

THE VULCAN LETTER

Voice of the MSTP at the University of Alabama at Birmingham

Winter 2013

MAGIC CITY SPOTLIGHT

Jarrold Meadows

This month, the Magic City Spotlight is shared between two UAB MSTP students, John Jarboe and Jackie Zimmerman. Both entered the program in 2007, started their graduate training in 2009, and both recently defended or will be soon defending their thesis work. Jackie defended her work with Boris Pasche, MD, PhD, entitled "Evaluating the Efficacy of Radiofrequency Amplitude-Modulated Electromagnetic Fields as a Novel Treatment for Hepatocellular Carcinoma" on November 2nd. John will be defending his work with Christopher Willey, MD, PhD, entitled "MARCKS is a Regulator of Growth, Radiation Sensitivity, and is a Novel Prognostic Factor in Glioblastoma Multiforme" on December 14th.



a determined, focused, and introspective mindset. It could be argued that the insights they have gained into science, medicine, and themselves have already made their time here worthwhile. Indeed, I found just the short amount of time I had with them during the interview to be enlightening and encouraging. Unfortunately I don't have all the space necessary to cover their stories and advice, but there certainly are several points that need to be noted.

For starters, I discovered that Jackie and John share similar opinions on several key topics. Both found enjoyment in the independent thought involved in science. In fact, it was being the one responsible for answering a scientific question and not necessarily the day-to-day process of research that to both was the single most rewarding and at the same time, challenging aspect of graduate school.

Throughout their research training, John and Jackie both faced many challenges frequently experienced by graduate students, but despite those challenges, they found success. Moreover, they found knowledge from situations any reasonable person may have only found discouragement. And that is why they are such excellent role models to younger students: not only will they be leaving the MSTP with the obvious markers of success, but they have acquired the wisdom that only comes with meeting the difficulties associated with graduate school with

both faced individual problems, but both also had to come to terms with the fact that it is the student who is ultimately responsible for their work. Both also strongly stressed the importance of medical school performance and Step 1 scores. Depending on a particular specialty, the PhD may be neutral when it comes to residency applications. Depending solely on your thesis

work to get you into residency is an incredibly risky bet regardless because there are so many uncontrollable variables involved in graduate school. And when it comes to graduate school, both had two main words of advice: 1) choose every rotation mentor carefully. Do the reading. Ask around about the mentor. Meet with people in the lab in addition to meeting the mentor. After all, this could be someone you spend the next several years with, so it is worth careful consideration. 2) Make a list of what you need to do to graduate and check it off as you go. This may seem trivial, but graduate school can easily make you feel as if you're not making progress. A handy checklist can do amazing things for your motivation.

An interesting distinction between John and Jackie came out during our discussion of making a final decision on a research lab and a project. This distinction is important too because



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MSTP'S ON THE GO: A SUMMARY OF 2012 CONFERENCES

Anna Joy Graves

ABRCAMS (JON LOCKHART)

The 2012 ABRCAMS conference in San Jose was a great networking and recruiting opportunity. I was able to reconnect with former faculty and hopefully instilled UAB MSTP interest in potential applicants. I also got to learn about the Vision and Change movement that is aiming to transform undergraduate life science education



SACNAS (SINI NWAOBI AND EMILY BLOSSER)

My favorite part was that the conference was in Seattle - an awesome city. Also, it is fun getting to interact with undergrads who remind you of how excited and enthused you once were at the prospect of applying to MD/PhD schools. You are constantly being asked what got you interested in doing both an MD and a PhD, why you chose UAB, and if you enjoy what you are doing. As you get closer to the

2 end of the MSTP, these sort of questions serve as

an interesting reminder of how it all began and how far things have progressed. – Sini Nwaobi

SFN (MIKAEL GUZMAN KARLSSON, JARROD MEADOWS, STACEY WATKINS, JENNIFER HADLEY, STEPHANIE ROBERT)

SFN was a fabulous time in New Orleans this year. It was wonderful to see the research of so many

UAB neuroscientists, including several MSTPs. The meeting is exceptionally large and includes research from all neuro-related fields including neurosurgery, psychology, neuroscience, neurology, etc. making it an invaluable experi-

ence. It was also wonderful to see MSTP alumni like Chris Ransom who graduated from Harald Sontheimer's lab years ago. – Stacey Watkins

ASTRO (JOHN JARBOE AND EVAN THOMAS)

The ASTRO conference was interesting, because the poster presentation session was actually cancelled due to the hurricane and everyone was basically kicked out of the building for the rest of the day. Other than that day, conference was largely unaffected. There were many excellent sessions, and I took particular interest in a talk

on real time DMLC adaptation to target rotation during therapy using electromagnetic detection. (Evan)

The theme of the 2012 annual meeting of the American Society of Radiation Oncology (ASTRO) in Boston was "Advancing Patient Care through Innovation." The message from the Chairman was that changing demographics, a physician based delivery system predicted by many to be unable to meet future demand, dramatic growth in science and technology transfer; all in the context of a health care delivery system that is becoming increasingly unaffordable, represent important societal trends that will force change in how health care will be conceived and delivered. We will have to innovate if we are to continue offering the best patient care possible. My poster presentation was about the ability of the MARCKS protein to regulate GBM growth, radiation sensitivity, and to function as a novel target or biomarker for the Proneural molecular subtype of GBM. (John)

IMMUNOGENOMICS (JEFF SINGER)

About an hour and a half north of Birmingham, Hudson Alpha Institute for Biotechnology played host to the 1st annual Nature Conference on Immunogenomics. This emerging field aims to understand basic immunological processes and immune mediated diseases through the lens of Next Gen-

eration Sequencing technologies. From characterizing the diversity of a patient's B cell repertoire to building a complete regulatory network using ChIP-seq and RNA-seq, the conference displayed the variety of questions suited for study using this exciting and ever-more affordable new technology.

SEMSS

The third annual Southeastern Medical Scientist Symposium (SEMSS 2012) held this year at Vanderbilt was another great success for the conference. Many congratulations are due those from UAB who helped plan and facilitate SEMSS 2012: Jennifer Hadley (UAB Executive Director), Zach Dobbin (UAB Programming Rep), and Mika Guzman Karlsson (UAB PR Rep), as

well as Travis Hull, Jarrod Meadows, and Elizabeth Ma. A key goal of the conference, enhancing networking between MSTP students in the Southeast, was wonderfully achieved as over 130 students from multiple universities were in attendance. Not only did the organizing institutions of UAB, Emory, and Vanderbilt have strong showings, students from other universities in Alabama, Georgia, Mississippi, Florida, the Carolinas, and even Chicago were in attendance. Fantastic research was presented by all students who exhibited posters or gave oral presentations (Jackie Zimmerman, Katie Poholek, and Brian Warmus were selected to present oral presentations from UAB). As the topic of the conference was personalized medicine, keynote

and breakout sessions highlighted the science and feasibility of clinical decision making informed by -omics techniques (genomics, kinomics, etc.) and facilitated by patient-specific medical teams. This year the conference was held over a weekend, allowing camaraderie to develop at a massive craft beer bar, the Flying Saucer, on Saturday evening. With the beautiful season change on the Vanderbilt campus and crisp air under clear blue skies, it was a pristine weekend for this important conference. Be sure to attend next year as the conference will be held here at UAB. If you'd like to help plan and facilitate what will surely be the best SEMSS yet, contact Zach Dobbin, the UAB executive director for SEMSS 2013. – David Gaston

UAB MSTP STARTS LOCAL APSA CHAPTER

The MSTP is excited to announce the formation of an American Physician Scientists Association (APSA) chapter at UAB! The goals of our APSA chapter are multifaceted, as we aim to address the unique challenges that face physician-scientists during their training and career. Among other things, we will provide members with opportunities for informal networking with UAB faculty, organize career development and volunteering events, and provide a formal organization through which UAB's future physician-scientists can have an active voice both nationally and among UAB's scientific community.

APSA is a national organization that was formed by MD/PhD students to address the needs and unique challenges faced by phy-

sician-scientists during their training. The national APSA chapter is run entirely by MD/PhD students from institutions across the country. The organization advocates for policy changes essential to the continued success of physician-scientists, and the NCI's recent establishment of an F30 for MD/PhD students is an example of APSA's influence and frequent success. The association also sponsors events such as conferences and webinars that are developed specifically for aspiring-physician scientists. For more information, please visit the national chapter's website (<http://www.physicianscientists.org>), which contains useful resources, including forums to network with established physician-scientists from around the country and to get specialty-specific men-

torship.

The UAB MSTP was interested in forming an APSA chapter because the organization has the potential to strengthen our MSTP, to establish a forum for networking with research-oriented SOM students, and to provide additional resources for career development. Excitingly, our chapter already has over 30 members! We will meet monthly before CAMS, and meetings will consist of MSTP research presentations and the planning of future APSA-sponsored events tailored to the needs of our members. At the first meeting on November 8, we elected officers and appointed a committee to draft our constitution. Additionally, we decided that

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it demonstrates that different students place value on different aspects of training, and it is an advantage to know what you want from the beginning. For instance, John chose his lab mainly out interest in the direction of the lab. He mentioned that the quality of the mentor was absolutely a component of his decision, but he also could not have joined the lab of an excellent mentor if he did not find the science inherently interesting. Jackie, however, said she could find most of the work done in her field interesting, as long as she found the type of mentor she was looking for. For her, the interest in a project would flow naturally from an environment fostered by the appropriate mentor.

When it comes to getting ready for clerkships, Jackie and John have taken different approaches, but they are both very excited to go back. Jackie started working as a trainer for the OSCE standardized patients after her first year in graduate school. That has helped her keep up with her history and physical skills in addition to allowing her an opportunity to teach and mentor some of the younger MSTP students who also work in the OSCE program. John has been independently driven to keep up with his medical knowledge, rereading Bate's and studying Step 2 materials. Both state confidently, however, that a great deal

of work is ahead of them. It is always going to be difficult returning to the clinic after graduate school, but it is nonetheless a feat that can be accomplished successfully. To the younger students: be thankful for the Griffin Society!

In terms of future prospects, John and Jackie have different but certainly ambitious career aspirations. John has known for a while that he will be applying for a residency position in radiation oncology, and he mentioned interest in a research track residency, specifically the Holman Research Pathway. Jackie is not quite as sold on one particular specialty, but at the moment is leaning towards medicine/hematology and oncology. She is also very interested in a residency pathway that incorporates serious research time into training. After residency, both John and Jackie would like to be on faculty at an academic medical center, which is of course good news to Robin Lorenz. But actually that says something profoundly positive about our training here in the UAB MSTP. Even though Jackie and John both have experienced firsthand the discouragements and obstacles inherent in our training, they are both still dedicated to and fascinated by this crazy career path we have chosen. While we certainly wish them the best of luck in their future endeavors, it is encouraging to know that due to their training combined with their personal strengths, they probably won't need it.



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our first activity will be to coordinate small breakout sessions with UAB physician-scientists from a variety of medical specialties. The hope is that current faculty and residents will be able to aid members in the difficult process of choosing a clinical specialty. Members will be able to discuss considerations in choosing a specialty including lifestyle and availability of protected research time. In the future, we would also like to coordinate career development events such as pre-

sentation skills workshops and social gatherings for learning each other's personal and professional interests. Most importantly, however, our organization is meant to be a resource for all of the UAB MSTP's students, so please let us know if you have any ideas for APSA-sponsored events in the future! Please keep an eye on your email to sign-up for these sessions. We believe that our UAB APSA chapter will be an extremely valuable organization for our members and our MSTP, so please consider joining! – Travis Hull

EQUAL ACCESS BIRMINGHAM: UAB'S STUDENT-RUN CLINIC GETS FACELIFT

Interview: Juan Calix (EAB Officer 2006-2007)

What involvement did you have in EAB as an officer? I was a co-secretary. My primary duty was to help develop a system to keep records on the patient population we saw in the free clinic. Along with other officers, we drafted EAB's first constitution and were involved in starting EAB as a student-run non-profit.

Does this clinic fulfill any of the dreams that you and your colleagues had at the time? It was always a goal of EAB to provide the underserved population of the area an option for their healthcare. In its infancy, EAB relied on the support of non-profits like MPower and Cahaba Valley to facilitate opportunities for students to volunteer. Having an independent clinic on campus offers yet a new avenue to meet both the goal of educating students and providing medical services to the community.

Could you let me know a little bit about EAB history? EAB was originally envisioned by a group of students in the class of 2009 to be a way for students to volunteer their time to the underserved populations of Birmingham, especially hispanics. In 2006, the first board of officers was appointed to spearhead the creation of EAB as a non-profit organization under UAB. I believe in 2007 we finalized our constitution and charter, as well as our working relationship with MPower. Some time in 2008 we started a brief relationship with Cahaba Valley Healthcare for volunteers to go and provide BP screens on Saturdays. The rest is history that I don't remember.

Equal Access Birmingham (EAB) is an acute care clinic that is staffed by student volunteers each Wednesday night, providing free healthcare to patients lacking insurance or access to medical services. For the past six years, Equal Access Birmingham's clinic was located at M-Power Ministries for the past six years. However, a fundraising initiative was begun two years ago through the School of Medicine's annual skit night, known as the Best Medicine Show. This annual performance highlights student talents at the Alabama Theater through live acts, dancing, and short films that make light of the medical school experience. The event is open to the community and has raised over \$60,000 which will go towards the opening of a new clinic located within the Church of the Reconciler in Downtown Birmingham.

EAB also collaborates with the Dental and Optometry schools to hold monthly screenings at different locations in the greater Birmingham area. These screenings focus on testing blood glucose levels and blood pressure as well as discussions of nutrition and healthy lifestyle choices. Augmenting these efforts, EAB also has a Diabetes Education Initiative through which medical students teach weekly classes at M-Power ministries on prevention and control of diabetes mellitus.

If you have any questions regarding the new clinic or are interested in volunteering, please contact Victoria Bennett (vbennett@uab.edu).

Announcements

AWARDS

FAMILY

2012 MSRD Winners

Long Term Oral Presentations

Hadley, Jennifer Ann (Jennifer) – MSTP (GS3)

“Antipsychotic drug treatment restores impaired limbic system connectivity in schizophrenia”

Mentor: Dr. Adrienne C. Lahti

Reish, Nicholas Joseph (Nicholas) – MSTP (GS5)

“Rab11a Directs Rhodopsin Trafficking in Rod Photoreceptors”

Mentor: Dr. Alecia Gross

*Warmus, Brian Andrew (Brian) – MSTP (GS2)

“Insulostriatal Dysfunction and Repetitive Behavior in a Mouse Model of Frontotemporal Dementia”

Mentor: Dr. Erik D. Roberson

Best Long Term Oral Presentation

Short Term Oral Presentations

Anna Joy Graves, MSTP (MS2)

“The Monetary Value of Breastmilk in the United States”

Mentor: Dr. E. Michael Foster

Ryne Ramaker, MSTP (MS1)

“Analysis of UV-Light Induced Modifications of the Lens Protein α B-crystallin and Potential Protective Agents”

Mentor: Dr. Stephen Barnes

Poster Awards

Group A – Best Poster: Alice Weaver (Eddy Yang)

Group G – Best Poster: Zachary Dobbin (Charles Landen)

Group J - Best Poster: Stephanie Brosius (Steven Carroll)

Group K – Best Poster: Avinash Honasoge (Harald Sontheimer)

Group L - Best Poster: William Webb (Susan Bellis)

Stacey Watkins married Nima Bahraini on September 2, 2012.



Ryan Berry married Christy Norris on December 15, 2012.

PUBLICATIONS

Cuddapah VA, Turner KL, Sontheimer H. Calcium entry via TRPC1 channels activates chloride currents in human glioma cells. *Cell Calcium*. 2012 Dec 19. pii: S0143-4160(12)00201-1.

Alberti MO, Deshane JS, Chaplin DD, Pereboeva L, Curiel DT, Roth JC. A myeloid cell-binding adenovirus efficiently targets gene transfer to the lung and escapes liver tropism. *Gene Ther*. 2012 Nov

Sultan FA, Wang J, Tront J, Liebermann DA, Sweatt JD. Genetic Deletion of *gadd45b*, a Regulator of Active DNA Demethylation, Enhances Long-Term Memory and Synaptic Plasticity. *J Neurosci*. 2012 Nov 28;32(48):17059-66.

Jarboe JS, Dutta S, Velu SE, Willey CD. Mini-Review: Bmx Kinase Inhibitors for Cancer Therapy. *Recent Pat Anticancer Drug Discov*. 2012 Nov 29.



Events in Birmingham

Mikael Guzman Karlsson

11/30 -12/2 West Side Story – BJCC Concert Hall
11/30 -12/2 7th Annual Holiday Craft Bazaar, Forest Park
11/30-12/2 West Side Story, BJCC
12/1-1/6 EXHIBITION: Norman Rockwell's America – Birmingham Museum of Art
12/1 Willie Nelson – Alabama Theatre
12/2 Holiday Iron Pour – Sloss Furnaces
12/6-8, 12/13-16, 12/20-22 Abraham Lincoln's Big Gay Dance Party – Theatre Downtown
12/7 Magical City Choral Society Christmas Concert – Pell City Center
12/8 Magic City Blues Society presents: Blues Ball featuring Mike Zito Band w/ The Sassy Brown Band – The WorkPlay Theatre
12/8 Pub Crawl Against Cancer – Five Points
12/10- 12/22 Holiday Film Series – Alabama Theatre
12/12 Trans-Siberian Orchestra – BJCC
12/14-23 George Balanchine's The Nutcracker – Wright Center, Samford University
12/15 ArtPlay Presents A Dickens Vest Pocket Christmas Carol - Sirote Theatre
12/15 The First Annual Reindeer Romp Bar Crawl – Lakeview
12/15 Arova Contemporary Ballet presents "The Snow Queen" - Dorothy Jemison Day Theater
12/29 Wine and Cheese Hike – Ruffner Mountain 1/12 2nd Annual Birmingham Brewnanza, Good People Brewery

With the change of season from fall to winter there are several aspects of Birmingham that change accordingly. Although the colder temperatures and earlier sunsets often result in a slightly higher incidence of self-diagnosed seasonal affective disorder, the winter season does bring with it more appealing features such as comfortable pea coats, soul-warming hot chocolates, tasty porter and stout beers, and fiery bonfires. Amongst all this change though, one aspect that remains the same in Birmingham is the wealth of things to do around town. As in previous editions of the newsletter, we have included a list of exciting events that will be taking place throughout the city during the month of December.

I would like to take the next few paragraphs to highlight a few events that I feel are especially intriguing this holiday season. One event that I encourage you all to attend is the 7th Annual Holiday Craft Bazaar, which is sponsored by the Forest Park/South Avondale Merchants and Main Street Birmingham. This event is gearing up to be your one-stop shop for holiday shopping, great food and drink, beautiful art, and an overall sense of community fellowship. The event kicks-off on November 30th, with an opening reception at Avondale Bricks Gallery for *El Pueblo*, an exhibition displaying works by local Latin artists and artisans. During the reception, Little Donkey,

a popular Mexican restaurant in Homewood, will be providing an array of hors d'oeuvres and wines to help compliment your art viewing. During the rest of the weekend, you'll be able to shop for local arts and crafts that will be on display throughout the two neighborhoods at locations like Naked Art and Bottletree. Finally, local merchants will also be providing special lunch/dinner prix fixe menus as well as drink specials in order to satisfy all of your holiday gustatory needs.

The other event, or in this specific case a series of events, that I hope you find worthwhile is the Holiday Film Series at the downtown Alabama Theatre. Everyday for two weeks the Alabama Theater will be screening some of your favorite holiday films like *Home Alone*, *Miracle on 34th Street*, and *Christmas Vacation* (apparently everyone in attendance dresses up as characters in the film). The combination of nostalgic holiday films with the historic and picturesque setting of the theatre makes this a perfect backdrop for a date or a family outing. So with that said, I hope there is something that peaks your interest in our calendar of events. I hope that instead of retreating to lab, Volker Hall, or your warm abode, you choose to embrace the winter season this upcoming holiday and take advantage of what the Magic City has to offer!



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