

MPB GSA NEWSLETTER

Spring 2011

The purpose of this newsletter is to serve as a resource for MPB students to get to know the department better.



Molecular Physiology & Biophysics Graduate Student Association

LUNCH WITH THE MAN THAT LIKES TO
MAKE THINGS GLOW

By Elizabeth Meredith

Vanderbilt University, the MPB department specifically, was honored to have Dr. Roger Tsien, (2008 Nobel Prize in Chemistry recipient) as the guest lecturer for the Earl W. Sutherland lecture on March 3rd. All of the graduate students in MPB were invited to a special lunch with Dr. Tsien before the lecture. Most of the students turned up as we knew we were getting a chance to do something not many students can say they have done: sit down to share a sandwich with a Nobel Laureate.

He seemed a little surprised when he showed up and saw 30 or so students staring back at him. However, he was very personable and opened the room up for questions right away. There were a variety of inquiries: specific questions about one's own research, suggestions to improve imaging techniques, and general life questions.

Dr. Tsien shared with us a story about how he embraced his innate character to get where he is today. He started off with an innovative example from his childhood. When he was a 5-year old boy growing up on the beaches of NY, he noticed that there were hard rocks leading to the water. Instead of tiptoeing over these annoyances each time to get out to the water, he decided to construct a bridge of sand over them so his feet wouldn't get hurt. As he

reflected on his youth and being raised a family of engineers, he also insisted that genetics played a role in helping him get to this point in life. To succeed in life, he chuckled and said, "You need to be able to pick your own parents." He also suggested a little bit of luck along the way doesn't hurt either. He concluded that perseverance and luck were essential to his present success.

He encouraged us to go back to nature to try to find answers to questions in science. He suggested, "Begin solving problems by taking what nature hands you. How does nature solve this problem?" This was how he was able to discover the green fluorescent protein (GFP), from the jellyfish. He reminded us that "jellyfish deserve the Nobel Prize, not us." His next big question that he is tackling is how memory works. He is fascinated with it. Proteins turnover constantly, yet how are we able to remember something that happened 50 years ago? "This is what makes our souls; the ability to remember."

One interesting fact about him is that he loves colors. This is the reason he has worked hard to create many variations of fluorescent proteins. Why just have green when you can have so much more? The first thing he does after setting up a new microscope is optimize the color settings. This is his reward after enduring the process of obtaining the grant, getting the purchase order, setting it up, and downloading the software. He says he "sees colors in wavelengths," and that is a beautiful thing. «»

UPCOMING EVENTS

Stay Tuned for more information about the next MPB Relay Race!

Celebrate! MPB GSA Happenings

Just a few pictures from the Happy Hour at Sam's
and the Cinco De Mayo Party...

Don't miss out
on the fun!

Join us for our
next MPB GSA
sponsored
event: MPB
Relay Race!



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Student Spotlight: Charles Day

By Marquicia Pierce

Charles Day

Currently working in Anne Kenworthy's laboratory

His work involves understanding the organization of the plasma membrane and how that impacts early endocytic events



One of the most exciting moments I have had in research came at my former job at Elucida Research... what I had uncovered was a novel mechanism

What goals (professional or personal) do you have for the new season?

A major goal in my personal life for the upcoming season is to adjust to having two kids in the home as my wife and I welcomed our second child, John Benton, on May 27th.

What was your most memorable science moment?

One of the most exciting moments I have had in research came at my former job at Elucida Research, LLC, when I observed cholesterol clustering in lipid bilayers in the presence of some drugs but not others. In fact the appearance of these clusters was inversely correlated with the antioxidative potential of each drug. This was important because the cholesterol clusters had previously been predicted to be early contributors to cataracts and atherosclerosis. Therefore, what I had uncovered was a novel mechanism that linked lipid oxidation to the formation of diseases often associated with lipid oxidation.

What do you like to do in your free-time? Hobbies?

Most of my free time is spent with my wife, two kids (Ellie and Benton) and our dog. Additionally, you

can often find me renovating our house. My wife and myself bought a home in 12South three years ago, which was in major need of repair. With the help of friends and family we have nearly completed restoration.

What was the hardest thing about publishing a paper?

I am always thinking about the next project or experiment. Therefore, I have real trouble staying focused on the last 10% of the work needed to complete my current paper.

Fun Fact: Charlie's first paper (Atherosclerosis. December 2004;177(2):235-243.) created quite a stir in the field. It concluded that Sulfone COX-2 inhibitors, like Vioxx, increased the susceptibility of lipids to oxidative damage that could lead to adverse cardiovascular events. In fact, the paper was in review when Merck unexpectedly announced that Vioxx caused heart disease and therefore it was going to be pulled from the market. The paper was accepted the next day and sparked an interest from several other journals! His boss at the time had to testify at the FDA hearings on Cox-2 inhibitor and heart disease and as you can image, it received a lot of media attention. «»

Congratulations to Angie Pernell, this year's MPB Graduate Service Award recipient!

This award is presented to someone who has impacted education of graduate students in our department.



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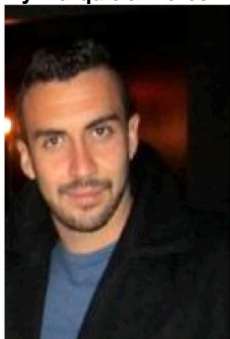
Student Spotlight: Dario Gutierrez

By Marquicia Pierce

Dario Gutierrez

Currently working in Alyssa Hasty's laboratory

The lab focuses on the effects of the infiltration of immune cells into the adipose tissue on inflammation and systemic insulin resistance



“

Model someone. Identify a scientist that you feel you are the most like, and try to be like him. Learn from what he did right and try applying it to your science.

”

What are your research interests?

I entered the lab with a chemistry background and expected to learn and perform several physiology experiments and I did. However, as most people say I ‘followed the biology’, and I am now performing mostly immunology techniques such as flow cytometry almost on a daily basis. I am now particularly interested in myeloid cell differentiation, their plasticity and different roles in inflammation.

What goals (professional or personal) do you have for the summer?

This summer I plan to get both of the articles that I submitted for publication accepted. They are currently under revision. I am also interviewing in London, England for a postdoctoral position in the laboratory of Frederic Geissmann, a world renowned myeloid immunologist. I am also attending an exciting conference in Brussels, Belgium.

What was your most memorable science moment?

My most memorable recent science moment was looking at a flow cytometry histogram for the expression of a macrophage marker in the adipose tissue of a mutant mouse model and realizing that rather than having one population of macrophages, I had two. Also being able to repeat those results and identifying the new population of cells. It mostly all happened by accident.

What influenced you to pursue a scientific career?

I have always been interested in mostly two fields: science and history. I did not think that history

would be challenging enough or very relevant, so I chose the second option. I also had great High School chemistry and biology teachers who cultivated the love for science in me.

What advice would you give to new graduate students?

Model someone. Identify a scientist that you feel you are the most like, and try to be like him/her. Learn from what he/she did right and try applying it to your science. When I had just joined Alyssa's lab, Eric Kandel (Nobel Laureate for the discovery of the mechanisms of short memory) came to Vanderbilt to give a Discovery lecture. I had the opportunity to have lunch with him and was very inspired by him. I realized that we had similar personalities and got a hold of his book “In Search of Memory”. I read several key chapters of it every time I feel in need of inspiration. Be productive on your non-productive days; and an overachiever on your productive days.

What do you like to do in your free-time? Hobbies?

I love sports. Watching them and playing them. I play a lot of soccer, probably a bit much sometimes. I also play basketball in the mornings and any other sport that I have the time and the skill to play. I also love to dance and go out to clubs with friends on the weekends.

What was the hardest thing about publishing a paper?

My papers have not been published yet, but so far, I am finding giving the correct response to the reviewers' critics/comments a bit challenging. «»

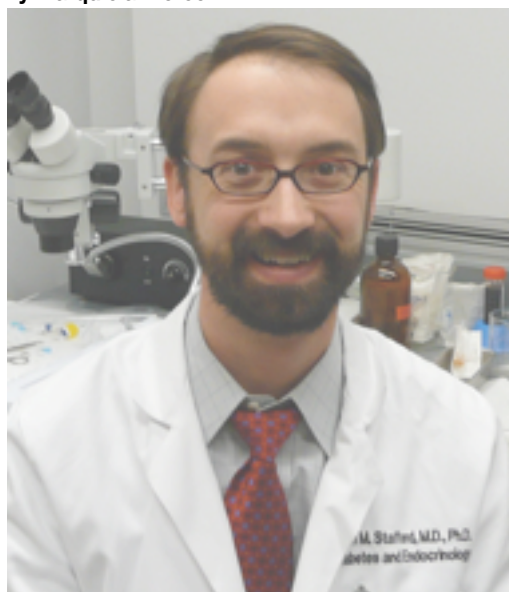
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Faculty Spotlight: John Stafford, M.D, Ph.D.

By Marquicia Pierce

John Stafford

His research focuses aims to understand how obesity and diabetes contribute to cardiovascular risk, with a focus on how control points in lipid metabolism are altered



What were your most memorable science moments?

Transitions: before each major career transition there is a time where you have to synthesize all of your effort and knowledge. It's a time to really jump in and take on new things to learn. I encourage students to be comfortable with moments of learning something new and hard. Don't be afraid of pursuing the alternate hypothesis. We have had many wrong hypotheses but that's what makes science interesting. As Maureen Gannon would say, "Follow the Science!"

What influenced you to pursue a scientific career and stay within academics?

While I was taking medical classes if a speaker came in to give a talk, I would prepare for the lecture, including reading some of their papers on pubmed. The talk itself may have been boring but I really enjoyed seeing what people were able to do over a career, instead of just day to day. These career accomplishments were one of the reasons I pursued science in addition to a medical career.

Thoughts on making a name for yourself or 'scientific branding'?

One thing I have noticed about really successful people is that they are able to speak more than one language. For example, I am able to speak physiology and medicine. Dave Piston can speak biophysics and physiology really well and he is able to bridge the research gap. With each new transition, make sure you gain a new set of skills or tools that is relevant to different fields in order to relate them and identify new research questions. Be able to articulate your ideas well. Really know the literature. You can't be ahead of the field without knowing the field. I recommend reading 4-5 papers a day, every day. This adds up quickly to a good knowledge of the field.

What advice would you give to new graduate students and/or post-docs?

- 1 | It is important to know your goals: Many say that they want to have their own lab one day. I would encourage them to really seek out people who are already doing this and see what it takes. It takes being smart *and* working hard. You have to stay focused. At an institution like Vanderbilt, it is rare to find a PI that works less than 60 hours a week. So get in the habit of doing that.
- 2 | Exceed people's expectations for you: Even in the little things do above and beyond. You never know who your advocates are. These advocates from many phases of my training proved to be very important for me as I went through different phases of my career and was looking for a job.
- 3 | Write something scientific everyday: In my lab, before a meeting we all write out an abstract for the presentation that day. I still write something everyday. When you do this writing will become easier for you and that blank screen will not be as intimidating when you need to start writing up a project or review.
- 4 | Don't be afraid to be your own advocate: Many grad students tend to shy away to a vague question when asked, "How are things going?" Even in the small talk, share something exciting that is happening! Have a small nugget of good news ready. At conferences, step out and meet new people you want to interact with. Email them before and arrange a time to meet up.

Do you have any tips on balancing life/family and your science career?

- 1 | It helps to have a supportive spouse and support: My wife and I stagger our days/ times so one of us is with the kids.
- 2 | Stay focused: Grad students have the tendency to waste a lot of time. As a student I thought I was working hard but I could have done more. I've notice that grad students with organized blocks of time seem to graduate almost a year quicker.
- 3 | Organize your time: You can do a lot with 10-12 hour days. I come in 7am. I think clearly at this time so I will write and plan. I look at email only 2x a day. It's distracting if it keeps coming up throughout the day. In the afternoon, when I feel a little more drained, I'll do something that doesn't require a lot of intellectual ability. Work when you are at work, that way you can be home when you are home. When I get home I'm with my kids and work after they are in bed. Most of my free time is spent with the kids outdoors, in the yard, zoo etc.«»

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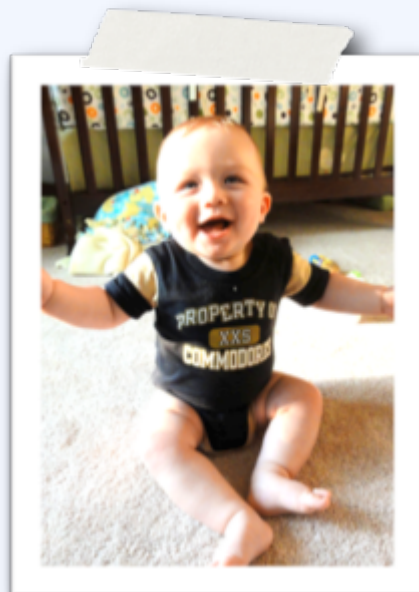


Spring Babies!

Let's welcome the newest additions to the MPB family!



Grace Margaret Lin and her big sister *Lucy Lin*. Grace was born at 1:27AM on April 27th, 2011. Lucy, soon to be 4 year old, is so excited and loves her baby sister so much!
(Li Kang - Wasserman Lab)



Liam Reinert was born in November 2010. He recently figured out how to crawl on his hands and knees, and he's getting faster by the minute!
(Rachel Reinart - Powers Lab)

Ian Robert Stafford was born March 21st, 2011. He is the youngest of three boys!
(John Stafford Lab)

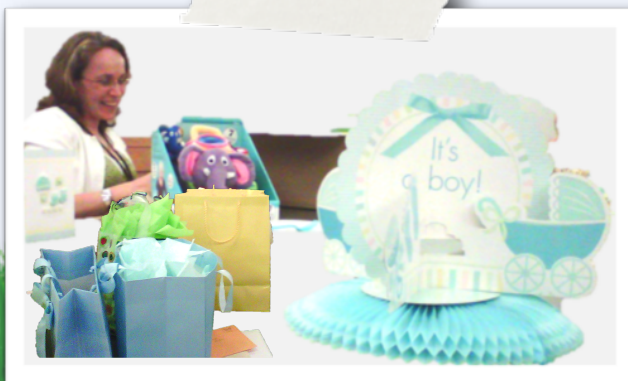


John Benton Day was born on May 27th, 2011!
(Charlie Day - Kenworthy Lab)

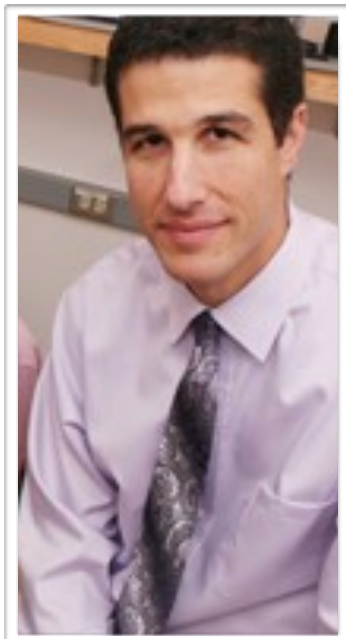


Jaelyn Nicole Cobb was born February 25th, 2011. Her parents, Chuck & Nancy Cobb are so proud!

Kate Ellacott is expecting her little baby boy, *Max Alan Champion*, on June 7, 2011!



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The votes are in!

Student invited speaker **Dr. Jeffery Zigman**, from UT Southwestern Medical Center will be here December 7th, 2011!

One of the major overlying research interests of the Zigman lab is to gain a better understanding of the controls of eating behavior, food intake and body weight. To that end, we have developed several models to study the peptide hormone GHRELIN. Ghrelin levels in the blood stream are influenced mainly by the release of ghrelin from specific endocrine cells (ghrelin cells) lining the stomach and intestine. Ghrelin is of particular interest to both obesity and cachexia researchers because it stimulates food intake and its levels are raised in association with hunger, diet-induced weight loss, and certain forms of obesity in humans. In addition, our group has shown that ghrelin levels rise in the setting of chronic stress, and that this mechanism may influence eating behaviors as well as alterations in mood associated with stress. Our group has also shown that ghrelin motivates animals to work hard to obtain and eat fatty foods, and thus enhances the pleasurable aspects of fatty foods. Ghrelin also has several other functions, including modulation of insulin release and roles in gastrointestinal motility, gastric acid secretion, and growth hormone release, among others.

<http://www.utsouthwestern.edu/utsw/home/research/zigmanlab/index.html>

TOOLS YOU CAN USE!



Vanderbilt Toastmasters is a group of mostly Graduate level students and young professionals who get together to practice public speaking and leadership. It's great training for anyone who wants to improve their public speaking or want to get over their fear of talking in front of a crowd.

The first Summer Meeting will be Wednesday, **June 8th - in Buttrick Hall room 310 at 6:00 pm**. Meetings are held every **2nd and 4th Wednesday** of each month. Refreshments will be served.



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We want to hear from you!

MPB students know how to get things done! Let us know of recent grants, awards and publications so we can feature it in the newsletter. Also, if you would like to contribute to the newsletter just let us know. You can submit articles to mpbgsa@gmail.com. It's a great way to improve your writing skills and would look great on your CV. Comments and suggestions are encouraged as well.



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