing about Ann Arbor?**
I’m a big time Michigan football fan and was in the Michigan Marching Band during my undergraduate years. I love the feeling of a crisp fall day and the sights and sounds of Michigan Stadium.

**What is your favorite non-science activity?**
It may still be borderline science, but I enjoy homebrewing beer. I get to geek out a bit with yeast culture, temperature-controlled fermentation chambers, and enzyme activity.

**Mark Chiang**

**What are your research interests?**
Our goal is to develop novel strategies for Notch-directed therapeutics in cancer without the unacceptable toxicities of pan-Notch inhibition. To do this, we study the interactions between components of diverse Notch transcription factor complexes at super-enhancers that are hijacked during transformation of developing normal lymphoid cells to leukemic stem cells.

**What is your favorite thing about Ann Arbor?**
Pacific Rim.

**What is your favorite non-science activity?**
Playing 3-on-1 hungry-hungry hippos with my daughter.

**Uhn-Soo Cho**

**What are your research interests?**
Our lab is interested in determining the crystal structures of biologically important proteins. Currently we are interested in biochemical and structural studies of kinetochore, histone and histone chaperone complex and mTORC1 regulatory proteins.

**What is your favorite thing about Ann Arbor?**
I certainly love to attend concerts and festivals. We have lots of them.

**What is your favorite non-science activity?**
My personal hobby is taking pictures. I have a Nikon D800 to take pictures of beautiful Ann Arbor. 📸
Sixth year Ph.D. candidate Ray Joe takes a break from writing to share with us the nuggets of wisdom he has gathered along the sinuous obstacle-ridden road that is his successful graduate career. When he is not hard at work in the Carter-Su lab or leading diversity initiatives, Ray enjoys cooking and photography.

**What is the greatest challenge you faced in graduate school?**

I actually came into PIBS in 2008, and was here for 2 years before taking a year-long leave of absence. I would say the biggest challenge was making the decision to leave. It was agonizing because you realize you have a group of supporters that are wanting you to succeed that you may be letting down. But I was unhappy and figured the only place I could gather myself was going back home. So I left and found a job as a medical technologist at the Indian Health Service clinic sponsored by the US Department of Health and Human Services running clinical diagnostics tests, drawing blood, etc. Clinical lab work is pretty cool, however I got bored really quickly doing the same things day-in and day-out. I realized that I had gone to graduate school because I was interested in solving problems and contributing to science. Don't get me wrong I loved my lifestyle as a medical technologist because I was able to hike, bike, and fish in the northern mountains of New Mexico, but I was missing that intellectual challenge; which you don’t appreciate when you’re here, since it is so draining, but start to miss when you’re away for so long. And so I realized graduate school was really what I wanted to do. In the end your failures are always where you learn the most, and I felt like I learned a lot about who I am as an individual by taking a year off.

**Tell us about a few of the incredibly varied jobs you’ve had over the years.**

Most of the different opportunities that I’ve been involved with have just been me deciding if they sound interesting enough to pursue, or circumstantial, in that ‘I have to pay the bills and I’ll do anything’. After I graduated high school, I worked as a janitor at the power plant and it was a lot of a fun; you got to put your headphones on, clean the building, talk to various people from different backgrounds, and the hours were great. I also worked with under-achieving minority high school students for a NASA summer program at UNM, teaching them how to use satellite data to present their ideas that affect the state to different politicians in NM in the form of short videos. After I finished undergrad I worked for 2 years as a technician doing micro-electronic fabrication at the Sandia National Laboratories in Albuquerque, NM. It was interesting but a lot of the products you worked on were above your clearance level. You knew some things were for movie theaters like making digital light projector chips, while others were going to defense projects. My job as a medical technologist was also interesting. Once, a representative from one of the local high schools that would do STD panels on the students came to pick up the results and said “I think we finally know who our Casanova is” [laughs]. It felt a lot like doing detective work. I’m not sure there’s been a job I really disliked, maybe the too repetitive jobs I’ve had, where once you got past that learning period, you started disliking them a lot and hoping for things to break down so that you would have a challenge.

**What are some of the organizations you’ve been involved with on campus?**

I was involved with AMS for a long time, and have always been involved with the American Indian Science and Engineering Society (AISES). The Society for the Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS) just started a UM chapter this past year- this was Carla [Ramos] and Jacqueline’s [Graniel] thing, who approached me about helping start one up. I was also part of the CMB Program Committee and that was really fun to do. You got to understand how decisions are being made at a faculty level, and how your input as a student is reflected in some of their decisions. I’m also part of the Alliance for Graduate Education and the Professoriate (AGEP) on campus.
participating in all of these organizations I learn from individuals from all shades of science. They’re all things I like to do and causes I care about. In a way, I’ve just been following my interests.

**What are your career plans?**

I am currently looking at postdocs at government agencies like the NIH, Oakridge, Los Alamos and Lawrence Livermore National Laboratories, NASA etc. I like the professionalism of these agencies, and it would be the best opportunity to combine my interests in policy, administration and the exploration aspect that I love as a scientist. Working at a national laboratory I would also have opportunities to get involved with different national organizations on campuses, and mentor students at conferences. I have also seen several friends whom work at national laboratories that have had opportunities to lecture at small tribal colleges around the country, which is something that would really interest me also as a way of contributing to the community.

**Any career or other advice for fellow graduate students?**

I was recently given some advice about hunting for postdocs: you should look for a postdoc with somebody that you want to be like. So you should work with an individual whose footsteps you might be interested in following. It also helps to know the career you want at the end, which is the hardest part! For me to decide what I wanted to do, it was definitely not an overnight thing, it’s taken a lot of time. The main thing is to figure out what your strongest skills are that are mentally challenging for you, and what you really enjoy doing. It’s not so important to make clear decisions on a career in graduate school, just have fun and follow your interests. You are a success story as it is, and you’re going to be doing fine down the road. Also: don’t stop doing things because you think you are too busy in graduate school, you can make things work. This is actually a really flexible time in your career, take advantage of that.

**Student Spotlight cont’d...**

To develop a complete mind: Study the science of art; Study the art of science.”
—Leonardo da Vinci

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**Through the Looking Glass**

by Arlee Mesler

M2AP NMR structure

E. coli expressing RFP

Mouse intestinal enteroid
Meet New MSTP Students
by Arlee Mesler

Steve Grzegorski
Uncovering and characterizing novel chemical and genetic modifiers of the coagulation cascade.
*Spirit animal:* Cone Snail. No explanation needed.

Henry Kuang
Examining secreted factors and their effects on metabolism.
*What fruit would you be:* Durian. I don't want anyone touching or eating me.

Samir Nath
Examining the therapeutic potential of chaperone machinery in neurodegenerative diseases.
*On a Saturday afternoon you can find me:* in line at Chipotle.

Patrick O’Hayer
Regulation of cancer stem-like cell activity by growth factor signaling.
*Spirit animal:* Poodle, the absolute greatest animal.

Eric Perkey
Understanding the role of stromal cells in alloimmunity and other immune responses.
*What fruit would you be:* Lingonberries, because they are incredibly hardy and can withstand temperatures as low as -40°C.

Ron Siebenaler
Discovery of novel long noncoding RNAs in prostate cancer and glioblastoma.
*Favorite food:* Chicken Paprikash (a traditional Hungarian dish).

Anna Gormley
Examining transcription factors that selectively regulate Notch1 signaling in T-cell Acute Lymphoblastic Leukemia.
*Spirit animal:* A manatee with a jetpack. Awkward and fast!
The paper microscope known as the Foldscope may seem like a joke sitting next to the latest Nikon or Olympus, but it is transforming data collection for thousands of scientists. Dr. Manu Prakash at Stanford University engineered this microscope to address the need for cheap, accessible, and durable microscopes. Printed on cardstock, the Foldscope requires 10 minutes to assemble following the step-by-step instructions. The provided lens is spherical, rather than the traditional round, with the benefit of costing 17 cents per lens and still magnifying objects up to 2,000 times. Overall, the materials for the Foldscope cost less than $1, and the final product weighs 8 grams for easy portability. But even though it is made of paper, there’s no need to question its durability. Prakash has thrown his Foldscope off of balconies, stomped on it, dunked it in a beaker of water, and shown that the microscope still works.

Thousands of Foldscopes have been shipped across the globe as part of a beta-testing program. Scientists have found the paper microscope easy to take into the jungle where humidity wrecks their traditional counterparts. In laboratories where expensive microscopes are beyond their budget or sit unused for fear of damage, the Foldscope can be easily used to collect data. While brightfield images are most common, YouTube tutorials under the name 'Foldscope' demonstrate how with minor adjustments the Foldscope can be used for darkfield as well as fluorescence microscopy. Pictures of the images can be taken with smartphones, or projected onto a wall with a light source. This microscope is also opening the field for children to study small details. Prakash has given away Foldscope kits with the “Ten Thousand Microscopes” project, where the recipients were scientists studying E. coli in Uganda or kids who wanted to get a closer look at the leaves in their backyard.

Prakash was named on the “Brilliant 10” list of Popular Science magazine for the Foldscope, and his laboratory is still working on expanding the number of variations that can be made to the microscope to increase its use. Cheap to make, easy to assemble, and hard to destroy means that this origami microscope is going to continue to spread around the globe. Unfortunately, Foldscopes are not yet commercially available (though a start-up company is in the works) and sign-ups for the “Ten Thousand Microscopes” project are now closed. However, if you really want to get your hands on a Foldscope, all you need is $1 to buy materials and to follow the methods in the original publication (J. Cybulski, J. Clements, and M. Prakash. Foldscope: Origami based paper microscope. June 2014. PLoS ONE 9(6):e98781).
Can we guess where you are in your PhD?

1. How do you feel about coffee?
   A. I like the taste
   B. It helps me get through the day
   C. I get withdrawal headaches under 4 cups

2. Your PI is....
   A. My idol!
   B. Pushing me to do better
   C. Hellspawn

3. What do you think about during CMB 850?
   A. How everyone is so smart and accomplished
   B. Good, but that one piece of data is bothering me
   C. What I will cook for dinner

4. Thoughts during class?
   A. Taking tests are getting in the way of research
   B. Grading these tests makes me cynical
   C. What classes?

5. Your PI tells you to publish soon. You:
   A. Are surprised and excited. Wow!
   B. Have a mild heart attack
   C. Already have the manuscript drafted

6. Your experiment doesn’t work. You:
   A. Bother the lab tech for help
   B. Start over... it’ll be a long night
   C. Go home and play with your cat

Mostly A’s: You’ve just begun!
It’s a wonderful journey, but buckle up. Coffee, friends, and de-stressing is a must for your near future.

Mostly B’s: You’re midway through!
Things are starting to come together in your research... now to think about your life after grad school.

Mostly C’s: You’re near the end!
You’re an old pro and you’re ready to move on. Good luck and don’t forget about your roots.

Where are they now? ...and imploring them for wisdom

Teresa Cesena, PhD

Teresa is currently a manager at MMS Holdings, a contract research organization (CRO) based in Canton, Michigan. MMS provides its pharmaceutical, biotech, and medical device company clients with medical writing services, focusing on the complex documentation needed to submit a new therapeutic or medical device for FDA approval.

Q: How did you decide you wanted to do medical writing as a career?
I might be a little different from most folks in that I always knew what I wanted to do. A lot of people do sort of fall into medical writing. People would ask why I wanted to go into medical writing and it just seemed like a good fit for me. I liked planning and doing experiments, but putting the finished story together was always my favorite part of science.

Q: What are some features of a person who is successful in medical writing?
You want to be able to become independent as quickly possible, and be able to translate lessons learned from one task to everything else you are working on. You need flexibility; deadlines move and scope of projects change and you have to adapt. Also multi-tasking, all writers are assigned to multiple projects.

Q: What experiences as a graduate student prepared you for a career in medical writing?
My PI was very supportive of my career goals, and I learned by helping her write and edit grants as well as writing my own, and helping other students with their writing needs. As a post-doc I coordinated grant writing courses for other post-docs and learned as much from them as they did with me. I also took a course called Business of Biology which was very helpful...my favorite course I took as a graduate student. For graduate students who are interested in going into medical writing I recommend taking opportunities with grant writing, as well as taking classes in grant writing or business and taking advantage of leadership opportunities such as organizing symposiums.

Q: What do you look for in candidates for an entry-level position at MMS?
A lot of companies only want to hire people with experience-which begs the question: How do you get experience? People who come into MMS are frequently straight from a M.S, Ph.D or post-doc. We do hire non-experienced folks. We look for people to come in with science knowledge and critical thinking, but we can train them on medical writing.