

# 12th Annual NIH Career Symposium

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## Newsletter

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## 12TH ANNUAL CAREER SYMPOSIUM 2019

As science trainees we are taught to carefully imagine and plan for all the potential outcomes of a given experiment. This skill comes with experience but is most quickly realized by emulating the lessons offered by our advisors, mentors, and colleagues. As we conduct experiments in the lab and in the clinic, we are gathering data about our personal likes and dislikes, successes and failures, limitations and resources, trying to predict how it will shape our future.

In the spirit of this type of experiential learning, the NIH Office of Intramural Training and Education hosted the 12th annual Career Symposium on May 10th, 2019. The purpose of the symposium is to gather curious intramural and extramural early-career scientists and doctoral candidates in the same room with professionals generously willing to recount their experiences. Hoping to encourage trainees along whatever path they find most suitable, the panels represented opportunities from academia and industry, education and outreach, to government and policy. Some panelists are alumni, other are connected to the NIH committee through other ties, but all graciously contributed their stories as a learning opportunity for career-curious symposium attendees.

To capture the advice and insights heard at the symposium, we enlisted a group of volunteer writers to attend and summarize their takeaways from each panel. We hope the content of these write-ups provides useful information to readers seeking to envision their next career step.

*Allison Dennis is a Predoctoral Candidate at NICHD in the Johns Hopkins Graduate Partnership Program with NIH. She is currently developing novel sequencing techniques to understand how chromatin structure influences gene expression. After completing her PhD work, Allison hopes to improve the health of the Nation by contributing to positive changes in science policy.*

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# INDUSTRY CAREERS

## Industry R&D Overview

By Kathleen Bashant Day

### Panelists:

- ▶ Todd Davidson, PhD      *Scientist II, MedImmune*
- ▶ Adam Fogel, PhD        *Senior Scientist, Scholar Rock*
- ▶ Shari Gordon, PhD      *Scientific Leader, ViiV Healthcare*
- ▶ Liat Izhak, PhD         *Director, Biomarker and Clinical Scientist, Johnson & Johnson*
- ▶ Sandeep Kumar, PhD    *Senior Research Fellow –  
Biotherapeutics, Boehringer Ingelheim Pharmaceutical Inc. USA*

“The pipettes are the same, the flow cytometers are the same, the centrifuges are the same. What is industry like? It’s just like your lab. Really the same.” Dr. Davidson drove home a key point of this panel; many industry jobs resemble your current day-to-day as a graduate student or post-doc. Although industry requires many employees working in tandem along the product development pipeline, drug discovery is the natural point of transition for many trainees at the bench. The initial stages of drug discovery mirror many academic research labs; their goal is to identify strategies to prevent or treat disease. Several members of the panel began their careers in drug discovery, then transitioned to new jobs as they developed new skills and interests.

The wide range of industry careers beyond bench research was illustrated by the panelists, who are employed across the multi-stage industry development pipeline. Dr. Fogel manages target molecules identified in drug discovery, a position requiring scientific logic and relationship management. Specifically, he collaborates with subject area specialists to analyze identified target molecules, and he communicates key information to stakeholder managers who make the company’s financial decisions. Dr. Gordon manages a team of scientists conducting early stage drug discovery research and ensures the clinical team understands the pre-clinical research. Because she manages several projects, strong multi-tasking and time management skills are critical. Dr. Izhak works even more closely with the clinical team, assisting with the development of clinical trials. The panel stressed that job transition and advancement within industry depends largely on your drive and interest in taking on a new role. Some companies host development days, during which employees are encouraged to shadow a new position. All panelists agreed that it is very common for companies to hire internally. As such, if your first offer isn’t your dream job, it can still offer a pathway for transition and promotion within the company. Dr. Izhak took this approach and was offered a new position within eight months of her initial hire. Today, she has held three different roles in the last four years.

Clearly your job title can change rapidly, and your research aims will adapt quickly as well. Flexibility is key, as the panelists stressed “things will change; what you go into is not what you’ll be doing in a couple of months.” Unlike academia, industry research is concerned with answering a given question and moving forwards. Panelists change projects rapidly; development targets are constantly being assessed and deemed to have potential or discarded. However, if you enjoy a fast-paced environment founded on teamwork and focused on conducting research that will have a direct and tangible impact on human health, then an industry career could be perfect for you.

Ready to start applying? Understanding your entire skillset, demonstrating your ability to work with different teams, and displaying a sense of comfort with the restructuring of roles and projects will help you make the transition from an academic to industry lab. However, the key to landing a job in industry is networking; all five

panelists landed their positions through colleagues, conversations at scientific meetings, or similar contacts. So, introduce yourself to the industry scientists at your next conference or begin conducting informational interviews and cultivating your network on LinkedIn.

*Kathleen Bashant Day is a third year PhD student in the NIH-Cambridge Scholars program. She splits her time between NIAMS and the Department of Medicine at the University of Cambridge. Her thesis research explores the intersection of neutrophil biophysical properties and immune function in the context of systemic lupus erythematosus.*



## Industry: Discovery Phase R&D

by Jennifer Casiano-Matos

### Panelists:

- ▶ Marc Bailly, PhD *Associate Principal Scientist, Merck Pharmaceuticals*
- ▶ Kim Decker, PhD *Chief Scientific Officer, Cell Systems*
- ▶ John Eicher, PhD *Senior Scientist, Merck Research Laboratory*
- ▶ Arielle Glatman Zaretsky, PhD *Scientist, Regeneron*
- ▶ Christina Oliverias, PhD *Sr. Research Associate, Product Development, PGDx*

Have you ever asked yourself how your responsibilities in industry might differ compared with academia? What skills do you need for a position in the Discovery phase? We explored the Discovery Section of Research and Development in Industry with a group of scientists composed by Marc Bailly, PhD., Associate Principal Scientist at Merck Pharmaceuticals; Kim Decker, PhD., Chief Scientific Officer at Cell Systems; John Eicher, PhD., Senior Scientist at Merck Research Laboratory; Arielle Glatman Zaretsky, PhD., Scientist at Regeneron; and Christina Oliverias, PhD., Sr. Research Associate, Product Development, Personal Genome Diagnostics. This panel discussed with the audience their experiences working in the drug discovery phase and how they transitioned from academia to industry.

One of the biggest hurdles in the discovery phase is having the ability to switch gears and move to another project quickly and efficiently. Bailly mentioned that you shouldn't attach too much to a project because sometimes they change fast. The key to being successful in this aspect is having a good basic science background that will allow you to incorporate assays and push your project forward quickly. A good background is demonstrated when you are able to understand what your coworkers do when they are not related to your area of expertise. Demonstrating a good background, flexibility, and that you can change gears quickly can translate into job security.

Decker mentioned that being the CSO from a small company made her nervous about job security. However, being able to demonstrate that you know your science and your worth in the company adds up to job security. You can always add value by learning new technologies and incorporating them into your projects. Many companies cover professional development and most of the time you only have to justify the need and application. As a recommendation Dr. Bailly said; "You just have to decide what do you want to learn and need".

If you are applying, what techniques are valuable for industry? The answer is all of them, but being able to work as a team is highly valuable. Your talent is always needed somewhere, and your learning curve never ends. Every company needs you; demonstrate your talent and your worth. "You don't have to check all the boxes, you just have to think outside of the box and show that you have the skillset needed and why you understand that you are the right candidate", Glatman said. You have to sit and analyze your skillset and think on how you demonstrate that you have the skillset needed. Oliverias agreed that sometimes you don't realize that you already have the skills needed to be in the discovery phase.

All of them agreed that the Discovery section is the easiest way to transition from academia to industry since most of the time you will be working at the bench. At the beginning of a project, this can be 80% of your time. As the project progresses, you will transition to 50% bench and 50% desk. Glatman compared her position with a Principle Investigator, where you have a role planning experiments, reading articles and providing directions to the group that you are supervising. However, you will have a better work-life balance than academia since companies pay attention to families, personal development, etc.

How projects get funded in industry? It varies, for big companies usually there is no limit as long as they are happy with the results or there is a justification. Securing funding for your projects is rarely an issue. New ideas start by talking to your supervisor and presenting your aims. Remember that great ideas always start from the ground up. Products in industry can come from collaboration or from the scientists at the company. However, when you are in a small company like Cell Systems you can receive a “No” for an answer and then it’s your job to convince managers and investors in the company of your project’s potential. This can be translated to more stress and pressure to get results and move a project forward. You need to learn how to prioritize funding and projects. Thinking that everything is a priority can be a huge problem and can lead to a lack of prioritization.

Demonstrating leadership and the ability to move projects forward can help you move from a scientist to an executive. If your interest is moving to a higher position, moving to the next to higher role with a different company can be beneficial. If you stay in the same company, update your resume every two to three years and keep applying for a better position.

As a final recommendation, the panelists mentioned that during an interview you should ask similar questions like the ones asked at the Career Symposium. This way you can have a good scope on what to expect in the company. It is important to do what makes you happy and listen to your inner voice to reach your goals and career development.

*Jennifer Casiano-Matos is a Predoctoral Candidate at NIAID/NIH, her research focuses on elucidating Hepatitis C virus glycoprotein structure, activity and host proteins interactions. Currently, she is a writer and editor for the iJOBS Program at Rutgers University, and is aiming to secure a leadership position in the industry sector.*



## Industry: Development Phase R&D

by Jennifer Casiano-Matos

### Panelists:

- ▶ Tura Camilli, PhD                      *Director Regulatory Affairs, Amgen*
- ▶ Sujoy Lahiri, PhD                      *Scientist III, R&D Cell Biology, Thermo Fisher Scientific*
- ▶ Vijay More, PhD                      *Scientist II Non-Clinical Development, Celgene*
- ▶ William Proctor, PhD                      *Associate Director/Senior Scientist, Genentech, Inc.*

Discovering a new drug is an exciting process, however, the hard part comes in the development phase when quality control and manufacturing of the new drug takes place. The panel explored the development phase in industry with a group of scientists composed by Tura Camilli, PhD., Director Regulatory Affairs at Amgen; Sujoy Lahiri, PhD., Scientist III, R&D Cell Biology at Thermo Fisher Scientific, Vijay More, PhD., Scientist II Non-Clinical Development at Celgene and William Proctor, PhD., Associate Director/Senior Scientist at Genentech, Inc. The panelists discussed what experiences are needed to get a job in the development section of industry and the challenges and benefits of being part of this group.

The formula for entering industry was made clear by the panel. Have you ever pondered the position you want to be holding in a couple years? Think about it and analyze what you need to get to it. Work from the future to the present and create a list of the skills and experiences needed to get there. When asked what is more important, research experience or industry experience, panelists agreed that what matters most is not necessarily your experience so much as your publication record and the ability to demonstrate your skillset. Having postdoctoral training is preferred in most research-based industry positions. If you are certain that your career path goes towards industry, start applying during year one and two of your postdoc, or as soon as you have publishable data. Long postdocs can be perceived as signaling a lack of ambition or confidence in taking the next step. The key is minimizing the time spent as a postdoc, while maximizing the publications you will have to show for your experience.

If you are looking for transferable skills, team work is key. Hirers look for candidates who can speak the scientific language and understand group members even when it is outside of their field. Think about how your research impacts translational research and understand the importance of it. Present yourself as a person who is constantly growing and demonstrate your ambition.

The panelists illustrated their day-to-day roles, all agreeing that boredom and getting stuck on repetitive tasks don't exist! The consensus among panelists was that they had never been bored and that every day is different. Some tasks need to be repeated, but patience and looking for success can help you stay productive. Dr. Camilli highlighted her unique role in Regulatory Affairs. Although regulatory affairs divisions have employees with a scientific and a regulatory background, they prefer to hire those with a scientific background. It is easier and faster to learn regulation than your valuable scientific expertise. As for challenges, Dr. Camilli mentioned that one of the hardest things of her day-to-day are remote conferences and collaborating with people that she rarely sees in person. Dr. Proctor said that managing many things at the same time and working towards having a good work life balance is the hardest. He stressed that it is very rewarding when you can see the applicability of your hard work. Creating a timeline and following deadlines is crucial.

At the end, the panelists shared the importance of networking when looking for a job. It is helpful to have an internal referral when you are competing against 150+ applicants. NEVER ask a stranger. Ask someone that you know or at least you have talked in the company. Build a network and follow up every six months. Be ready at conferences and symposiums to exchange information. Many hiring managers look to conferences when seeking possible candidates. It's always a good time to start applying for jobs and looking for a prospective change. There is no such thing as too early if you are the right candidate. Tailor your resume to fit each position you apply to and apply to as many as you wish.

*Jennifer Casiano-Matos is a Predoctoral Candidate at NIAID/NIH, her research focuses on elucidating Hepatitis C virus glycoprotein structure, activity and host proteins interactions. Currently, she is a writer and editor for the iJOBS Program at Rutgers University, and is aiming to secure a leadership position in the industry sector.*



## Non-Bench Industry Careers

by Meg Goswami

### Panelists:

- ▶ Fatima Jones, PhD *Senior Study Director, Laboratory Specialist, Westat*
- ▶ Elayne Provost, PhD *Bioscience Sales Specialist, Nikon Instruments, Inc.*
- ▶ Benoit Renvoise, PhD *Global Project Manager II, Roche*
- ▶ Lorraine Tracey, PhD *Medical Science Liaison, Kiadis Pharma*

There are many industry careers outside research and development, and such jobs can range from sales to project management, regulatory affairs to medical liaisons. The four panelists representing non-bench industry careers offered insights into the nature of these positions, indispensable skills they require, and considerations to keep in mind should you be thinking about exploring industry careers away from the bench.

Dr. Fatima Jones, as a Senior Study Director and Laboratory Specialist at Westat, primarily builds capacity in clinical and non-clinical laboratories. Dr. Elayne Provost, as a Bioscience Sales Specialist at Nikon Instruments, manages sales of Nikon instrumentation at the NIH. In his role as a Global Project Manager II at Roche, Dr. Benoit Renvoise is integral to supporting teams at his company in all regards, from basic science to marketing to legal matters. Dr. Lorraine Tracey is a Medical Science Liaison for the East Coast at Kiadis Pharma, where she works with stakeholders both inside and outside her company.

Though diverse in their official capacities, all four panelists reiterated that each work day is different and depends on the position within the company and the project assignment. For example, on any given day there may be any combination of customer support and client interaction, account development, overseeing budgets, or working with internal project teams and or external stakeholders. Many of the panelists travel regularly for their positions, and many non-bench industry positions require a degree of travel based on the geography of the accounts managed or the external stakeholders. Conversely, all the panelists also have opportunities to work from home for some part of the workweek.

The panelists fielded many questions from the audience about what makes an applicant competitive for a non-bench industry position. Dr. Tracey stressed that “project managers are relationship managers,” and her role as a medical science liaison means she has to build and maintain relationships with everyone associated with her pharmaceutical company. Dr. Renvoise added that “process, you can learn. The ability to build relationships you need going into the job.” The panelists strongly emphasized that you have to be honest with yourself and be critical about your skills so that you can best convey yourself; as Dr. Jones succinctly stated, “You need to demonstrate that because of the skillset you do have, you should be someone they consider!”

But where did the panelists learn relationship management skills? A lot of those skills came from their postdoc years. Dr. Tracey reflected that while a postdoc was not an absolute prerequisite for her job, her postdoc led to greater maturity in her scientific thinking. Dr. Renvoise and Dr. Jones said postdocs can give you maturity for project management and can be opportunities to gain necessary skills and experiences for project management without pursuing extra certification. One skill Dr. Provost learned during her postdoc that translated well into her non-bench industry position was the ability to mediate relationships in a hierarchical environment.

All panelists offered up actionable exercises to make an applicant more competitive. Have a conversation with someone who already has a job you want, as they may direct you to resources and have more information for you. Dr. Tracey asked, “What do you want the interviewer to learn about you? Put it on the first page.” Dr. Jones also suggests that you “pretend you’re not yourself and review your resume – would you invite yourself to this job interview?” All the panelists agreed that once you understand what drives you and what keeps you motivated, you can then find the opportunities and the careers that let you do those things.

*Meg Goswami is a graduate student in the Laboratory of Myeloid Malignancies in NHLBI, as part of the Graduate Partnerships Program with George Washington University. She is interested in the prevention and treatment of cancer relapse, and her current research focuses on immunological changes induced by treatment with an anti-PD1 immune checkpoint inhibitor in patients with relapsed acute myeloid leukemia.*





# CAREERS AWAY FROM THE BENCH

## Careers in Science Administration

by Meg Goswami

### Panelists:

- ▶ Juan Crespo-Barreto, PhD      *Toxicologist, FDA/CTP*
- ▶ Dario Dieguez, Jr., PhD      *Science Officer, Congressionally Directed Medical Research Programs*
- ▶ Lucie Low, PhD      *Scientific Program Manager, NIH/NCATS*
- ▶ Julie Nadel, PhD      *Senior Program Manager, Johns Hopkins University*

The Science Administration panelists represented a diverse range of professional responsibilities spanning from academic institutions to government. A sentiment shared by all was the desire to be involved in science but without the grind of life in a laboratory. As the panelists detailed their career experiences, it was clear that their paths had occupational twists, but open-mindedness and maneuverability was central to their current positions in science administration.

As a Senior Program Manager at Johns Hopkins University, Dr. Julie Nadel is responsible for graduate education across the university and works to create good environments that foster success. Dr. Lucie Low is a Scientific Program Manager at NCATS, where she designs the external funding environment for grantees across the US, solicits and guides applications, and works with applicants after they've been awarded a grant. Dr. Dario Dieguez is a Science Officer for Congressionally Directed Medical Research Programs (part of the Department of Defense). Dr. Dieguez is in charge of grants for multiple sclerosis research and oversees all post-award events. As a Toxicologist at the FDA, Dr. Juan Crespo-Barreto's main function is to serve as a scientific reviewer on tobacco products at the Center for Tobacco Products.

A recurrent topic in all panelists' accounts of their career paths and audience questions was the necessity of a post-doctoral fellowship if you're interested in science administration. Drs. Low, Dieguez, and Crespo-Barreto all completed post-doctoral fellowships; Dr. Nadel did a Genetics Education and Engagement fellowship through ASHG and NHGRI. It was during those fellowship years that all the panelists realized or confirmed that they did not want to continue research careers in the laboratory and instead pursued careers in science administration, education, programming, or regulation. The panelists agreed that postdoc years can be a great time to take advantage of learning opportunities like details in extramural programs or classes that allow you to develop new skills. Being a professional mentee is great for expanding your network giving you access to opportunities that you might not otherwise have access to.

The speakers emphasized that if you're interested in a career away from the bench and in science administration, whether you're a graduate student or a post-doctoral fellow, you should tap into available resources and programming as a first step to diversify what you know about possible career paths. Transferrable skills like managing a diverse group of people and conflict management demonstrate that you can be a professional worker who can interact with individuals from all realms, not just science. Management Bootcamp, OITE resources, and FAES classes can all help you develop these professional skills and can be proof of your interest, experience, and acumen. The panelists all strongly concurred that a critical skill for science administration is the ability to write. Not technical writing, but plain English writing. The importance of writing cannot be emphasized enough, as the ability to convey highly complex technical information into something a layperson can understand is an incredibly valuable skill.

And remember, you have more experience than you may realize – presentations to your lab and your department, organizing your research, project management in the lab, mentoring students and fellows,

managing collaborations – these are all instances of your skills in action! Don't undersell yourself and don't pass over job opportunities because you don't think you're an expert in that field. Through their post-doctoral experiences and the willingness to move between and learn about new fields in science, the panelists all found satisfying careers in science administration that enabled them to stay close to the science without having to be close to the lab.

*Meg Goswami is a graduate student in the Laboratory of Myeloid Malignancies in NHLBI, as part of the Graduate Partnerships Program with George Washington University. She is interested in the prevention and treatment of cancer relapse, and her current research focuses on immunological changes induced by treatment with an anti-PD1 immune checkpoint inhibitor in patients with relapsed acute myeloid leukemia.*



## Careers in Investment and Consulting

by Ludivine Drougat

### Panelists:

- ▶ James Hawkins, PhD      *Managing Director, FOCUS Investment Banking*
- ▶ Kim Myers, PhD      *Principal, Deloitte Consulting LLP*
- ▶ Shane Trask, PhD      *Lead Data Analytics Engineer, The MITRE Corporation*
- ▶ Felix Yu, PhD      *Senior Consultant, Booz Allen Hamilton*

Do you think about moving to consulting or investment career? Do you love discussing science and solving scientific and complex problems rather than bench work? If the answer is yes, you could definitely enjoy a career in investment and consulting.

What skills do you need to pursue a career in investment and consulting?

A Ph.D. provides you a skillset easily transferrable to a consulting environment, such as analyzing data, troubleshooting experiments, management, team work and leadership. Daily, you won't use your scientific background, but your scientific mindset will allow you to better understand the projects and have a broad view of their future. Oral and written communications are great soft skills to have as well. It's indeed essential to be able to take a step back in order to tell a story to your collaborators from the given projects. You could also be led as a consultant to write scientific paper with your clients. In addition to all those skills, you must have the ability to work in an organized and efficient way in a pressure environment because of imposed tight deadlines.

What are the different advantages between holding an MBA or a Ph.D. in this career?

According to the panelists, both an MBA and a Ph.D. holder could pursue a career in investment and consulting. An MBA provides you a networking environment whereas a Ph.D. offers some skills like problems solving and thinking deeply.

What kind of projects will I do?

Regardless of the diverse horizons and various objectives of the clients, two main types of projects were mentioned, focusing more particularly on strategy or technology. Strategy focused projects are based on both clinical and research data. You will be more involved in long term tracking of records and understanding how challenges could arise in the future. For technology focused projects, you will need programming skills to develop software, prototypes and applications, for example.

I am really interested pursuing this career. Do you have other advice to give me?

The common advice given was to get as much practice as you can once you have decided to leave an academic position for a consulting/investment environment. You can practice your consulting skills while joining

clubs/associations and attending trainings specifically oriented on consulting. Finally, each panelist gave one personalized tip: 1- Work on your business skills. 2- Work to build an effective networking. 3- Train for the interview process mainly by researching the company's culture. 4- Better to have an atypical career going somewhere nobody else still went.

Be confident in the choice of career you want to pursue. You have the majority of the necessary skills. So, be creative and become consultant!

*Ludivine Drougat, PhD, is currently a post-doctoral fellow at the NICHD department and her research focuses on cAMP/PKA pathway in the adrenal diseases. She obtained her PhD in biochemistry and cell biology from Lille 1 University of Science and Technology in France.*



## Careers in Science and Education Outreach

by Hannah King

### Panelists:

- ▶ Patrick Killion, PhD *Director of Discovery-Based Learning, University of Maryland College Park*
- ▶ Suzana Markolovic, PhD *Chemistry Teacher/Assistant Cross Country and Track & Field Coach, Blair Academy*
- ▶ Sharolyn Kawakami-Schulz, PhD *Director, HiSTEP Summer Programs, and Special Programs Coordinator, NIH*

A popular session at this year's career symposium was "Careers in Science and Education Outreach", with an audience excited to gain insight into how to spread their knowledge and enthusiasm for science.

The panelists provided an apt demonstration of the breadth of careers possible in this field.

Patrick Killion is the Director of Discovery-Based Learning at the University of Maryland College Park. Here he runs a program for first year undergraduate students designed to get them direct experience working in laboratories. This unique program empowers them to observe how what they're learning can benefit their "real-world" work.

The second panelist, Suzana Markolovic, is a Chemistry teacher at Blair Academy, a private boarding school. Prior to this appointment she was a postdoc at the NIH, and even chaired the Careers and Outreach session at the 2018 Career Symposium! In addition to teaching chemistry, she also coaches the cross-country team after school. While Dr. Markolovic acknowledges that her job might be "describing some people's nightmare", she describes it as a fulfilling role in which she can genuinely feel she is making a difference in students' lives.

Finally, Sharolyn Kawakami-Schulz, from the NIH Office of Intramural Training and Education (OITE), discussed her role as the Director of the HiSTEP Summer Program, which provides a 7-week summer internship for disadvantaged high school juniors from the DC area at the NIH. In running this program, Dr Kawakami-Schulz works on evaluating student applications, connecting students with NIH scientists and designing and delivering curricula.

The audience was eager to hear suggestions of how to transition into the science communication and outreach fields. The panel consensus was that many science outreach jobs are not traditional ones, and so people may need to search more laterally – with their "blinders off" for available opportunities. To determine whether a job will be right for you, Dr. Kawakami-Schulz encouraged trying the type of work to see if you enjoy it, such as via OITE programs that give teaching experience. Another strategy, advocated by Dr. Markolovic, is to pay attention to what your other passions are, what you spend your free time doing, to find the job that is right for you.

To impress on résumés and in job interviews, as well as to succeed in a job, the panel repeatedly emphasized to “never underestimate the value of your backpack of tricks”, an analogy favored by Dr. Killion. This is the diverse skill set, not necessarily acquired through a 9–5 job, that we all have, and which informs who we are. When asked about which skills they have found are the most important to success, the panel listed flexibility, coupled with a willingness to learn, as well as ability to work in a team. While they all had found this expertise was developed through their PhD and postdoc, it also stemmed from their extracurricular activities, such as being a member of the Peace Corps, previous teaching experience, and playing in a band!

Overall, the panelists in this session highlighted their passion for their careers and the belief that by educating others about science, there is a real opportunity to drive change. This session demonstrated a few pathways to this goal, via inspiring a young student’s interest in science, giving children from disadvantaged backgrounds the opportunity to interact with scientists, or by improving learning outcomes of university students through novel education programs. The panelists also recommended pursuing several other communication and education opportunities, whether this be with non-profits, science journals or magazines, or in the higher education sector, which can provide fulfilling careers in this field.

#### NOTES:

- Dr. Kawakami-Schulz announced that the HiSTEP program is interested in finding individuals able to host a student over the summer.
- Dr. Kawakami-Schulz also recommended participation in the Scientists Teaching Science course, run by the OITE. This recommendation was seconded by Dr. Markolovic, who believed that having taken this course distinguished her application when searching for employment opportunities.

*Hannah King is a postdoctoral fellow at the Vaccine Research Center. She is originally from Melbourne, Australia, where her PhD research involved designing and testing novel protein immunogens to trial as prophylactic vaccines for HIV. Her focus has now shifted, with her current research investigating strategies which stimulate the immune system to control HIV infection.*



## Technology Transfer and Patent Careers

by Ludivine Drougat

#### Panelists:

- |                       |  |
|-----------------------|--|
| ▶ Medhanit Bahta, PhD | <i>Patent Examiner, US Patent and Trademark Office</i>                   |
| ▶ Rui Jacques, PhD    | <i>Patent Agent, Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.</i> |
| ▶ Matthew Howe, PhD   | <i>Licensing Analyst, North Carolina State University</i>                |
| ▶ Laura Prestia, PhD  | <i>Invention Development &amp; Marketing Specialist, NIH/NCI</i>         |

Interested in transitioning from basic science into translational research? Interested in turning discoveries at the lab bench into market? Interested in marketing new products? Technology transfer and patent management could well be the career for you!

Technology transfer and patent management use both the hard and soft skills developed during your PhD, all the time. While you will likely work in your current area of expertise, you will be able to expand into broader fields. Personal organization is often touted as the key to success, but other skills such as communication (both oral and written), helping others, troubleshooting, as well as time and project management, are also important aspects of the job. Remember, as a PhD holder you have already demonstrated your ability to work in team, a highly valued

skill that is not always cultivated by those with a traditional business background. Effective communication within a team environment will allow you to interact with a large variety of people such as PIs, PhDs, MDs, market specialists and law specialists.

All panelists agreed that there is no right time to start a technology transfer and patent career, it all depends on you, your desire and your work/life balance; but overall an earlier transition is often better. If you are interested, the post-doc period is a great time to get advice. Each year take the opportunity to meet people from both the technology transfer and patent environments to gain insight into what the jobs actually entail. Your post-doc is also the perfect time to gain experience and attend related classes. Panelists working in technology transfer highly recommended getting some experience via an internship in the domain before committing to a career path. They also insisted on the high quality and usefulness of classes hosted by the FAES at NIH. Interestingly, most universities, governmental offices and companies (with more turnover and more opportunities) have a tech transfer office. The main advice from the panelists regarding patenting is to get experience in peer-review. It helps you in being critical in other people's work and being up to date with your bibliography. The big difference between writing a scientific manuscript and a patent is that patents often have a hard deadline, you have to be fast and efficient to finish it on time. In addition, taking some law school classes can be beneficial but it's not required as you will be trained on the intellectual propriety laws internally by your office during your first few months on the job.

One point from the audience was about the interview process and how to get prepared for it. Interviews were very different for each panelist. In some cases, the interview was oriented toward their scientific career while other interviewers didn't bring it up, instead focusing on specific cases of tech transfer or business development. So, the consensus is that there is no formal interview template for such jobs, and it all depends of the office that you are applying to. "Failure to prepare is to prepare to fail!" Candidates should be well prepared for any possibilities. Seeking coaching through OITE is a great way to get prepared for that! In this hiring process, the number of publications doesn't matter, so take your time to hone your skills/knowledge in tech transfer and patenting. Moreover, if maintaining your existing work/life balance is essential to you, often full-time telework might be an allowed depending on your office.

If you are ready to see and talk science in a different light, explain science in a way that commercial audience can understand, then technology transfer and patenting is the way to go.

*Ludivine Drougat, PhD, is currently a post-doctoral fellow at the NICHD department and her research focuses on cAMP/PKA pathway in the adrenal diseases. She obtained her PhD in biochemistry and cell biology from Lille 1 University of Science and Technology in France.*



## Careers in Science Policy and Advocacy

by Mary Weston

### Panelists:

- ▶ Tara Burke, PhD                      *Senior Director of Public Policy & Advocacy, Association for Molecular Pathology*
- ▶ Rasika Kalamegham, PhD        *Group Director, US Regulatory Policy, Genentech, A member of the Roche Group*
- ▶ Meghan Mott, PhD                 *Brookings Fellow Senate Committee on Health, Education, Labor and Pensions (HELP)*
- ▶ Estevan Santana, PhD             *Director, Science and Regulatory Advocacy, PhRMA*

Science policy and advocacy jobs typically involve using science to inform policy decisions or using policy to promote, improve, and/or regulate scientific research and actions. These jobs are diverse, and the panelists work in non-profits, government legislation, and industry advocacy. Science policy is an exciting, fast-paced, and

demanding job, and panelists like being able to constantly learn new things. Being able to effectively communicate with various types of people, writing, and relationship building are essential skills. The experts agreed that keeping a work/life balance can be challenging, but all truly enjoy their careers.

There is a myriad of ways to enter into the science policy realm and our panelists transitioned using several methods. Drs. Santana and Mott completed AAAS (American Academy for the Advancement of Science) Science and Technology Policy Fellowships, 1-2 year policy fellowships working with a federal agency. Dr. Kalamegham did a 3 month fellowship at Research!America prior to being hired. Dr. Burke got a job straight from her postdoc.

Much of the session was driven by questions from the audience. Below is a summary of the discussion:

What are some of the most important skills for your job?

- Communication: Panelists emphasized the importance of being able to convey your scientific message to a variety of audiences. You must be able to distill important information/facts into several sentences and always remember who your target audience is (Senators? A group of scientists?)
- Networking: This job involves lots of networking, facetime, and relationship building and being outgoing and extraverted is very important. Introverts are welcome in the field, but they must have the ability to 'turn it on' when needed.
- Multi-tasking/prioritizing: Panelists routinely work on simultaneous projects and Drs. Burke and Santana emphasize you need to juggle many tasks without letting anything drop. Learn to prioritize and remember that deadlines are firm and real.
- Flexibility: Quickly adapt to when priorities rapidly shift.
- Quick learner: Rapidly become an "expert" within a short time period. You need to learn to identify the important details and succinctly convey them.

How to prepare for a job in science policy/Items that stand out on a resume:

To enter this field, neither a postdoctoral training nor a fellowship/detail is required, but you need to have a demonstrable interest in science policy. This could be accomplished by participating in a science policy group, volunteering to assist with policy at a scientific organization, or participation in policy not related to science (like a city council). Secondly, you should have leadership skills, preferably in the form of an experience outside of the lab. Additionally, communication and writing are essential components to this job and "the only way to become good at writing is to practice." Dr. Mott suggested writing for a blog/group allows for practice. She pointed out that writing samples are useful when applying to fellowships or jobs.

When interviewing, Dr. Kalamegham looks for someone who is intellectually curious, has a willingness to learn, displays analytical ability, and possess excellent communication skills. Further, she wants someone who is level headed with good judgment. She advises that you be able to articulate why you want to go into policy.

What science policy fellowships are available?

Panelists specifically mentioned the AAAS fellowship, the Christine Mirzayan Science and Technology Policy Graduate Fellowship Program (a 3 month "mini" AAAS), and the Research!America Fellowship. Many other opportunities at scientific societies, non-profits, and in academics are available if you spend the time to search for them.

Science policy and advocacy is a rapidly growing field that allows scientists to influence various aspects of policy. Whether you pursue this pathway or not, the panelists recommend you set aside time to prepare for your next step and fill any gaps in your resume.

*Mary Weston is a postdoctoral fellow in the Lipid Trafficking and Organelle Biogenesis Section at NIDDK. She is currently investigating the beginning stages of peroxisome biogenesis. She received her PhD from the Graduate Partnership program between Johns Hopkins University and the NIH, where she investigated mechanisms of organelle acidification.*



## Careers in Data Science and Healthcare IT Services

by Michelle Bylicky

### Panelists:

- ▶ Rebecca Goodwin, PhD      *Policy Analyst & Open Science Specialist, NIH/NLM*
- ▶ Jaleal Sanjak, PhD      *Principal Technical Specialist, Gryphon Scientific*
- ▶ Maryna Taranova, PhD      *Principal Data Scientist, Roche*
- ▶ Sydeaka Watson, PhD      *Owner/Founder; Principal Data Scientist, Korelasi Data Insights, LLC*

For scientists already wrangling data and spinning up code for their lab, landing a job in the in-demand career of data science might be well within reach. The panelists began by jumping into the skills each had developed during their research which they felt had helped them to effectively enter the data science field. Dr. Sydeaka Watson explained that data science may be broken into three main areas of expertise: mathematics and statistics, programming, and handling big data or relational data. Additionally, good communication skills were considered necessary to effectively express the meaning of results to a variety of individuals: investors in a company, the general public, other programmers, or other scientists who may understand the biology but not the method for obtaining results.

Most of the speakers started their career with a firm background in mathematics or physics. A strong math and statistical background were considered important to understand how to ask questions of data to get informative answers. Most learned programming through working on projects or exploring learning resources in their free time. They stressed that you should not expect yourself to know everything and should try to find good mentors who can help with areas of weakness. The best programming languages to learn are Python and/or R. However, the panelists stressed that it is also useful to learn relational languages such as SQL for sharing data with collaborators.

They took a variety of approaches to land their first jobs. Dr. Sydeaka Watson was initially a statistician who got her first job through networking at a conference. Dr. Maryna Taranova continuously applied for different jobs and went on many interviews both to understand what was focused on in the field and to decide what she was interested in. Dr. Jaleal Sanjak did a fellowship which offered him the chance to visit different companies but ultimately used his connections from undergrad to help him find a job. Dr. Rebecca Goodwin found her position through the PMF fellows but agreed that keeping contacts and following up was critical.

When determining which job opportunities to apply for a variety of methods were employed, and a number of considerations were made. Take into consideration what work, paid or volunteer you did in the past and which of these opportunities you enjoyed. All agreed that doing something that you are passionate about is critical. Finding long term success is a matter of understanding yourself, what you enjoy, and what you are looking for in a position. Dr. Waston went one step further, stating that you should not only consider whether the job you are applying to will fit your passion and skills, but also to ask if it will enhance your skills preparing you to take the next step on your career path. Apply for a position even if you don't meet all the requirements but be aware of what you offer the team and what they can teach you. Don't just apply for a job, apply for a learning opportunity that can move you forward in your career; never be complacent and always keep learning.

*Michelle Bylicky, PhD, is a postdoctoral fellow at NCI in the Branch of Urologic Oncology. Her current research focuses on developing drug combinations which exploit metabolic reprogramming of bladder cancer cells in order to produce more effective treatments. She received her PhD in neuroscience from the Uniformed Services University of the Health Sciences.*



## Careers in Science Communication

by Leslie Whitaker

### Panelists:

- ▶ Laura Helft, PhD *Managing Science Editor, Cornell Lab of Ornithology*
- ▶ Yevgeniya Nusinovich, PhD *Senior Editor, Science Translational Medicine*
- ▶ Tien Nguyen *Science journalist, Freelance*
- ▶ Jeanelle Spencer, PhD *Senior Medical Writer, Ashfield Healthcare*

A career in science communication might be right for you if you find scientific benchwork to be enjoyable, but “the thing that captures your interest most is telling other people about what you’re doing, why it’s interesting, and why it matters”. This was the suggestion of Dr. Laura Helft, one of 4 excellent panelists at the NIH Career Symposium Panel on Careers in Science Communication. Each panelist gave an introduction to their version of scientific communication, which ranged from medical writing, to scientific journal editing, to communications research and outreach, to freelance journalism.

Panelists shared tips for making the transition from writing as a scientist to writing and editing for scientists and also shared advice about breaking into the scientific communication field. The required writing style for scientists reporting results is quite different from the storytelling format more commonly used in science journalism. Panelists suggested being ruthless in cutting details and eliminating the passive voice from your writing to adapt your writing style to a journalistic format. Using examples to illustrate scientific concepts to the lay public can also be helpful. They also recommend practicing and getting a diverse set of people to edit your work to ensure that it is clear and comprehensible. “Write in a way that your grandmother, or at least your parents, can understand,” suggests Dr. Helft.

A PhD is not required for many of these jobs, but can be helpful when the job requires reading, synthesizing, and distilling lots of detailed information into a short article or clip. The exception is scientific editing for academic journals, which requires a PhD and often some postdoctoral experience according to Dr. Yevgeniya Nusinovich. For freelance journalism a PhD is not a necessity, but writing experience is a must. Dr. Tien Nguyen described using time during her graduate studies to build experience by blogging about science and auditing a science journalism course at her university. Her first writing job was in a university press office which afforded a smooth transition into science communication in a less pressured environment. Dr. Jeanelle Spencer recommends doing a PhD only if it is something absolutely required for your career path since it is an endeavor! Dr. Helft views the PhD as more beneficial, giving her both credibility and the ability to read and understand as a scientist.

Discussion moved to the difference in lifestyle between scientists and communicators of science. Dr. Spencer’s position requires her to work from home. She described her days as varied, sometimes requiring her to sit faithfully at her computer to discuss her work with clients and the editorial team, and other days requiring more brainstorming and strategizing. She recommends being flexible and disciplined in setting milestones for yourself to ensure that you maintain productivity. Panelists say the amount of time spent in front of a screen, the quantity of emails, and the lack of results or data produced required a transition period but that they have grown to enjoy the scientific communication lifestyle.

Finally, panelists suggest that aspiring science writers find opportunities within your current position that will help you make the transition to scientific communication. Do an internship with a journal, write for a scientific blog, or do a writing-intensive detail. Get something on your resume and get started!

*Leslie Whitaker is a research fellow at the National Institute on Drug Abuse in the laboratory of Bruce Hope. Her studies combine ex vivo brain slice electrophysiology and rodent models of behavior to identify functional alterations that mediate reward-based associative learning. Prior to this, Leslie received her Ph.D. in neurobiology from The University of Texas at Austin.*





# CAREERS IN ACADEMIA

## The US Academic System Overview

by Anjelika Gasilina

### Panelists:

- ▶ Rebecca Lynch, PhD      *Assistant Professor, George Washington University Medical School*
- ▶ Masfique Mehedi, PhD      *Assistant Professor, University of North Dakota*
- ▶ Kristen Porter, PhD      *Assistant Professor, Westfield State University*
- ▶ Evan Snitkin, PhD      *Assistant Professor, University of Michigan*

This panel provided a comprehensive overview for those wanting to stay in academia and obtain a faculty position in the United States. The panelists represented a medium-sized university with a medical school (medical student- and clinician-oriented, 50% of salary is covered by grants, research division is smaller), a state-funded university (graduate student- and postdoc-oriented, salary for faculty is guaranteed, research intensive), a small liberal arts university (undergraduate student-oriented, teaching intensive), and a large academic medical center (clinically-oriented research, 70% of salary is covered by grants, large research division).

Dr. Rebecca Lynch is a research tenure-track assistant professor at GW University Medical School, who transitioned into her faculty career from a postdoctoral fellowship at the NIH. Her role as a PI requires managing and mentoring people, guiding data analysis, allocating money and keeping track of budgets, coordinating projects, grants and collaborations – skills she didn't need as a postdoc and had to learn on the spot. Despite the challenges, her independent faculty position allows her to work independently, choose her own projects and secure her own funding.

Dr. Masfique Mehedi is an assistant professor at University of North Dakota with a small lab. His research is a continuation of the postdoctoral work he performed while at the NIH. His transition from postdoc to faculty only took a few months. In retrospect, he felt unprepared for the interview process, chalk-talk, and decision making once calls for interviews came. Being at a large state-funded institution is an advantage as salaries are guaranteed, so Dr. Mehedi can focus on training students and technicians, developing and writing protocols. He is primarily evaluated on research productivity, but service and teaching are also part of the evaluation criteria. Having a mentoring committee helped him navigate and prioritize his non-research commitments.

Dr. Kristen Porter is an assistant professor at Westfield State University. After her PhD and a postdoctoral fellowship, she worked as a program officer in the Division of AIDS at NIAID. After some time away from the bench, she wanted to get back into academia. Dr. Porter mentioned that her experience as a program officer gave her a competitive advantage, as she picked up not only new scientific skills, but also skills in public speaking. Being at a small liberal arts institution, her days are filled with either teaching and advising undergraduates or overseeing undergraduate research and writing small research grants. When not actively teaching, she is designing syllabi, new course materials and applying for small grants. Dr. Porter stressed that this career is for people who love teaching, specifically teaching to undergraduate students. It is imperative to accommodate different learning styles, keep an open mind and design research projects around the needs of the students. Moreover, research tools, taken for granted at larger institutions, are not available in small colleges, therefore, collaboration with nearby research centers and setting realistic expectations will help with research productivity. Teaching experience and ability to relate to the undergraduate population are top evaluation criteria in the hiring process. However, Dr. Porter noted that she got the position without any prior teaching experience because her doctoral/postdoctoral experience and experience as a program officer provided her with skills no other applicant had.

Dr. Evan Snitkin is an assistant professor at University of Michigan. Coming from a computational background and wanting to gain experimental expertise and learn new skills, he specifically chose a postdoc that fulfilled these criteria. Learning how to manage people, projects and funds, keeping track of funding opportunities, and learning how to hire people were his biggest challenges. He credits resources available through the OITE and workshops available through EMBO, which helped him in the transition.

Regardless of the position you choose, all panelists agreed – decide what is more important to you – research or teaching, mobilize the resources available to you through the OITE, demonstrate that you can secure funding and start “way earlier” than you are ready and thoroughly research job expectations prior to putting an application package.

*Anjelika Gasilina is a CRTA predoctoral fellow in the NIH-Georgetown Graduate Partnership Program and she is performing her PhD research at the NCI/CCR. Her PhD thesis project involves cellular, molecular and structural dissection of the regulated actin cytoskeleton remodeling by an ArfGAP.*



## Transition from Postdoc to Faculty

by Soundarya Soundararajan

### Panelists:

- ▶ Shaun Brinsmade, PhD *Assistant Professor, Georgetown University*
- ▶ Tracy Clement, PhD *Assistant Professor, Texas A&M University College of Veterinary Medicine & Biomedical Sciences*
- ▶ Prakash Srinivasan, PhD *Assistant Professor, Johns Hopkins University*
- ▶ Anna Sundborger-Lunna, PhD, MSc *Assistant Professor, University of Minnesota*

### The power of early preparation

Early preparation facilitates a better transition. To submit a grant as a faculty, the preparation should ideally begin during the postdoc period. Apart from developing our own projects, it is vital to discuss with the current PI about what we can carry and to seek guidance from our mentors in grant crafting. In addition to being honest with ourselves about our current resume, it is important to concentrate on building a project we might continue to develop as a faculty. The panel emphasized a specific focus on improvising grant writing skills, to generate independent publications, taking-on “extra-responsibilities” like mentoring undergraduates/ graduate students, building budgeting skills and applying for a K99, Pathway to Independence Award.

### Cast a broad net

Applying broadly without looking for a “perfect fit” offers more chances for interviews. One of the panelists’ personal record of the ratio of applications sent that resulted in offers made was a daunting 80:1-2; yet they said in unison to “enjoy the process”. This also brought up curiosity in the audience, “what worked when you got selected?”. The most important factor in getting hired was “experience”. Panelists could feel their improvement as they went on each interview. “When we are a good fit, we feel it” – quoted Dr. Clement. When we feel it, our demeanor changes which is also perceived positively by the committee.

### Display what will work

“You are not well prepared for the world outside NIH”- this is a bias a committee member can carry. Displaying writing skills and showcasing what we are good at should combat this. It is also important that we should be aware that these biases can exist.

The panel insisted to be prepared and deliver a very focused chalk talk, highlighting trajectory with solid future directions. When demonstrating grant writing skills, it was encouraging to learn that a good score on a K99 is

helpful even when an applicant does not have the grants. Ready-to-go grants are just as impressive. It is important for the hiring committee to know that we are keen on getting funding.

#### Trust they want you

While negotiating, it is important not to be intimidated or scared. Go beyond comfort. Negotiation is a tricky balance between not being too needy and not leaving space on the table. It is important to clarify about “bridge funding” – is there support if we run out of money. A gateway to negotiation can be as simple as requesting that they show us the lab space and explain how grad students are being hired to give us insights on what we can negotiate for.

#### Push from lag phase to exponential phase

When we are hired, it is vital to build momentum and to begin writing as early as possible. Bringing in funds and publications are expected, and as these both drive one another, we should aim for keeping a parallel track of both.

As a faculty member, hiring a team can often be – “a leap of faith” and hiring a postdoc and mentoring them to become faculty can be a very good learning experience. It becomes our duty to find co-mentors for young scientists in our lab – and this is where established colleagues can pitch in.

#### Don't wait; start!

Do not get comfortable as a postdoc at NIH, prepare early (but, even 4th year is not very late), sketch out a good plan. Think whether you will be happy AND ALSO successful when deciding on offers; more importantly, ENJOY THE JOURNEY!

*Soundarya Soundararajan is a Postdoctoral Visiting Fellow at the Section on Human Psychopharmacology, NIAAA. Her current work focuses on understanding genetic and genomic underpinnings of alcohol seeking and consumption behavior in human laboratory models. She is also intending to develop neuronal cell models to learn how binge alcohol exposure affects the brain. Prior to joining NIH, she completed her medical training and pursued her Ph.D. in Clinical Neurosciences from National Institute of Mental Health and Neurosciences (NIMHANS), India where she got clinical and research experience in treating Substance Use Disorders.*



## How to Maintain Success in Academia

by Anjelika Gasilina

#### **Panelists:**

- ▶ Zandrea Ambrose, PhD      *Associate Professor, University of Pittsburgh School of Medicine*
- ▶ Jonathan D. Dinman, PhD      *Department Chair University of Maryland, Department of Cell Biology and Molecular Genetics*
- ▶ Venigalla Rao, PhD      *Department Chair; Professor, Catholic University of America, The Center for Advanced Training in Cell & Molecular Biology*

The DO's and DON'Ts of surviving in the academia.

#### DO's

- DO research the institution, including its Carnegie classification and its evaluation criteria. R1 institutions (very high research activity, such as George Washington University) evaluate primarily on research success – grants and publications. R2 institutions (high research activity, such as Catholic University of America) balance teaching and research, therefore both will be included in the evaluation criteria. Medical schools, which are also components of larger universities (such as Lombardi Comprehensive Cancer Center and Georgetown University), may combine evaluation criteria, as the partner institution will have some say. Liberal arts colleges and universities will evaluate strictly on teaching and advising with input coming from other faculty, students

and peers. For you to be successful, the institution must be a match to your long-term interests.

- DO choose your postdoc carefully as you most likely will be extending that work as an independent PI. Very few people are able to walk out and propose something completely new. Careers are built incrementally.
- DO think long-term. What is that 20-year project that will take you beyond your tenure?
- DO research the department when you are interviewing. Does it attract students and postdocs? Does it attract clinicians? You will need people to do the work.
- DO be specific about your contributions to manuscripts in your CV. If you are the 9th author on the list, indicate explicitly what your role was. Was it conceptual? Was it executional? Did you just provide a reagent?
- DO seek out mentors. Whose papers do you read? Seek those people out. Especially important for women and people of color. Ask for a mentoring team.
- DO communicate with the grants program officer. They are a great resource for feedback and ideas.
- DO learn to be a writer. As your career progresses, you are no longer a scientist, you are a writer. Learn to be a writer by writing.
- DO read and stay current on the evolving technology, tools and techniques. It also helps to hire younger people, who can introduce new techniques into the lab.
- DO strategize projects. Some projects may take 20 years to achieve, some may be easier to finish.
- DO make sure your people overlap so that old methods are not lost and new methods and technologies are introduced. Having a lab manager, who can train all new personnel and run the lab, is great, but can get expensive. Managing funding in such a way that allows for exiting fellows to train incoming fellows will build and maintain a cohesive team.

#### DON'Ts

- DON'T rely on collaborations. They are helpful to start you off, to enhance your research or to get a hold of a resource or equipment. Have a good balance of collaborative projects and projects, in which you are the sole PI. Funding agencies will view you both as a team player, but also as an independent investigator.
- DON'T use smaller or less prestigious universities as a stepping stone into high-tier institutions. In smaller universities the investment is made on behalf of the entire department. Prospective faculty are chosen based on how they will fit in terms of culture and science and how they will blend into the department's long-term goals.
- DON'T stretch out your start-up package for many years. Spend it, get the data you need, publish and get more funding.
- DON'T go for tenure early. Build your portfolio, consult with your mentors, chair and the department, check off all boxes (research, teaching and service), so that you don't have any surprises. Talk to senior people, even if it is uncomfortable.
- DON'T delay publishing. Learn to coordinate and publish information. Collect data to tell a story.

*Anjelika Gasilina is a CRTA predoctoral fellow in the NIH-Georgetown Graduate Partnership Program and she is performing her PhD research at the NCI/CCR. Her PhD thesis project involves cellular, molecular and structural dissection of the regulated actin cytoskeleton remodeling by an ArfGAP.*



## Teaching Intensive Faculty Careers

by Mohor Sengupta

### Panelists:

- ▶ Jacquelyn Cole, PhD      *Assistant Professor of Chemistry, tenure track, Shepherd University*
- ▶ Rahman Monzur, PhD      *Part time Faculty/Data Manager, Montgomery College*
- ▶ Nadeene Riddick, PhD      *Professorial Lecturer, American University*

Do you see yourself entering a vibrant classroom that is waiting to be taught by you? Do you have a flair for mentoring? If yes, then a teaching-intensive faculty position might be your career path. Armed with a postdoctoral experience, you are already a step ahead of many others. To know how, read what these panelists had to say about their transition into a teaching career!

"I landed up my job at the Montgomery College by sitting in on one of the professor's classes, and then, I expressed my interest to the chairman, of working there, and she hired me", Dr. Rahman Monzur, part-time faculty member and data manager at Montgomery College said, stressing on the importance of approaching recruiters.

"My first academic semester ended, like, two days ago" Professorial Lecturer at American University, Dr. Nadeene Riddick quipped. A former AAAS fellow in Science Technology Policy, Riddick is in a non-tenure-track teaching position at the Department of Biology in AU.

"I started out in a small liberal arts college, the Bethany College", Dr. Jacquelyn Cole, recently tenured Assistant Professor of Chemistry at Shepherd University, said. She believes that she got the job at Shepherd because she and the Department Chair share the same alma matter. "I was a boy scout", and that would be enough to get you a job" Cole said, emphasizing on tiny things in the resume that help make a connection with the recruiter.

The first thing you'd need for a successful application is a 'teaching philosophy statement'. "It was really hard for me to write that piece of document; I wasn't good at writing", Monzur said. He encouraged would-be applicants to share their story in the document; what motivated them into considering a teaching career and writing about any expertise they have in the field. Riddick brought out her extensive and varied teaching experience in a creative way while writing her teaching philosophy statement. She also reached out to the career services at her graduate school for help with the document. "Make sure you use your network and whatever resources are available to you" she suggested.

Job hunting can give everyone some grief. Cole advised job seekers to be up to date on job postings, and to factor in exact preferences, like job type and job location, while searching. "Do not apply to a job that you don't like" Monzur added, emphasizing that the application gets weaker in such cases.

Experience counts. Guest lecturing or volunteering to take classes is a good way to gain experience before applying for jobs, Riddick pointed out.

Okay, so what happens when you clear the first hurdle and land yourself in a job interview? Riddick shared a trick of the trade. She used her successful applications in less desirable jobs on her list to leverage for the ones she really wanted. Cole added that asking for a face-to-face interview helps, as both recruiters and the interviewee can gauge each other's' body language and facial expressions, which lead to better communication. Monzur advised asking relevant questions to the interviewer. It is an added incentive for the hirer to get someone who has thought deeply about the position.

Publishing and grant application may not be a requirement, but they are prevalent in teaching intensive careers. The speakers also agreed that a PhD degree counts in a teaching intensive faculty position. Postdoctoral experience at NIH was an advantage in their transition. Monzur, for example, trained summer students in all of his NIH years, and the experience was valuable for him in his career trajectory.

Teach classes, mentor summer trainees and go ahead, talk with people about your transition plans. You could start with our three friendly guest speakers!

*Mohor Sengupta is a post-doctoral fellow with the Laboratory of Retinal Cell and Molecular Biology at the National Eye Institute. Her longstanding scientific interest and current research focuses on regenerative efforts of the central nervous system after injury. She studies protection of retinal neurons after optic nerve crush in rodents. Mohor actively engages in scientific writing and volunteers to write for in-house publications at NIH and her IC. After completing her post-doctoral work, Mohor hopes to become a science writer.*



## CAREER OPTIONS FOR CLINICIANS

### Career Options for Clinicians

by Mohor Sengupta

#### Panelists:

- ▶ Ovidiu Galescu, MD *Medical Officer, FDA/CDER*
- ▶ Kenneth Remy, MD *Assistant Professor, Washington University in St. Louis*
- ▶ Nina Schor, MD, PhD *Deputy Director, NIH/NINDS*
- ▶ Danielle Townsley, MD, MSc *Director, Oncology, Clinical Development, AstraZeneca MedImmune*

“Apply for grants early; learn how to manage staff; attend meetings for getting recruited”, were the mantra that Dr. Kenneth Remy asked clinical fellows to follow when transitioning into an independent position. During his 3-year clinical fellowship at NIH, Remy realized his interest in engaging in clinical research. He now heads a team of seven clinicians at Washington University in St. Louis where he studies RBC lysis and immune dysregulation in sickle cell disease. His time is split between translational research with human samples and adult and pediatric critical care. “Transitioning from NIH was smooth”, Remy attested.

“The NIH happens to be a pioneer in bone marrow transplantation”, Danielle Townsley, hematologist and NIH alumna said. With the training to design research protocols on cancer immunotherapy and with practice of drug development, Townsley became director of Clinical Development at AstraZeneca MedImmune. She now coordinates multi-center global studies. Townsley stressed the fact that a job as a clinician in the industry is very different from that in the lab. “The downside is that I don’t own the research”, she said, adding that “we’re the most regulated industry in the world”. Townsley envisions herself in a leadership position in drug development.

However, for many, the career path won’t be as charted. “The interesting thing to me is how in every step of the way, the blend of your interest and ideal model and the vicissitudes of the reality of the situation you find yourself in, forms sort of a hybrid, and ends up being the path that you actually take”, Dr. Nina Schor, Deputy Director of NINDS said, explaining how she was interested in neuroscience at the beginning of her career and how she ended up getting a PhD in experimental therapeutics instead. She then applied that knowledge to the

nervous system. Twenty years of research and mentoring at the University of Pittsburg gave Schor an invaluable experience of administrative leadership that forms the core of her responsibilities today. "I wonder every once in a while, if I should just slip into a lab at night and use the equipment for a few minutes" Schor mused, thinking of the research life that she misses, and bringing a smile to many in the audience.

"One of the few things NIH doesn't really fully prepare you for is the requirement of research outside the NIH, which means, acquiring grants and funding", Dr. Ovidiu Galescu, Medical Officer at the FDA said, recalling his plans to continue pediatrics research after his clinical fellowship at NIH ended in 2016. Added to that, English, being a second language to him, was a roadblock in grant proposal writing. "So, I chose to go to the FDA and write 3-4-500-page reviews instead!", Galescu exclaimed to the giggling audience. At the FDA, Galescu reviews grants and oversees regulation on new and existing endocrine products. His job requires thinking out of the box, team effort and coordination with researchers. Galescu laid out the importance of networking and visiting institutions of interest during the job hunt period, saying that this practice, and not the usual 'responding to a job post', led him to get the job.

In the Q&A session, Townsley and Remy acknowledged that their medical training was beneficial in their current role as translational researchers. Remy added that he doesn't have to depend on grants and can make a salary by doing clinical work. Galescu and Remy agreed that networking helps getting the closest-fit job; one that is "not open". "In other words, the position creates itself for you" Galescu added. Schor encouraged job seekers to evaluate salary requirement and job satisfaction in setting their priority during job hunt.

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