

Alumnus Interview:

Joseph Loscalzo

by Samir Devalaraja, MSTP II

Dr. Joseph Loscalzo is the Chairman of the Department of Medicine, and Physician-in-Chief at Brigham and Women's Hospital. He received a BA (summa cum laude), MD and PhD in biochemistry from the University of Pennsylvania. Dr. Loscalzo is a prolific cardiovascular researcher, authoring over 500 peer-reviewed publications, 18 books and 30 patents. He is also a fantastic mentor and role model, and was an inspiration to interview.

What was the best and worst thing about your time in the MD/PhD program?

The program really does give one a very different perspective on understanding human disease, to be trained as a basic investigator. There wasn't a single point in time when I recognized that, but really it was a cumulative consequence of the experience. In my office here I have a reproduction of a painting by Klimt, which is a forest scene with a bunch of birch trees in early fall and winter. I often use it as a teaching metaphor when I talk to people in this office who I think are going astray. I point out that a PhD understands everything about each of the trees in this forest, and the MD understands the nature of the forest and its systemic pharmacology if you will, but the MD/PhD true physician scientist can appreciate both elements of this forest – both the fine structures as well as the systemic phenotype. That can't be reproduced in any other way. My graduate training set me on that course, and allowed me to introduce the importance of rigorous scientific training, coupled with rigorous clinical training.

The worst time was the usual time people have when they're not sure how long it is going to take them to finish. They don't really see their way clearly to a future because of all the uncertainties. Now, in those days we didn't really have the same kind of funding uncertainties and the incredible pressure of time with respect to clinical

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Keystone Colorado MSTP Conference 2015

by Sohaib Hashmi, MSTP II

The 3rd year University of Colorado MSTP students have organized the National MD/PhD Student Conference since 1986. It provides students from across the US and Canada the opportunity

to engage with each other and leaders in the physician-scientist community. Furthermore, our esteemed director, Dr. Skip Brass, won the inaugural Dr. Bert I. Shapiro award to recognize his outstanding contributions to physician-scientist training on the national level. We talked to two Penn MSTP students, Chris Hergott and Sneha Narasimhan, about their experiences at the conference this year.

What were your overall thoughts?

Chris: I loved the conference - it's a great way to meet MD-PhD students from around the country and to hear their perspectives. Since our program is so big and has a relatively specific shared mission among the students, it was fascinating to hear from students

Director's Corner: Welcome from Skip Brass

Welcome to the first issue of the new Penn MSTP newsletter. Our intent is to provide a snapshot on the program that will be of interest to past and future MSTP candidates, as well as to those who are here with us now. The newsletter is student led and, if this issue is an indication, will include the stories of some of our 500+ alumni as well as current events. There is always something going on in the Best MSTP in the Galaxy™ that is worth reporting.

When I sat down to write this brief note, I came across one that we sent out in September 1998, just after Glen Gaulton, the previous program director,



Dr. Bert Shapiro presents Dr. Skip Brass with the Dr. Bert I. Shapiro Award for outstanding contributions to physician-scientist training

with different experiences, backgrounds, and goals.

Sneha: I thought it was a fantastic conference, a really great opportunity to meet with other MD/PhD students from across the country.

They all had very interesting

backgrounds and I made a few friends at the conference that I hope to keep in touch with. I thought Keystone was a beautiful place to have a conference in the summer.

What was your favorite part of the conference?

Chris: My best experiences were from the breakout sessions focusing on skill sets important for MD-PhDs. My favorites were the Intro to Bioinformatics and the Scientific Writing sessions. I also enjoyed the extra opportunity to give a talk.

Sneha: While I thought just meeting other MD/PhD students from diverse backgrounds was the most enlightening

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left to become vice dean of the medical school. That essay was intended for me to introduce myself and I ended it with a comment that is still relevant today: "The heart of this program is all of you who are in it and the folks who have graduated from it. We're here to do 3 things: continue to recruit the best, see that you get the best possible training, and help you on your way to a rewarding career."

Here we are 17 years later and it is still just as true. Welcome to Penn MSTP.

-Skip Brass

tips

Compiled by
Vanessa Dang,
MSTP II

On surviving the first year of medical school:

CD2: First years, once you accept that there's no way to know everything but you'll still be ok, you'll be much happier.

CD2: Take Mod 1 pass/fail. Like actually. If you know you can break 80% on the exams to pass, stop studying. Also read the book for anatomy and study from it, most of the test is covered there.

CD4: Pace yourself. It only gets harder

CD5: Enjoy first year.

CD7: 1st years: don't worry if you hate the classroom part of med school. Being in the clinics is completely different and way better!

CD8: Mod 1 and 2 scores really don't matter (that said, don't fall behind on general concepts). If there's one thing you work hard on during your first 2 years, do really well on Step 1 and the 6 months of clinics.

On picking a lab for your rotation or thesis:

CD4: Pick the lab you like. That sounds stupidly obvious, but it's easy to get caught up in thoughts like "This PI publishes more papers, but this other one has more high-profile papers, and this lab is small but this other one is too big..." In the end, every lab is different from every other lab. It doesn't really matter how big a lab is or how "hands-on vs. hands-off" a PI is, or even what the ongoing projects are. You will direct your own project anyway and you will control its content and quality, to some degree. So just find a lab that you're happy to spend time in and has the resources you need.

CD5: Look for good mentors, not just good statistics. Obviously, the lab has to publish well, but how much time is dedicated to training and mentoring versus traveling, meetings, etc. Do the trainees get opportunities to advance their career? Does the mentor support students whose projects are not going well at the moment?

CD6: I believe two – and only two – things matter in selecting a lab: First, from talking with the potential mentor and current/past trainees, is the mentor an advocate for their trainees? Are the goals of trainees a high priority for them? Second, does your personality mesh with that of your mentor? How fluid are your conversations? Could you feel comfortable enough with them to come with bad news or negative data? Does their level of extroversion match your preferred communication style?

CD8: Pick a lab based on your mentor. I've seen so many people pick the killer labs with amazing publications, but then get burned out so fast and hate science because they did not get along with their PIs. Don't do that to yourself. Science is already hard enough. Pick a mentor who will go to bat for you and who believes in you when you don't believe in yourself. At the end of the day, that helps you preserve your love of learning and science.

On general advice for a scientist-in-training:

CD3: Find smart people and talk to them. Everyone is really nice and wants to teach!

CD6: A life spent trying to impress others is a life wasted.

CD6: Keep perspective of what matters and what doesn't. Your job is to try to become the best scientist you can.

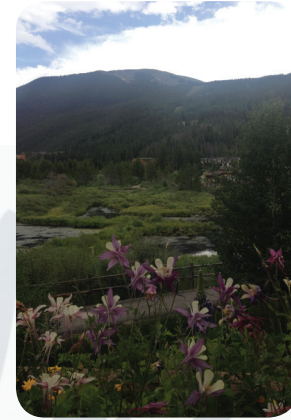
CD7: PIs are people and people can change. Be prepared.

CD8: Work hard – not just long hours, but be efficient: you can do a lot in 8 hours if you work all 8 hours. Work hard even when things aren't working – this is when you need to work harder. Every failure is an opportunity to learn. Don't take it personally.

CD8: Take vacation when you can, have fun, and don't feel guilty about it when you do.

Tips is column made by us for us, completely anonymously. Got questions or advice? Send them to vanessa.dang@uphs.upenn.edu.

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part of the conference, the breakout session on scientific writing was fantastic. The moderator, Larry Schlesinger from Ohio State University, had excellent tips to give - I

would highly recommend any session run by him on this topic! All the keynote speakers were also well-selected and gave very insightful talks on their research.

What did you like least or wish you did differently?

Chris: The worst part was the altitude sickness, which affected me surprisingly strongly!

Sneha: There were relatively few posters and student talks in neuroscience, so the actual science being discussed was less relevant to me. In addition, the days are packed with conference events, leaving little time to explore Keystone. My recommendation would be to skip a few of the conference events and spend time exploring the resort. I would also recommend staying all three nights - the conference runs from Friday through Sunday, but the program only pays for two nights. I wish I had stayed Sunday night at my own expense and finished out the conference - there are plenty of Sunday morning activities that take advantage of the resort, as well as breakout sessions Sunday afternoon.

Would you recommend the conference to other students in the program?

Chris: I would definitely recommend it to other students — it's a great opportunity.

Sneha: I would definitely recommend it to any student in the program, especially those in the PhD years. It's nice if you have a poster or talk to give so you can discuss your research, but I went without either and it was still an informative experience.

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training that you all have now. But still there were uncertainties. I had a young family. My wife and I, the year after we were married, had a daughter when I was a graduate student. And that was a joyous moment in my life but also a great sobering moment because it really did force me to think a little more strategically about my time, direction, and goals career-wise.

What do you wish you had learned extra in graduate school?

When I was a graduate student, there was no molecular biology. In fact, there was a term, molecular biology, that existed – there was a journal, *Molecular Biology*, but it was really what we now called structural biology. So people who had quantitative interests and skills either did biochemistry or biophysics, and everybody else went into biology, which was very descriptive at the time. And then along rolls life into the 80s, and molecular biology as we currently know it becomes a discipline. And what happened from the 80s to the early 2000s – this is my perspective – is that the quantitative skills of people with an interest in biology really dwindled. There wasn't the quantitative rigor that we now appreciate is import-

ant in everything from bioinformatics to systems biology to complex systems analysis. I'm glad to see that that's making a comeback now, but for a different group of people. However, what I regret, if I have any regrets about my education, is that I like math, and I'm good at math, and I wish that I would have done more math and probably even some engineering courses to teach me to think about applied higher math because I'm teaching myself more of that now through collaborations and work with folks who have those skills as applied mathematicians, engineers and physicists. [Math] is so critical to understanding biological systems going forward, I would say that every life sciences graduate student should have some fundamental skills in the quantitative side. I'm not just talking about using computer programs to read linear sequence comparisons or that type of thing, I'm talking about skills that include something very standard, such as everyone should learn MATLAB or its equivalent. Everyone should learn how to model complex dynamic systems, because almost every biological question will have a cause to bring that kind of skill into focus if you think about the system long enough. So that's my only regret. I'm trying to make up for it

now, but my left brain doesn't work as well as it did when I was 25.

Could you walk us through a day in the life?

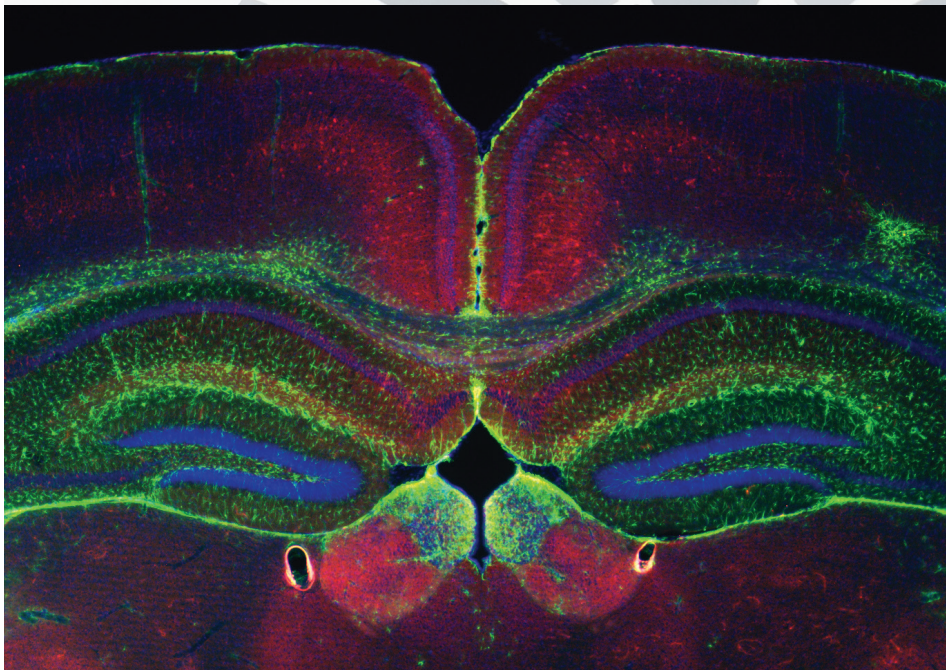
Sure. I get up around 4, get to work around 5 or so, usually have two to three hours of quiet time where I write and read, and then begin my administrative role as department chair. The meetings can range widely in their focus, from career advice to critical administrative issues in the department or the hospital or the network of partners. Then, almost every day, I go to my lab in the afternoon, spend three or four hours there, usually meeting with individual post-docs and graduate students on a daily basis. Sometimes there is only a few minutes of conversation necessary, other times it might be a couple of hours with a person. Then I come back to the hospital side in the late afternoon, finish up with other meetings going until 6 or 7. When I'm on clinical service, the schedule obviously changes. I get back home around 7:30 or so, have dinner with my wife, talk for a while, read for a while and then usually go to bed around 11 or so.

So you get 5 hours of sleep per night?

Sleep is overrated.

Scientific Photo Contest Winner!

Congratulations to David Tischfield, MSTP VI



Neurons and astrocytes of the adult mouse forebrain

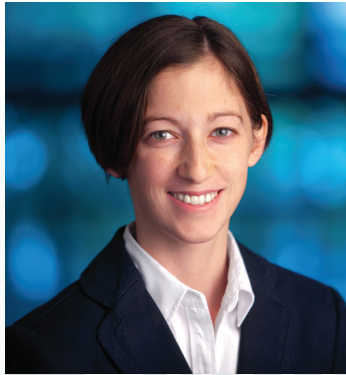
A Bit of History...

We previously thought that the best MSTP in the galaxy™ was founded back in 1969, but it turns out the program was actually developed a decade earlier. One of the earliest alums, Dr. Frank Stockdale, got in touch with the MSTP office to let us know there were several students enrolled in the program several years before the currently listed founding date. Intensive research by alumni specialist Amy Nothelfer and Maggie Krall found some documents stating the founding year to be 1958. The MSTP office is in the process of updating our records and hunting down our oldest alumni. Meanwhile, the question on everyone's mind is: when are we having the next anniversary celebration?

Faculty Spotlight: Danielle Bassett, PhD

by Sheng Tang, MSTP IV

When she was a year and a half into a nursing degree, Danielle Bassett decided that patient care was not for her. Instead, she decided to study a subject she had gravitated toward for much of her early life: physics. The next eight years saw her pursue and obtain both an undergraduate degree from Penn State and a PhD in physics from Cambridge. After a brief postdoctoral fellowship at UC Santa Barbara, she was recruited to start her own lab at Penn to apply her expertise in physics to questions in neuroscience and human health.



Despite her foray into theoretical physics, Dr Bassett never lost her interest in neuroscience and human health. In fact, it was during graduate school when she realized the potential of modern physics and mathematics to model the complexities of the human nervous system. For her, the turning point came when she was exposed to complex systems, a field that studies how the behavior of large systems arises from the connectivity and interactions of individual components. In contrast to finer scale approaches towards mapping the brain that examine single cells or microcircuits, this approach seeks

to discover interactions between entire brain regions and long distance connectivity patterns. Dr. Bassett, however, hopes to take this approach even further, to use technologies such as TMS to introduce small perturbations in brain activity and test how the brain responds. Such approaches, she believes, carry the potential to explain fundamental

relations between brain areas involved in sensation, emotion, cognition, and movement, and how such relations are altered in disease.

The flurry of recent awards Dr. Bassett has received include the 2014 MacArthur Foundation Fellowship, the 2014 Sloan Foundation Fellowship, and the 2015 IEEE EMBS Academic Early Career Achievement Award. Her recent publications have been found in journals such as PNAS, Nature Neuroscience, and Neuron.

In addition to being a prolific scientist, Dr Bassett is a mother of two. When asked about her secrets to maintaining a work-life balance, she said that “efficiency” was the key. By allotting herself a fixed number of hours per day for specific tasks, she manages to remain both a productive scientist and loving parent.

Announcements

Compiled by Alice Ford, MSTP VI

To date in 2015, Penn MSTP students have authored more than **70 scientific publications** and been awarded a total of **18 fellowships** from the National Institutes of Health, the Howard Hughes Medical Institute and the Dennis and Phyllis Washington Foundation.

BGS 30th Anniversary Celebration

On October 8-10, 2015 there will be a weekend of festivities to celebrate the 30th anniversary of Biomedical Graduate Studies (BGS) at Penn. The itinerary includes keynote scientific talks by internal and external faculty speakers, BGS student research talks and poster presentations, BGS alumni career panels, and opportunities to speak directly with alumni at a career fair. There will be ample opportunity for socializing and networking at reunions for each graduate group held on Thursday night and evening receptions for all attendees on Friday and Saturday. Find more information at bgs30th.com!

A Special Thanks...

We would like to say a very special thank you to Maureen Kirsch, who will be leaving us after seven years of working in the MSTP office. We want to congratulate her on her new job as coordinator of the Genomics and Computational Biology graduate group. Maureen, you will be sorely missed by everyone in the program, but we wish you best of luck in your new endeavors!

WedMD: MSTP Students Tie the Knot

by Alice Ford, MSTP VI *Thank you to Alexis Roy for the title of this column!*

Seventh year MD/PhD student **Nora Becker** married political consultant Corey Dukes on August 1, 2015 in the atrium of the Jordan Medical Education Center. The bride and groom met while both working full time on the Obama campaign in 2008, and their wedding marked the seventh anniversary of their first date. Nora is originally from Chicago, IL and studied at Pomona College in Claremont, CA, while Corey grew up

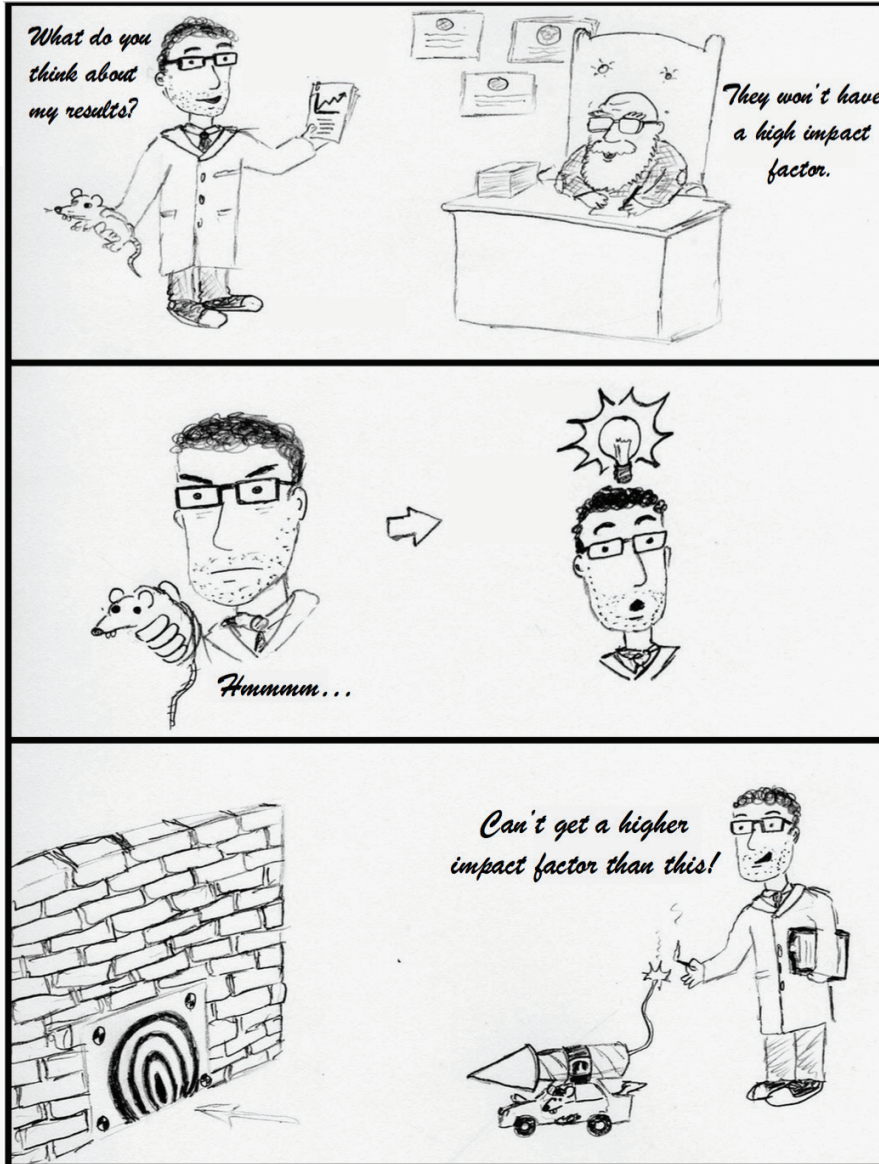
in Kansas City, MO and completed his undergraduate education at Kansas State University in Manhattan, KS.



Will Namwoo Cho, a seventh year MD/PhD student originally from Vancouver, Canada, married Eunji Kim, a bioinformatician from Deagu, Korea, on May 30, 2015. Will received his undergraduate degree from Harvard University and Eunji studied at Smith College. The two met at Penn's Korean tennis club and have been together for four years. Their wedding was held in Korea, and their honeymoon included the French Open

tennis finals where they received an extra wedding present—an autograph from Novak Djokovic!





About *The Thistle*

You may be wondering 'Why *The Thistle*?' The thistle is the center of the Perelman School of Medicine seal as an homage to its founder John Morgan. Dr. Morgan was Scottish, and the thistle is the national flower of Scotland. The thistle is also a symbol of resilience, as thistles can survive in difficult conditions. Thus, this thorny but beautiful flower seemed an appropriate namesake for our MSTP newsletter.

The Thistle Newsletter Committee
Vanessa Dang, Samir Devalaraja, Alice Ford, Sohaib Hashmi, Jon Lang, Emma Lewis, Jessica Liu, Jing Luan, Sneha Narasimhan, Andrew Rech, Ethan Soloman, Sheng Tang, Krishna Vijayendran

Special thanks to:

- Sneha, Editor-in-Chief
- Andrew, Chief Copy-Editor
- Emma, Layout & Design Editor

Have any questions? Contact Sneha at snehan@upenn.edu

Please send us your updates and life events! We want to expand beyond weddings.
Email forda@mail.med.upenn.edu

Welcome Incoming MSTP Class of 2015!



<< Top Left to Bottom Right (Undergrad Institution): Jonathan Peterson (Univ of Wisconsin), Kevin Goff (Haverford), Juan Serrano (Univ of Florida), Ziyang Xu (Northwestern), Joseph Aicher (Univ of Alabama), David Lee (Haverford), David Kersen (Harvard), Connie Jiang (UPenn), Divyansh Agarwal (Yale), Aaron Williams (Stanford), Natalie Gong (Duke), Tong Wang (Univ of Wisconsin), Eli Cornblath (Univ of Michigan), Eric Sherman (Swarthmore), Daniel Zhang (MIT), Aileen Ren (WashU), Nicolette Johnson (Univ of Iowa), Sai Phyo (St. John's Univ), Eric Sanford (Brown), Joseph Park (Harvard), Bridget Gosis (Harvard), Maria Diaz-Ortiz (Georgia Tech), Jenny Wei (MIT), Alex Chen (Cornell)