The US STEM Initiative: Is It Worth It?
By Chandrani Mondal

An educational priority of the United States in recent years has been to increase awareness of careers in science, technology, engineering, and mathematics, collectively known as STEM. Among the industrialized nations, the US ranks 22nd in the sciences and 29th in mathematics, and many students in the US are not pursuing STEM fields altogether. The US Department of Education attributes this to an inadequate pipeline of trained teachers, and plans to increase federal investment into “1) improving STEM instruction in preschool through 12th grade; 2) increasing and sustaining public and youth engagement with STEM; 3) improving the STEM experience for undergraduate students; 4) better serving groups historically underrepresented in STEM fields; and 5) designing graduate education for tomorrow’s STEM workforce.”

While US investment into increasing the STEM workforce is a noble cause, a recent article in the New York Times outlined the actual job opportunity and availability in STEM fields. For example, in the life sciences, there were 183,000 graduates in 2015-2016, including bachelor, master, and PhD degrees. In contrast, the projected number of annualized job openings (from 2014-2024) in the life sciences was only a mere 12,000. In fact, the number of graduates also outpaced the number of job openings in engineering, the physical sciences, and mathematics; computer science was the only exception, where the numbers were comparable.

Many scientists who are already in the STEM fields are starting to look for additional training in order to work outside of research and traditional STEM industries. Data science is a rapidly growing field, and training like the Insight Data Science Fellows Program has provided opportunities for many scientists to transition more smoothly into data analyst positions. Academia is starting to take notice, and UC Berkeley has just created a new division of data science. Their “Foundations of Data Science” class attracted nearly 1200 students last year from across 50 disciplines.

So what about the young students who are being encouraged to engage in STEM education? How can they be convinced that this is a lucrative career path, with many options moving forward? As STEM disciplines are constantly changing, the curriculum must evolve to reflect this - from the early education levels all the way through graduate study. Professionals in the evolving fields need to bring their newfound knowledge to schools and universities, so that students are aware of the possibilities out there and they can receive additional training to be more career-ready.

On a more fundamental level, we must teach students that the skills they gain from STEM education may not translate linearly into a job, but rather a way of thinking. As former President Barack Obama stated in 2015, “[Science] is more than a school subject, or the periodic table, or the properties of waves. It is an approach to the world, a critical way to understand and explore and engage with the world, and then have the capacity to change that world…” If this concept can be imparted on young students, then perhaps, they will have all the tools necessary to shift into any career, regardless of the job market, and will be more willing to give STEM disciplines a chance.

References:
Greetings fellow postdocs,

Winter seems to finally be knocking at our doors with its customary deal of pumpkin-on-everything goodies, WHAM! Songs, and sparkling lights. It’s also holiday season which can be a joyful as well as overwhelming time. In this regard, I am very proud of our community for stepping up and helping people in countries where this year’s holiday time might be more challenging than ever. I want to thank everyone who participated and donated at the “Fundraiser for Puerto Rico and Mexico”. We managed to collect a total of $1352.50 that was shared between the organizations Project Paz (Mexico) and Ricky Martin Foundation (Puerto Rico). We hope that our contributions will help the recovery efforts in both countries. Remember, you can still donate directly on the charities’ websites!

Some of you may remember that in early 2017, members of the Postdoc Executive Committee (PEC) sat on the Dean’s Mental Health Task Force to improve Mental Health Services, Well-Being and Resilience, and Academic Culture at ISMMS. We are happy to share with you that after some months we are finally seeing some changes and progress in the quality and number of services that are now available to the postdoc community. The Trainee Health and Wellness Committee (THAW) is a very active and driven group of students and postdocs who have implemented a peer mentoring program, monthly mixers, and mental health service advocacy (https://webcommons.mssm.edu/thaw/). The IcahnBeWell, in conjunction with the Levy Library, now provides a resource guide with reading lists, podcasts, apps, and videos (http://libguides.mssm.edu/bewell/resources). The Mistreatment Resource Panel continues to be an invaluable resource where trainees can seek advice on issues regarding possible mistreatment in the educational arena (https://webcommons.mssm.edu/mistreatmentresourcepanel/).

Student-Trainee Mental Health services is finally being expanded to accommodate more students and postdocs. An initial appointment with a psychologist or psychiatrist can be requested by sending an email that briefly describes the reason for the request to the following address: STMH@mssm.edu. Finally, the Ombuds Office can provide a confidential resource for advising. You can visit http://icahn.mssm.edu/about/ombuds-office for more information and to schedule an appointment.

Take care of yourself during this holiday time! It is understandable to get a bit homesick and overwhelmed, and even if our family or holiday traditions might seem far we should remind ourselves to spend some quality time with friends, to relax a bit, and maybe grab that extra bite of pumpkin chocolate (I am sure it is a thing).

Happy holiday season,

Nicholas

Agata Kurowski and Nicholas Barbieri are your PEC co-chairs

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**Alternative Careers in Sciences: Interview with Mount Sinai Postdoc Alumna, Nina Linde, PhD**

By Agata Kurowski

Dr. Nina Linde is a former Mount Sinai postdoc and Postdoc Executive Committee (PEC) member. She received her degrees in Germany - a PhD in Biology from the University of Heidelberg and a Diploma in Biology from the University of Bremen. After her postdoc at Mount Sinai, Dr. Linde moved back to Germany and is currently the head of an oncology laboratory (R&D Healthcare) at Merck KGaA in Darmstadt. Merck KGaA has about 50,000 employees worldwide and is not to be confused with MSD operating as Merck in the US and Canada. I spoke with Dr. Linde to discuss her current position and the journey she took to get there.

**Can you give us a brief description of your current position?**

As an in vivo pharmacology lab head, I plan and supervise in vivo studies to help develop new drug candidates. I represent in vivo pharmacology but also the overall biological rationale in multi-disciplinary drug development project teams.

**Did you have any jobs between this one and your postdoc?**

No

**How many years of postdoc, or other work experience, did you have before your current job?**

A bit over 4 years of postdoc experience

**What did you learn during your PhD/postdoc that is most helpful to you in your current position?**

Scientific rigor, resilience, and the ability to communicate ideas and results.

**What was the most important event or factor that contributed to your transition into an alternative career outside academia?**

I have always been motivated by great science and was particularly inspired by its translation into medical progress. Switching to pharma R&D therefore seemed like a logical move but I had some reservations about how science-driven it would be. Conversations with people who had made the transition from academia to pharma gave me confidence that this would be the right step for me as well.

**What, if anything, do you miss about being a postdoc?**

I am very happy in my new role and certain I made the right decision. However, I sometimes miss the academic freedom and regular discussions with my postdoc mentor, Dr. Julio Aguirre-Ghiso, and the other lab members.

**What do you wish you had known before accepting your current position?**

I have experienced the transition as surprisingly smooth. If anything, I wish I had known sooner that people working in R&D in pharma are scientists who love what they do as much as academic scientists. This might have made the decision to switch a little easier.

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*Continued on page 3...*
Approximately how many hours do you work per week?
Approximately 40 h/ week

How many hours a week do you spend in meetings?
Around 15-20 h/ week

How frequently do you work in the evenings and/or on the weekends?
I have made it a habit to check my emails in the evenings and on weekends, which is easy since I got a designated work phone when I started. Other than that, evening and weekend work is rare.

On a scale of 1-10 (1=low, 10=high), how much autonomy do you have in your current position? What are the restrictions, if any?
If autonomy is defined in a scientific sense, I think in academia the biggest bottleneck to pursue your scientific ideas is securing funding and scientific progress is severely hampered by it – especially these days. In pharma R&D, the biggest constraint seems to be the question of profitability: will this work have the potential to develop into a marketable drug? Within those constraints, pharma has much better technical possibilities and resources compared to academia. Progress is therefore made much faster and is much more efficient. So overall: 7

Does your position require that you travel?
Not really. I am encouraged to attend one to two conferences per year and there might be additional meetings with collaborators or visits to our Boston site. Trips usually take two to four days.

Do you work with other people and/or in a team?
One of the biggest differences to my postdoc is that everything here at Merck is based on teamwork – a fact that I enjoy a lot. As a lab head in in vivo pharmacology, I plan and discuss experiments with my technician and align and discuss with my manager and other lab heads in our department; as an in vivo representative, I discuss the project strategy and present data to other scientists such as cell biologists, biochemists, and medical chemists; as a project team leader, I am responsible for project management and representation of the team work.

How did you learn to do your job?
Initially, I received an introductory plan and attended a few seminars to learn about regulatory requirements. I also took several e-learning classes and got helpful literature from colleagues. But for the most part, I learned on the fly and through discussions with my colleagues who have all been extremely welcoming and supportive.

Is a PhD necessary to apply for this type of positions?
Yes

Is it valued to have a PhD in your current position?
Yes

Is previous postdoc experience valued to apply for this type of positions? Is it required? If so, how many years?
Yes. My impression is that in order to enter as a lab head, people seem to have at least 3 years of postdoc experience. But overall it always depends on your expertise in the area you are applying.

Did your PhD/postdoc research focus matter to get this position?
The scientific expertise and knowledge of methodologies probably mattered more than my specific area of research. Merck has the philosophy to hire by potential to grow rather than to find someone who already knows their new tasks already. Given the flexibility R&D brings with it, I think this makes a lot of sense.

Was your publication record important towards getting this position?
I don't think it was a deciding factor. To have some publications is key but overall the focus on impact factor that you experience in academia doesn't apply – at least at Merck KGaA.

Ways to keep in touch
- Our website: http://icahn.mssm.edu/education/postdoctoral-training
- Follow our Twitter account: @MtSinaiPostdocs
- Join our Facebook page: “ISMMS Postdoc Executive Committee”
- Follow us on LinkedIn: Mount Sinai Postdocs and Postdoc Alumni
- Trainee Mistreatment Resource Panel: http://web-commons.mssm.edu/mistreatmentresourcepanel/

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Dr. Nina Linde, PhD...continued from page 2