

11th Annual NIH Career Symposium



Newsletter



11TH ANNUAL CAREER SYMPOSIUM 2018

The NIH Office of Intramural Training and Education hosted the 11th annual Career Symposium on May 18th, 2018. The purpose of the symposium is to provide intramural and extramural early career scientists and doctoral candidates with information to help guide their careers. This is achieved by hosting people from different areas in science to speak and share their experiences with the current trainees and by providing tips on career success by the directors and the staff of the NIH Office of Intramural Training and Education. The panels included people from diverse careers paths who were extremely enthusiastic about sharing their experience. The panels were diverse ranging from academia and industry, education and outreach, to government and policy. The panelists shared their job responsibilities, the moves they made to attain the career they wanted, and helpful advice for hopeful job seekers. To review the symposium, we enlisted a group of volunteer writers to attend and write a synopsis of each panel. We hope the advice contained in these write-ups provides useful information to the readers in the search for future career.

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SPEAKER BIOGRAPHIES, SKILL BLITZ SLIDES AND ADDITIONAL CAREER SYMPOSIUM RESOURCES:
<http://go.usa.gov/k5gR>

NON-BENCH CAREERS

Careers in Science Education and Outreach

by Andrea Simone Baechler, PhD

Panelists:

- ▶ Brian Garrett, PhD *Site Director, SMASH-Morehouse*
- ▶ Allison Pearce, PhD *Restoration Director, Audubon Naturalist Society*
- ▶ Adam Ruben, PhD *Associate Director, Vaccine Stabilization and Logistics, Sanaria Inc.*

The panelists described Science Education and Outreach as a highly diverse field that offers a multitude of rewarding professional opportunities for individuals who are passionate about scientific work “beyond the bench” and seek to have a lasting impact on the next generations of scientists.

As the three panelists outlined, their respective transitions out of the traditional academic setting has been unique. Dr. Garrett met a former colleague at a symposium, who introduced him to SMASH-Morehouse, a summer academy that supports people of color from underrepresented communities who are interested in pursuing science, technology, engineering, and mathematics (STEM) careers. He decided to join the organization, which allows him to combine his passions for science and for empowering and mentoring young black men. Dr. Pearce’s path to a science outreach career began with a part-time position as a naturalist at Audubon Naturalist Society through which she advanced to become a restoration director by writing her own job description and convincing the organization to hire her for this role. Finally, Dr. Ruben, a highly energetic science communicator, engages in a broad range of science outreach activities in addition to his full-time day job at a small biotech company in Rockville, MD. After his “traditional” work day ends, he performs as a standup comedian, participates in science storytelling, writes books, and contributes to several television shows and media formats.

All panelists agreed that one of the most rewarding aspects of their careers has been the opportunity to work with people and the impact that they have had on their lives. Dr. Garrett expressed that a gratifying aspect of his current role is to spark students’ interest in STEM research and guide them through their scientific careers. Thus, an important piece of advice shared by him was to think about where you personally want to make your impact: the scientific community, a specific discipline, or the broader community. Dr. Pearce explained that her passion to impact children coupled with her desire to contribute her skills and educational background effectively were decisive in choosing her current job.

Although outreach is not a required aspect of a PhD, the panelists suggested several ways for interested scientists to gain relevant experience such as volunteering in programs at schools, becoming a judge at science fairs, writing a blog, recording a podcast and many more. Good communications skills and public speaking, which are indispensable in science outreach, can be acquired, as Dr. Ruben remarks, by performing on stage at “The Story Collider” or in science cafes.

All panelists agreed: networking is fundamental. “Spend more time outside, not only just work with the blinders on”. Increased exposure helps not only to build a strong network and meaningful relationships, but also is crucial for learning about new career options in science outreach and education. Illustrating this aspect, Dr. Ruben shared a story about a friend, whose blog about baking her own wedding cake led her to a position at National Public Radio (NPR) 10 years later.

The panelists urged the audience to follow their passion when deciding on a career path. Although leaving an academic setting might be frightening, it is a viable and rewarding option for anyone who envisions having lasting impact.

Andrea Simone Baechler, PhD, is a Postdoctoral Fellow in the Developmental Therapeutics Branch of NCI. Her current research focuses on characterizing the role of mitochondrial topoisomerase I and topoisomerase 3 in carcinogenesis. Prior to joining the NCI, she studied the toxicological profile of food metabolites and obtained her PhD in Food Chemistry and Toxicology from the University of Vienna, Austria.



Careers in Science Administration

by Patrick Wright, PhD

Panelists:

- ▶ Gaelle Kolb, PhD *Proposal Development Manager, University of Maryland*
- ▶ Zoe Fonseca-Kelly, PhD *Assistant Dean for Science, Harvard University*
- ▶ Caleb McKinney, PhD *Assistant Dean of Graduate and Postdoctoral Training & Development, Georgetown University Graduate Education*
- ▶ John Reich, PhD *Scientific Program Director, Foundation for Food and Agriculture Scientific Education and Awards Program Specialist, AAI*
- ▶ Courtney Pinard, PhD *Education and Awards Program Specialist, AAI*

The “Science Administration” panel consisted of five individuals from academic and non-academic sectors with expansive administrative duties and responsibilities. Their purview spanned a wide range of duties including oversight of grants and awards, professional development of trainees and students at all levels, educational and outreach events, department faculty searches and internal promotions. The panel emphasized that the most critical aptitude needed to be successful in an administrative job is to have strong interpersonal skills. One must have patience, resilience, and the ability to make tough decisions, extending to the capability to say “No” to colleagues/customers at times needed. In summary all the panelists agreed that, navigating administrative positions in science requires understanding of the nuances of interpersonal dynamics all while staying level-headed and positive.

They shared several common challenges which are faced by them. The top one is stress. In an administrative position, one must juggle obligations across departments, laboratories, and trainees at all levels. The initial adjustment to these responsibilities and deadlines can seem overwhelming. As an Assistant Dean of Training and Development, Dr. McKinney gained a lot of skills while working with teammates who have different backgrounds and approaches to challenges. However, he mentioned that it was also challenging to adjust to such a profoundly different, team-oriented environment after coming from a laboratory setting.

The panel was also asked to elaborate the significance of postdoctoral training experience in transitioning into a career in science administration. The answers were largely dependent on the specific position they are working in. Dr. Fonseca-Kelly stated that postdoctoral training may not be necessary if there is no intent to pursue a research career and that a relevant fellowship (e.g., in science policy) will be a better and more relevant use of that time. However, Dr. Pinard pointed out that her role as an Education and Awards Program Specialist at the American Association of Immunologists required a postdoctoral training experience and an extensive research background

in that field for getting the job.

The audience raised questions regarding the best approach to network and find a position in science administration. The panelists pointed towards the Office of Intramural Training and Education (OITE) at NIH. They stated that OITE provides a variety of relevant workshops and information sessions. In addition, professionals from OITE can provide invaluable guidance to individual trainees. Besides OITE, joining a national organization (e.g., National Postdoctoral Association) or a professional society can also be beneficial. For example, Dr. Pinard served as the vice president of the Washington, D.C. chapter of the Society for Neuroscience. Pursuing these activities and taking a leadership role not only provided personal fulfillment, but also helped her to stand out among the job applications by gaining management and administrative skills.

Overall the panelists concurred that in spite of the challenges that come with these positions, such as evaluating those who are underperforming and firing someone, their role altogether is extremely satisfying and rewarding for their careers.

Patrick Wright is a post-doctoral research fellow in the laboratory of Alan Koretsky in the National Institute of Neurological Disorders and Stroke. His projects involve the use of in vivo optical neuroimaging methods to study cortical function and plasticity in the mouse brain. He hopes to pursue research investigator position or to work in science and health policy at federal government.



Careers in Science Writing and Editing

by Neetu M. Gulati, PhD

Panelists:

- ▶ Amy Kullas, PhD *Publishing Ethics Manager, American Society for Microbiology*
- ▶ Carolyn Peluso, PhD *Manager, Science Writing/Editing Team, Cell Signaling Technology*
- ▶ Shana Spindler, PhD *Freelance science writer/editor, Self-Employed*
- ▶ Brad Wible, PhD *Senior Editor, Science Magazine*

"Was writing your dissertation is the best thing about your PhD experience? If so, a career in science communication may be for you" commented by the Science writing and editing panelists'. The field is diverse, with opportunities ranging from working as a freelancer with short- or long-term contracts to working for a specific company. And even within a company, there are job opportunities in marketing, publishing, and more.

While a postdoc is not required for breaking into this field, it can be challenging to enter the field without 'clips,' or writing samples. All the panelists found different ways outside their bench research to gain experience for transitioning. Moreover, panelists emphasized that volunteer opportunities and networking were crucial to break into the business. Many such opportunities are available at the NIH to help build up the clips and contacts needed to facilitate into a job in science communication. The panelists highlighted their experience in writing for newsletters within their Institutes, writing for the NIH Catalyst, and working with the Fellows Editorial Board to edit manuscripts of their peers. Dr. Wible advised that while practice writing is important, it does not always have to be about science. He joked, "if you want to write something and have people read it, there's this thing called the internet... you can write a food blog!"

One potential negative of having a career in scientific writing is that once on the job, "deadlines are crushing and they are forever," warned Dr. Wible. If you are not self-motivated or cannot handle deadlines, this career may not

be for you. Because of ever-looming deadlines, when writing a piece, it is important to think about how long it will be circulating, and “don’t let perfect get in the way of good,” advised Dr. Peluso.

If you can handle the stress, there are a lot of upsides while working as a scientific writer or editor. As a part-time freelance writer, Dr. Spindler appreciates her flexible hours and ability to work from anywhere. Dr. Peluso loves that each piece is something new and that she gets to learn about a lot of different things. Dr. Kullas gets to read the literature, go to the annual American Society for Microbiology meeting, and travel to universities to speak on how to publish ethically. Dr. Wible works long hours, but enjoys his time reading and editing.

Much of the advice given by the panel can be applied for all types of scientific communications and is not limited to writing for general audience only. Whether writing a manuscript or a blog, it is about making sure a story is conveyed. If you are not comfortable with English, especially if it is not your native language, taking an English writing class (such as those offered by FAES) may help to improve grammar and sentence structures. And when writing anything, it is important to know your audience. And as Dr. Spindler advised the audience, “you get better at writing by writing, so just write!”

Neetu M. Gulati, PhD is an IRTA postdoctoral fellow in the laboratory of Dr. Audray Harris in NIAID. Her current research uses structural biology techniques to characterize influenza virus infection and vaccine development. Prior to joining NIH, she received her PhD in Pharmacology at Case Western Reserve University where she studied the structure and biological interactions of plant virus-based nanoparticles.



Careers in the Federal Government

by Zelia Worman, PhD

Panelists:

- ▶ Luciana Espinoza, PhD *Health Scientist Administrator, NCI*
- ▶ Mike Manning, PhD *Pharmacologist, FDA*
- ▶ Barna Dey, PhD *Scientific Review Officer, at Center for Scientific Review (NIH)*
- ▶ Ashley Triplett, PhD *Science and Technology manager at Department of Defense*
- ▶ Rebecca Prevots, PhD, MPH *Epidemiologist, NIAID*

The panelists in this session represented a wide range of positions for scientists from different areas of the federal government: research (Dr. Prevots), regulatory affairs (Dr. Manning), administration (Dr. Espinoza), grants management (Dr. Dey), and defense (Dr. Triplett). Despite the variety of their jobs, most of the panelists agreed that they share their love for science but not the “nitty-gritties” of benchwork. Although regulatory and administrative jobs may sound like a lot of paperwork, the panelists described it as a different way to look at science, “where the action happens”, “making a real change for patients”, and “learning about cutting edge science before it gets started”.

The audience was curious to know about the specific steps taken by the panelists while transitioning to their current job. The similarity between the responses from all panelists was striking: Networking and networking. They suggested to start building a network early by regularly meeting people at scientific meetings, by becoming a member in societies focused on your area of interest and by informational interviews. If you have a path in mind, Dr. Manning suggested to be clear about career goals with your mentor from the start as it will help in transitioning. If you don’t know what your plan is yet, Dr. Triplett recommended detailing at an administrative

office and “cold emailing people via LinkedIn for coffee”, which is how she learned about the opening at the Department of Defense. Dr. Dey suggested to build your resume with transferable skills by reviewing abstracts, manuscripts, and grants, which provided her with valuable training for transitioning to her current position as a scientific review officer (SRO). Dr. Espinoza, however had a very different experience where she “applied to more than 100 USA.gov jobs” and, after no responses, she decided to take a FAES course on office administration, while simultaneously volunteering for PTA committees, editorial boards to gain enough experience for being considered for these positions.

The fellows outside NIH, who do not have access to FAES and NIH detailing opportunities, wanted to know how they can improve their chances of getting experience. The answer was to focus on the soft skills that they have gained during their doctoral and postdoctoral training (clear oral and written communication) and apply them appropriately in their resume to match with the necessary experiences. For example, managing projects and budgets in the lab can be mentioned as organization and management skill, discussing ideas with other scientists in meetings can provide for communication and interpersonal skills for your resume to stand out. But more importantly, in your administrative resume you should generalize your specific expertise: as Dr. Manning pointed out “No one needs to know how many kinds of PCR you can do”.

The conversation quickly shifted towards growth potential, salary expectations, and a typical day in a Federal Government career. Besides the standard scale across agencies (GS scale), there are various training opportunities for career development, and some opportunities for promotions to management positions. Most panelists described their days are full of phone and in-person meetings, interactions with reviewers and scientific experts, and a lot of writing. Telework is also an option available for many positions.

To land in a federal government job, the panelists suggested: changing the academic CV into administrative format; fill in the skill gaps that you are missing; find a way to convert weaknesses into a strength; and contact the office of OITE at the NIH to help determine what is missing. This last step is important as passing the HR threshold is the hardest step.

Zelia Worman, PhD is a postdoctoral fellow at NICHD in the Section for Eukaryotic Transposable Elements. She received her PhD in Biodiversity, Genetics, and Evolution from the University of Porto, Portugal. Her current research focuses on the impact of germline transposable elements in diseases of the nervous system. She volunteers as chair of the Service and Outreach subcommittee at FelCom and is currently detailing for the NHGRI Short Course in Genomics workshop. She also volunteers for the NICHD Fellows Advisory Committee and writes regularly for NICHD Connection newsletter.



Technology Transfer and Patent Careers

by Neetu M. Gulati, PhD

Panelists:

- ▶ Aswani Valiveti, PhD, MBA *Technology Licensing Analyst, University of Maryland*
- ▶ Jason Mock, PhD, JD *Associate Attorney, Foley & Lardner LLP*
- ▶ Emily Cordas, PhD *Patent Examiner, USPTO*
- ▶ Shan Liu, PhD, JD *Patent Agent, Wilson Sonsini Goodrich & Rosati*

If you are interested in a profession focused on commercializing cutting-edge innovative science and do not involve bench work or scientific experiments, then a career in technology transfer and patent management may be the right one. These positions involve working with scientists to patent, license, and manage intellectual property (IP). The scope of working with IP includes many diverse roles, as evidenced by the broad experiences of the panelists. In technology transfer, Dr. Valiveti appraises scientific innovations driven by universities for patentability and then files patents on IP. On the other side, Drs. Liu and Mock work at law firms, mostly working on licensure and litigation of IP, and rarely on developing patent applications. Dr. Cordas, a patent examiner for the United States Patent and Trademark Office (USPTO), reads and evaluates patent applications. Technical skills learned at the bench are not the only knowledge utilized by jobs in technology transfer and patent management. Panelists said that in addition to their scientific background, which aids them to understand the technical details of an IP, they have also benefited by improving their time management, multitasking, and communication skills by interacting with non-scientific audiences. Nevertheless, other outside skills are also required, such as completion of the patent bar exam (patent agent), obtaining a JD degree (patent attorney), and often additional on-the-job training.

When asked whether PhD or postdoctoral experiences are necessary, Dr. Valiveti stated that while not essential, having a PhD helps when speaking to academic researchers and helps in career advancement. Dr. Mock discussed that it differs between law firms, where some only hire PhDs while other will hire people who have master's degrees. However, they concurred that nuances and specific skills are required and those can be gained through further academic studies only. At the USPTO, many patent examiners have a master's degree, but they are recently hiring more PhDs. Postdoctoral training is not required to excel in these positions, but Dr. Liu mentioned that many of her coworkers also completed postdocs before being hired by her firm. The time during a postdoctoral training can be used to gain the additional skills necessary to be successful in technology transfer and patent careers.

As a technology licensing analyst, Dr. Valiveti not only enjoys his job, but also finds time to spend with his children. Working at the USPTO allows for a lot of flexibility and good work/life balance as well. After two years working as a patent examiner, the USPTO allows employees to work from home. Furthermore, because it is a government job there is stability, and learning new things by reading different patents keeps the job interesting. In contrast, patent agents and attorneys within law firms have long hours and do not have the greatest work life balance, Mock admitted. However, he loves the variety of work, from small molecules to food science to immunotherapies. It is a fast-paced career track where you can learn a lot about new inventions in different areas.

Ultimately, these careers are challenging, exciting, and cutting edge. The panelists agreed that it is important to gain skills beyond technical expertise to succeed. Here at the NIH, FAES offers courses on technology transfer, IP, and patents, to familiarize yourself with these careers. Many institutes at NIH have technology transfer offices where you can get experience through volunteer work or an internship. It is never too late to start gaining more experience for transitioning.

Neetu M. Gulati, PhD is an IRTA postdoctoral fellow in the laboratory of Dr. Audrey Harris in NIAID. Her current research uses structural biology techniques to characterize influenza virus infection and vaccine development. Prior to joining NIH, she received her PhD in Pharmacology at Case Western Reserve University where she studied the structure and biological interactions of plant virus-based nanoparticles.



Careers in Science Policy and Advocacy

by Patrick Wright, PhD

Panelists:

- ▶ Deana Around Him, DrPH *Research Scientist, Child Trends*
- ▶ Diana Huestis, PhD *Health Policy Advisor, Office of the U.S. Global AIDS Coordinator and Health Diplomacy, U.S. Department of State*
- ▶ Audrey Thevenon, PhD *Program Officer, National Academies of Sciences, Engineering and Medicine*
- ▶ Sandeep Dayal, PhD *Health Science Policy Analyst, NIH/NIDDK*

Science policy and advocacy directly or indirectly governs almost everything we do with science starting from determining grant budgets, regulating experimental approaches involving living things, and even guiding the scope and mission of our work. The “Science Policy and Advocacy” panel at the OITE Career Symposium consisted of four policy analyst and advisors from the non-profit and federal sectors.

One early question from the audience tasked the panel with detailing the skills necessary to be successful in the field of policy. Beyond the necessary general skills such as being extremely organized and having the ability to multitask, the skill most emphasized across the panel is the ability to communicate, not only through translation of science to lay persons but also communication of objectives to one’s colleagues, even at the seemingly trivial level of email subject lines.

Various Science Policy fellowships and their respective application processes was a major focus of the dialogue in the panel. Dr. Huestis was an American Academy for the Advancement of Science (AAAS) and Technology Policy Fellow, a year-long fellowship with placement in a federal agency; she was placed in the U.S. Department of State and has worked there since. She emphasized the importance of including any policy and program management experiences in application essays in addition to highlighting scientific accomplishments. She noted that she personally prioritizes evidence of strong writing ability when she is reviewing an applicant in her office. Regarding the position itself, she commented that one must be able to compartmentalize personal views and opinions on issues versus those encountered and implemented via official business. Dr. Thevenon shared details of what she called a “baby AAAS fellowship” offered by the National Academies: The Christine Mirzayan Science and Technology Policy Graduate Fellowship Program, a three-month fellowship at the Academies in Washington, D.C. She reiterated the importance of writing ability and recommended having someone else to check the writing in any application documents.

The panel also commented on challenges they encounter daily, including a barrage of deadlines, being comfortable with not becoming the expert in a given field, and lot of travelling needed in these positions. A unique challenge described by Dr. Dayal is that one must be willing to be uncredited on work (e.g., policy briefs, press releases, etc.) given that some of what is written will be used and communicated by a more senior official in the office.

For those interested in pursuing a career in the realm of science policy, “government details”, which are generally three- to sixth-month internships, in a policy office are a fantastic way to gain exposure to the field and to the people within. Beyond those direct immersion approaches, outreach opportunities (e.g. teaching science to children) and other analogous avenues in which one gains experience in writing and communicating to a lay audience is necessary for policy work at all levels and for subsequent ability to advance in this field.

Patrick Wright is a post-doctoral research fellow in the laboratory of Alan Koretsky in the National Institute of Neurological Disorders and Stroke. His projects involve the use of in vivo optical neuroimaging methods to study cortical function and plasticity in the mouse brain. He hopes to pursue research investigator positions or to work in federal science and health policy.



INDUSTRY CAREERS

Industry: Research & Development

by Chelsie Smith, PhD

Panelists:

- ▶ Magdalena Preciado-Lopez, PhD *Scientist, Calico Labs, Life Sciences*
- ▶ Charu Chaudhry, PhD *Senior Research Investigator,
Bristol Myers Squibb/Lead Discovery and Optimization*
- ▶ Allyson Byrd, PhD *Associate Scientist, Genentech*
- ▶ Jason Laliberte, PhD *Lab Head – Microbiology, GlaxoSmithKline (GSK) Vaccines*

For those seeking an industry research and development position are probably wondering what skills are necessary to start a career in this field. Interestingly, the panel of four NIH alumni did not respond with buzz words such as qPCR, python, cryoEM, or CRISPR like most of us would assume. Instead the resounding response was transferable skills. Specifically, presentation skills and the ability to multitask with different projects and teams. Presenting is necessary in industry as it is akin to the grant writing process in academia and can determine the success of a project. Multitasking is critical in industry as you will likely be on multiple projects. Hence, if you can present and multi-task is a postdoc necessary too? The panel said there is no definite answer to this question, but it is uncommon to break into industry without a postdoc. A postdoc is an ideal time to obtain the skills that some of the companies you are interested in are seeking. Additionally, it enables you to establish a track record of productivity by publishing papers and presenting your work. Nevertheless, for Dr. Byrd, her field of bioinformatics was in such high demand that a postdoc was not critical. While Dr. Chaudhry, did two short postdocs to obtain a wider spectrum of skills.

Another key point that came up many times throughout the panel discussion was that each company is extremely different. When the panel answered how projects are devised the answers varied. Dr. Laliberte said that in the vaccine space, the next target is quite clear. Whereas at Calico Labs, Dr. Preciado-Lopez said research groups present proposals which are reviewed by a research council. Each member also stated that there is some freedom for side projects and to choose your own project. But this depends on the current goals of the company and if the proposed side project requires extra resources. The breakdown of their typical day was also varied, based on their position than the company. For example, Dr. Chaudhry originally spent 80% of her time in the lab. But with each direct report she receives, she spends less time on the bench and more planning experiments.

If you are ready to start applying, the panel gave the following advices: your resume should include most of the keywords in the job description to ensure your application makes it to the hiring manager's desk. But don't be discouraged by the job description, instead envision it as a wish list. During the interview, be confident that you have the necessary skills for the position and make sure to highlight the global implications when you present your work. If your science doesn't completely align with the company you are interviewing with, find a way to tie it into the field of the company, i.e., "this work could then be used to design an assay to identify X". A career in research and development may be a good fit for you if you enjoy the bench and don't have the drive for writing grants for becoming a Primary Investigator.

Some of the positives discussed were work-life balance, high salary, and the ability to quench your curiosity. If you're undecided, follow Dr. Byrd's approach and just interview to see if the science and culture align with your passions. Remember each company is different! The most important message from this panel is to build your transferable skills and practice your public speaking by signing up to present at your next journal club.

Chelsie Smith, PhD is a postdoctoral fellow at NCI in the Structural Biophysics Laboratory. She received her PhD in Chemistry from Arizona State University and is studying the dynamics of riboswitches using serial femtosecond crystallography.



Careers in Investment and Consulting

by Autumn Hullings, PhD

Panelists:

- | | |
|-------------------------------|--|
| ▶ Elizabeth Cho-Fertikh, PhD | <i>1812 Ventures, Venture Partner</i> |
| ▶ Arti Santhanam, PhD | <i>TEDCO, Director, Maryland Innovations Initiative</i> |
| ▶ Rajni Samavedam, PhD | <i>Booz Allen Hamilton, Principal</i> |
| ▶ Isaac Rodriguez-Chavez, PhD | <i>Mallinckrodt Pharmaceuticals, Medical Science Liaison</i> |

Keep your options open, say “yes” to new experiences, and most importantly - find your side hustle. According to these experts, there are the tenets of pursuing a career in investment and consulting. Although each panelist described a unique career trajectory that landed them in their current role, they all came from a science background. Whether they worked at the bench, pursued a Master’s in Public Health, or became a grant review specialist, their time in the lab and conducting research was imperative for transitioning to their current positions. Most audience members had ample lab experience, so one question remained - how did the panelists transition from the bench to business? For Dr. Cho-Fertikh, joining investment groups like Angel was the key. Although getting an MBA is certainly valuable, knowing the basics of finance and business is enough to get your foot in the door. One way she obtained these skills without taking extra courses or getting an additional degree was saying “yes” to new assignments. Similarly, Dr. Rodriguez-Chavez described how his willingness to try new projects opened opportunities for him. Developing “soft skills” such as project management, leadership, and negotiation are essential for a successful transition into this field. While these skills are not necessarily practiced in the lab, Dr. Cho-Fertikh said joining organizations geared towards your interests and pursuing leadership roles in these groups can really enhance your out-of-the-lab skills. He also mentioned that as you move away from the bench, the technical aspects of science become less important and what you should start to focus on is creating a side hustle. This can be a non-profit, advocacy group, or political organization. Find what motivates you and pursue it whenever you can.

What should you do to get started in the field? The main answer was network, network and network. While traditional networking may involve handing out business cards and attending social events in the hopes of finding job, the panelists framed it in a different way. Networking does not have to lead to anything tangible; the best outcome is knowledge. Networking helps hone your communication skills while also learning about careers from different perspectives. Finally, networking is critical at all stages – not just when you are looking for a new job. Dr. Rodriguez-Chavez stressed that there is always something to improve upon, and networking can help you identify what those gaps are.

If you are ready to take on a job in consulting and investment, there are a few tips you will need to know. When asked what they look for in a job candidate, Dr. Samavedam’s main philosophy is “Hire what you can’t teach.” She explained further saying you can teach someone how to be a programmer, but you cannot teach them to have good work ethic, be a team player, and have passion for what they do. Why are you interested in this job? What motivates you? These are the questions you should ask yourself. Having the appropriate experience and degree is necessary for any job. However, what you have done with your time outside the lab shows what you are passionate about. Ultimately this becomes what tells your story and what makes you stand apart.

Autumn Hullings, MPH, is an Epidemiologic Research Analyst at the National Cancer Institute, Division of Cancer Epidemiology and Genetics. She received her Master’s in Public Health Epidemiology from George Washington University. Her current research focuses on the human microbiome and metabolome and their relationship with various types of cancer in population-based studies.



Getting Started: The Transition to Industry

by Zelia Worman, PhD

Panelists:

- ▶ Melissa Damschroder *Associate Director of R&D at Medimmune*
- ▶ Peter Szabo, MD, PhD *Principal Scientist at Bristol-Myers Squibb*
- ▶ Lokesh Jain, PhD *Director of Quantitative Pharmacology and Pharmacometrics at Merck*
- ▶ Tanasa Osborne, PhD, DVM *Senior Investigator at Novartis*

This panel focused on how to make the first move to an industry job. All the panelists described the industry environment as fast-paced and focused on drug discovery. Unlike academia, the priority is in making drugs available to patients, determining the safety of treatment, and researching topics that must be “applicable tomorrow and not in 20 years.” The only difference from academia is the scope of the research and the much faster-pace.

The first question from the audience focused on the difficulties the panelists encountered when they were newly hired. In general, all panelists found that the largest problems during the transition was the inability to quickly shift gears and adapt to a very fast-paced environment with ever shifting goals. They suggested some ways to ease the transition including: getting used to multi-tasking, exercising flexibility and adaptability, prioritizing, and aiming to see the big picture. The goal in industry is to answer the question then “move on, and not dig deeper, like in academia”. To get your foot in the door, your hard-skills are your biggest asset, which should match the ones required for the job you’re pursuing.

To be successful in industry, you need to setup objectives and constantly ask yourself: How can I impact the company and people in a positive way? Innovative ideas, ability to achieve goals (and adapt to ever shifting new ones), curiosity to learn, and being a team player are the fastest ways to be successful. Some audience members wondered if it’s necessary to do a postdoc to qualify for an industry job. Although a postdoc is not necessary, some view it as an additional proof of independence and critical thinking, as well as flexibility to adapt to multiple projects. However, Dr. Szabo and Dr. Osborne highlighted that it all depends on the position opening. For example, an entry-level position doesn’t need a postdoc, so if the job description asks for 5-10 years of experience, then you should apply if you have the required skills. For all the panelists, their experience at the NIH was their opening to get an interview. All you need is for the recruiter to get interested in your resume, and you can explain how your experience is relevant during the interview.

Following the discussion about the intensity of an industry job, the audience was interested in learning about work-life balance. All the companies are aware that it’s important to keep their scientists with a sustainable work load. For this, some allow a flexible work schedule with teleworking (Bristol-Myers Squibb, Merck, Novartis), and some provide daycare, cafeterias, and dry cleaners on site to make their employees life easier (MedImmune). However, Dr. Osborne (Novartis) remarked it’s ultimately the employee’s responsibility to achieve a work-life balance that works for them. Overall, all panelists agreed that it’s critical to be able to communicate your valuable scientific skills and research for career progress with a successful transition. Biotech and Pharma companies recognize and seek the value of your PhD for strategizing, executing, and communicating results.

Zelia Worman, PhD is a postdoctoral fellow at NICHD in the Section for Eukaryotic Transposable Elements. She received her PhD in Biodiversity, Genetics, and Evolution from the University of Porto, Portugal. Her current research focuses on the impact of germline transposable elements in diseases of the nervous system. She volunteers as chair of the Service and Outreach subcommittee at FelCom and is currently detailing for the NHGRI Short Course in Genomics workshop. She also volunteers for the NICHD Fellows Advisory Committee and writes regularly for NICHD Connection newsletter.



Finding the Right Size Company

by Joanna Cross, PhD

Panelists:

- ▶ Qingsong Zhu, PhD *Chief Operating Officer, Insilico Medicine*
- ▶ Dennise De Jesus-Diaz, PhD *Director Scientific Operations, Remedy Plan*
- ▶ Shantanu Shewale, PhD *Scientist, Product Development, Personal Genome Diagnostic*
- ▶ Ashish Gupta, PhD *Scientist 1, Novavax Inc.*

Do all good things come in small packages? Or do they come in larger ones? This session's panel represented four very differently sized companies, ranging from a single person to over 200 employees. Drs. Qingsong Zhu (Chief Operating Officer, Insilico Medicine) and Dennise De Jesus-Diaz (Director Scientific Operations, Remedy Plan) are based in smaller companies and both highlighted that one of the advantages of being a part of a small team is that there is more flexibility. However, this comes at the cost of more responsibility; Dr. Zhu was the extreme version of this as he started his own company and had to do everything himself, ranging from finding funding to paying his own salary. Nevertheless, everyone agreed that, although challenging at times, small companies never gave you the opportunity to be bored! Dr. Jesus-Diaz also added that a positive side of a company of three is that it is like being part of one big family. She once introduced one of her colleagues as her boss, which was promptly followed by "Never call me that!".

Conversely, a small company does have disadvantages when it comes to benefits and visa support. Most small companies cannot afford to offer the health care insurance and other opportunities, such as retirement benefits options, that the larger companies can offer. Yet even within larger companies, there is no guarantee that they will offer visa application support. Dr. Gupta (Scientist I at Novavax Inc.) has had personal experience in being turned down from a job because of his visa status. However, Dr. Shantanu Shewale, (Product Development at Personal Genome Diagnostic), suggested enhancing your profile by putting a positive spin on your visa status, for example by saying "I have x years left on my visa", which will allow the company the option to get to know you before potentially offering additional support.

Once you have decided what sized company is right for you, how will you approach for getting a job? Regarding C.V., Dr. Zhu advised "the shorter the better!" However, all panelists noted that a C.V. for industry was different compared to one for academia. Publications are not as important as the techniques you know and emphasizing what you can bring to the company is desired. Dr. Gupta added that one size does not fit all and that you need to tailor your C.V. to the company you are applying to. Additionally, Dr. Jesus-Diaz recommended relating your discoveries to the field; "then I might give you a call", she finished.

Lastly, no matter what size of company you end up in, the biggest challenge is finding the right work/life balance. Some days, you will have to work 7AM to 9PM, but you must ensure that this isn't every day. "Take time to turn your phone off and take some vacation", Dr. Shewale advised. Finding the self-awareness to achieve the right balance is critical and as Dr. Jesus-Diaz noted, "If I take tomorrow off, will the company go bankrupt? It won't!"

In conclusion, all the panelists were very informative and honest with their advice and I certainly left the session feeling more knowledgeable than when I went in. Not every company will be the best fit for you, but if you find one you are interested in, send them your C.V. as Dr. Shewale said, "You never know!"

Joanna Cross received her PhD from the University of Oxford, U.K., where she worked on the genetics and neurobiology of Smith-Lemli-Opitz Syndrome, a devastating disorder of cholesterol synthesis. As part of her PhD, she had the opportunity to work at the NIH and she was drawn back here to become a postdoctoral fellow in the Human Genetics Branch (NIMH). Joanna currently works on the genetics of neuropsychiatric disorders, including Smith-Magenis Syndrome and bipolar disorder.



Breakaway Careers in Industry

by Andrea Simone Baechler, PhD

Panelists:

- ▶ Aysegul Ergen, PhD *Regulatory Affairs Manager, CMC, Amgen*
- ▶ Jesse Damsker, PhD *Vice President, Operations, ReveraGen BioPharma Inc.*
- ▶ Kristin Fabre PhD *Microphysiological Systems Lead, AstraZeneca*
- ▶ Sarah McCormick, PhD *Medical Science Liaison, Mallinckrodt Pharmaceuticals*

When we think of careers in industry, we commonly think of research and development jobs. However, numerous non-bench careers exist for scientists, who are interested in science management, regulatory affairs, or liaising with healthcare professionals. Three out of four panelists' careers started with a postdoc at the NIH but have since acquired vastly different experiences. Dr. Ergen, after transitioning to the FDA, now coordinates submissions for investigational drug applications at Amgen. After his postdoc, Dr. Damsker started as scientist at a startup. Overseeing a diverse set of operations, this position opened the door for his transition to the vice presidency of the company. Before AstraZeneca offered her a position, Dr. Fabre's interest in the big picture brought her into project management, where she coordinated extramural research funding for the NIH. Dr. McCormick's career started as a postdoc at Johns Hopkins University, from where she was recruited into a medical science liaison position. Working with commercial counterparts and prescribers, her job demanded permanent client engagement and substantial travel.

Dr. Damsker emphasizes, a major requirement for an effective breakaway career in industry, is the ability to "wear a lot of different hats." Especially in a small company, knowledge of various disciplines and broad expertise are indispensable. Since the therapeutic area is constantly changing, an important prerequisite for a successful non-bench career in industry is a high level of flexibility and adaptability. "It's learning by doing," Drs. McCormick and Damsker agree. The importance of communication skills is brought up by Dr. Ergen, as a significant portion of her day is filled with conference calls, writing emails, and interacting with clients.

The panelists unanimously agreed that networking is the key to breaking away from the bench. As Dr. Ergen states: "You cannot know who is going to refer you to your next job." Rather than spending time on expanding scientific knowledge by taking additional classes, the advice is to increase your visibility by participating in extracurricular activities. NIH training resources are a great platform to develop skills in moderating panels at symposiums and by volunteering on committees. Another possibility to acquire management skills is doing internships in small businesses. Online platforms, such as Kolabtree, offer numerous opportunities for scientists to engage with the business community. Participating in tech transfer programs or the bioengineering boot camp at Johns Hopkins University are other useful resources to brush up your management skills. To prepare her transition, Dr. Ergen utilized the "Interagency Oncology Task Force" as a stepping stone to enter regulatory affairs. She also took FDA Law classes during her time at the NIH.

When asked "how do you get the job without any experience?" Dr. Damsker pointed at the importance of tailoring your resume to the job: "It's like antibody to antigen, your resume has to match the job description." Drs. Ergen and McCormick emphasized the importance of an updated profile on LinkedIn, as the platform is widely used to recruit. Dr. Fabre also strongly recommends investing in a business card and to build personal and professional relationships, especially outside of one's own lab environment.

Against common expectations, breakaway careers in industry are not a one-way street. On the contrary, AstraZeneca highly encourages scientists to publish. Also, there are often opportunities to continue teaching, which might re-open the door into an academic career. Dr. McCormick summarizes that once you carved out the things which really excite you and what your passion is, you can find the career which best suits you.

Andrea Simone Baechler, PhD, is a postdoctoral fellow at NCI in the Developmental Therapeutics Branch. Her current research focuses on characterizing the role of mitochondrial topoisomerase I and topoisomerase 3b in carcinogenesis. Prior to joining the NCI, she studied the toxicological profile of food metabolites and obtained her PhD. in Toxicology from the University of Vienna, Austria.



CAREERS IN ACADEMIA

Transition from Postdoc to Faculty

by Dhriti Nagar, PhD

Panelists:

- ▶ Eric Polley, PhD *Assistant Professor, Mayo Clinic*
- ▶ Stephanie Cologna, PhD *Assistant Professor, University of Illinois at Chicago*
- ▶ Robert Kortum, MD, PhD *Assistant Professor, Uniformed Services University of the Health Sciences*
- ▶ Megan Dennis, PhD *Assistant Professor, University of California, Davis*
- ▶ Jodie Fleming, PhD *Assistant Professor, North Carolina Central University*

A transition is challenging. Moving on and leaving the protective confines to establish oneself as an independent researcher is no small feat. There is more to it than just scientific merit. The role reversal from mentee to mentor can prove to be overwhelming, and as a postdoc fellow, one should work towards getting ready for it as they are nearing that moment in time. To help future faculty aspirants, we had a panel of the following young faculties who were in the same situation not so long back. The discussion was mostly moderated by the questions asked which are summarized below.

What are the added responsibilities of a faculty? How does one prepare to undertake those responsibilities?

The transition to a faculty comes with many responsibilities. You might prepare for most of them but some things you will have to learn on the job. Every day is a learning experience. People skills are sure to come handy. There are things that you can prepare for during your time as a postdoc. You could ask your postdoc advisor to include you in small budgeting exercises or apply for grants/fellowships and manage the resources that you get as a part of it. Grant writing experience, initiating journal club and mentoring students can be especially rewarding in your endeavor to become an independent researcher in the future. You should have some data and results for yourself to build upon as you move from postdoc to faculty positions. Observing the lab(s) that you have worked in will help you immensely in deciding how your lab should function. Noting these observations for future will help you make a lab space and environment that you always wanted.

How much of an overlap with your present advisor should be in your research proposal?

Applicants should be able to distinguish themselves from their postdoc or Ph.D. advisors. Least overlap is best. To be able to do so, you should learn new skills and obtain new resources that will help you branch out from your current line of work and make a niche for yourself. Independence from the advisor, additional skills, and expertise that you'll be bringing to the new place and your fit in the department you are applying to, become important factors that are considered by the search committees who will be hiring you. Have an open conversation with your boss and be on the same page with them to avoid future conflicts. Including a direct statement indicating that the research you are proposing is not being pursued by your mentor(s) might be a good idea.

What did your publication record look like when you applied?

A decent body of work showing your productivity during your postdoctoral years surely is desirable, but each of your papers does not have to be in Nature or Science. The important part is to identify your field and try to match the expected number of publications in your area of interest. If one does not have as many publications as they would expect to have, one can always explain the circumstances that could have been the reason for that. Another aspect that could be evaluated is your ability to collaborate and perform well. Having publications that show this ability to work in teams can be a bonus in your application package.

How important is it to have teaching experience to apply for a faculty position?

While admitting to the limited teaching opportunities available to postdocs at the NIH, the panelists suggested that teaching experience is something that most of them found to be useful in one way or the other. For many positions, it is imperative to have teaching experience. Postdoctoral researchers at the NIH can always teach courses through FAES or volunteer to teach at local colleges. While *a priori* teaching experience might not be a strict requirement at other institutes but it does add value to your application package. For positions where direct teaching is not mandatory, it indeed helps in mentoring and engaging with a diverse audience.

What surprised you the most when you joined as a faculty and how did you cope with it?

Feeling of isolation and being the new person hits you after you leave the comfortable and familiar environment of your postdoc lab. But you should actively engage with the people at your new institute and department and settle in with time. Infrastructure and establishing your lab in a new setting can be challenging and time-consuming. There will be a period of time when you would find yourself sitting in your office having no real lab to do your experiments. To make the most of this time, consider other ways to promote yourself, you could write reviews which would also help you keep up your publication record. This job comes with a lot of grant writing and administrative responsibilities which might sometimes feel crippling and overwhelming. To cope with this feeling, you should schedule and manage your time well and not lose focus on your scientific goals. Be sure of yourself. With time you will find yourself overcoming these surprises.

How do you choose the right people for your team?

You might be tempted to build a team quickly and start with your experiments but be careful in choosing the people you would be working with in your new lab. You should hire someone who fits the position and is well trained and suited for the job. You should also keep in mind the budgetary allowance to hire people for your research projects. The budget might be a significant factor when it comes to hiring research associates and postdoc fellows.

Other notable things that came up in the discussion regarding getting a faculty position were networking, maintaining an amicable relationship with your mentors and making it known to your peers and to your potential colleagues at the institutes you plan to apply. This brings you to the attention of the hiring authorities and prepares your peers and your mentor for the same. It is essential to let the world know that you are on the job market.

Dhriti Nagar is a predoctoral visiting fellow at the NHGRI. She is pursuing her PhD at Indian Institute of Science Education and Research (IISER), Pune, India and is visiting NIH under the Indo-U.S. Genome Engineering Technology initiative (GETin) fellowship to make CRISPR zebrafish mutants. Her research focuses on the role of cytoskeletal remodeling proteins in the development of neural circuits generating behavior in zebrafish. Eventually, she wants to enter the field of cognitive neuroscience, preferably in the field of mind-brain and education.



Research at Universities, Government and Non-Profits

by Emily Petrus, PhD

Panelists:

- ▶ Stacey Gelhaus-Wendell, PhD *Assistant Professor and Director of the Health Sciences Metabolomics and Lipidomics Core, University of Pittsburgh*
- ▶ David Ball, PhD *Core Microscopist, NIH/NCI*
- ▶ Rena Lapidus, PhD *Associate Professor, Director, Translational Laboratory Shared Service, University of Maryland*
- ▶ Tracy Jill Doty, PhD *Human Stress Research Scientist, Walter Reed Army Institute of Research*

Many postdocs and graduate students in the lab trenches love what they do, thus, they want to stay close to the science. A career as a principal investigator is the traditional path that many of these scientists take. However, the panelists in this session offer some new insight into other paths to stay close to research. The four scientists on this panel hold positions at government, military, and university core facilities. The amount of autonomy enjoyed by each scientist, as well as the job security and administrative responsibilities are somewhat different in each of these positions, but all the panelists agreed that their career was an excellent fit for their personality and scientific pursuits.

When asked about the best part of these non-traditional research jobs, each panelist had something different and exciting to add. Dr. Ball, staff scientist at NCI, enjoys using his physics degree to answer biological questions, he also develops software and gets to “build cool microscopes”. Dr. Gelhaus-Wendell enjoyed academic research but didn’t want to “do the tenure thing”. Managing a core facility at the University of Pittsburgh allows her to pursue her own research 70% of the time. She also gets lots of energy, innovative ideas and part of her salary from core users and collaborators. Dr. Doty felt that her previous research was not having an impact on people’s lives, so doing military research at Walter Reed allows her to directly impact soldier’s health and well-being. Dr. Lapidus enjoys the diversity of people and projects she encounters, as well as the translational aspect of her work; her facility is currently supporting a clinical trial.

Job security was a hot topic in the discussion, and panelists emphasized that security often depends largely on the candidate. Dr. Lapidus spent 13 years in industry before becoming a core facility director. She described a challenging, exciting but volatile career where she survived 4 layoffs, 2 acquisitions but finally called it quits after a merger which would have required relocating her family. She described her strategy to survive those industry shakeups: she made herself indispensable, kept a cheerful attitude, and maintained a good and timely communication on projects. Dr. Doty echoed the advice that learning new skills and getting more certifications make it hard for employers to let you go – this strategy adds more job security and improves the likelihood of moving up the ladder in almost any career. Dr. Gelhaus-Wendell also emphasized an approach of informed technology and skills acquisition for her core facility. She said, “It’s important to have an awareness of the strategic plan of the university, where they will direct their money.”

When asked what skills are the most important for each panelist to excel at their job, the answers varied but focused on “soft skills”. For example, managing the “big personalities” of core users, effective and timely communication and documentation of experiments, procedures and schedules were all cited as important skills for success. Managing budgets, protocols, multitasking grant writing with experiments and facility issues is also vital. When asked if a postdoc was necessary to obtain their jobs, a unanimous “yes!” came from the panel. Postdoc training improves candidates’ independence, allows acquisition of new techniques, and allows one to expand a network of collaborators and potential employers. Although some may view a postdoc as a necessary evil, the panelists assured the attendees that they were on the right path towards their own career goals.

Emily Petrus, PhD, is a research fellow at NINDS in the Laboratory of Functional and Molecular Imaging. She received her PhD in Neuroscience from Johns Hopkins University. Her current research focuses on the adaptive capabilities of the adult brain after peripheral sensory loss.



Teaching Intensive Faculty Careers

by Caeul Lim, PhD

Panelists:

- ▶ Caitlin Fox, PhD *Lecturer, University of Maryland*
- ▶ Hyrum Carroll, PhD *Assistant Professor, Columbus State*
- ▶ Shanen Sherrer, PhD *Assistant Professor of Biochemistry, St. Mary's College of Maryland*
- ▶ Kee Chan, PhD *Program Director, Clinical Assistant Professor, University of Illinois at Chicago*

For scientists who enjoy the teaching aspect of the daily job, academic careers with an emphasis on teaching is an attractive career option. Four panelists, each with a unique professional background and currently in university teaching positions, joined us to discuss the essential components of this path.

A teaching position can take many forms, and it is important to know your priorities prior to stepping into this career. "The type of teaching institutions, location, teaching load and research components are all aspects you can control now, when looking for jobs," explains Dr. Carroll. In fact, each panelist had concrete criteria when applying for their current position. Dr. Fox was limited by the location, while Dr. Sherrer exclusively looked into undergraduate-centric institutes with guaranteed opportunities to train students directly.

Future applicants should be aware of the seasonal nature of the application cycle. Dr. Carroll suggests having the application package ready by August, giving ample time to review before the usual September submission timeline. The application package includes the teaching philosophy statement, a universal requirement for teaching positions. All panelists advised using concrete examples stemming from experience when writing your statement. Dr. Fox recommends taking the "Scientists Teaching Science" Course offered at the NIH, as one of the course's assignments was to write and review a teaching philosophy statement. Dr. Chan also recommends shifting your teaching style to the new generation of online courses and social media presence. "You also have to get used to reflecting about teaching constantly," emphasizes Dr. Sherrer.

Once you get past the first stage of selection, you will be invited for an on-campus interview. "You are on interview mode the moment you step off the airplane, including when interacting with your host student" says Dr. Carroll. "It's a long commitment the department is looking to make, so your personality is important." The interview processes vary from school to school, but a teaching demonstration is a common component. This is a critical opportunity to demonstrate your unique teaching skills. "When giving the demo, treat the judging committee like any student audience," suggests Dr. Fox, "This includes preparing for class participation activities and assignments. If research seminars are required instead, these can also be tailored to be part teaching demonstration, showing how you disseminate information and educate the audience on a specific scientific subject".

Unsurprisingly, prior teaching experiences are essential for this career path. Thankfully, the opportunities to build your teaching resume are bountiful at the NIH. The Foundation of Advanced Education in the Sciences (FAES) regularly seeks for instructors to teach graduate level courses. Local community colleges also offer great opportunities to work as adjunct professors during your doctoral and postdoctoral training. Teaching experiences can also expand outside of the four walls of a university setting. "If you were in a lab and have experience training a new member, then you're a teacher," encourages Dr. Sherrer and adds, "you can also reach out to the community around you, and create your own teaching opportunities, such as workshops or outreach activities through high schools, for example. This has the added factor of showing your proactivity and passion for teaching. "Creating an online course is also another way of building your resume," chimes Dr. Chan. "The search committee wants to see whether you can build a curriculum and follow through. Online teaching adds the advantage to show that you are digital-savvy."

Although often overlooked compared to more traditional research academic paths, a teaching intensive faculty position can be a fulfilling career path, with the unique opportunity to directly shape and guide future generations of scientists, all the while still intimately involved in the larger academic community.

Caeul Lim, PhD, is an IRTA visiting postdoctoral fellow. She received her PhD in Biological Sciences in Public Health from Harvard University in May 2016, trained in malaria parasitology. She is currently pursuing research in malaria parasite and vector interaction and vector immunology.



Maximizing Yourself as a Faculty Candidate

by Ujjayini Ghosh, PhD

Panelists:

- ▶ Vince Clark, PhD *Professor, Director, Psychology Clinical Neuroscience Center, University of New Mexico*
- ▶ David Weliky, PhD *Professor, Michigan State University*
- ▶ Alison McBride, PhD *Senior Investigator/Section Chief, NIH/NIAID*
- ▶ Patricia Cameron, PhD *Vice Dean, The Graduate School, Assistant Professor, Augusta University*

For postdoctoral fellows, who want to pursue an academic career, one of the biggest challenge is the application and the interview process. In this panel, four faculty members from different universities were invited, who served as a member, at least once during their respective department's faculty search. The panelists share their faculty search experience and the qualities they look for in a candidate whom they hire. The messages from the 1-hour discussion panel are summarized below:

What are the traits that you looked for in a faculty candidate in your faculty search?

The panelists collective agreed, and they provided a list that is important to land in faculty job:

- Have a strong track record of publications (at least some first author publications in good journals, not necessarily Science or Nature);
- Letters of recommendations (at least 3, but try to have 4);
- Select the institutes/universities that fits the applicant's' personality and provide opportunities for growth;
- Two quasi-independent research proposals: one that will work (although doing is way more difficult than proposing) and the one that is more challenging (must have a backup research plan if the original one fails);
- Be more specific when you state the importance of your research proposal and how it will solve the problem;
- Sometimes a transition from staff scientist to a faculty candidate could be easier.

What are the non-research activities postdocs should engage themselves to strengthen their CVs to stand out as a candidate?

According to Drs. Clark and Cameron, the most important non-research activity is teaching experience. According to Dr. Clark, one of the tenure requirements is excellence in teaching, so any prior teaching experience will be a big plus. Dr. Cameron added that mentoring experience will also boost your application package. Dr. McBride mentioned that going to conferences and giving talks will also help to develop an independent personality that they look in a faculty candidate.

The audience repeatedly asked how many publications or what is the minimum number of publications that is required to get an interview call?

All the four panelists agreed that "there is no minimum cut-off when it comes to the number of publications".

According to Dr. Weliky, the most important thing that matters is that what did you learn from your past research and what do you aim to learn in your future work. Dr. Weliky mentioned that it is better to have some specific publication because in that case it will show your expertise in that field. Dr. McBride added that it is better to have some published papers rather than having everything under preparation. One thing that came out of the discussion, is that it is good to have patents, but they cannot replace your publication record.

What are the red flags that you looked for in a faculty candidate?

According to Dr. Clark, any unaccounted after graduation is one of the important things he looks for in a candidate. If you took any break after your graduation due to family emergencies or anything, it is always better to explain that in your cover letter. Other thing that Dr. McBride mentioned is failure to provide the recommendation letter from your direct PIs. To address a bad postdoc (recommendation unavailable), a strong recommendation from current PI will mitigate the problem to a large extent.

How is the interview process? What are the questions that a candidate can expect from the search committee?

How to deal with the HR questions?

The outcome of the discussions can be broken down into:

- Talk about your past research and your current research
- Explain the proposed research and the outcome of your research
- Pitfalls of your proposed research; an alternative approach to solve the problem
- Timeline of your proposed project
- When it comes to HR questions, try to be candid.

How do you recommend choosing a research project?

The panelists agreed that the proposed research should not overlap with the graduate and postdoctoral work and some committee will see this as a continuation of your postdoctoral work and inability to develop as an independent researcher. They all agreed that it is always good to pick an interesting project but staying not too far from your field of expertise. In case if the project is too challenging, it is always better to see if the project is workable inside your applied department, otherwise it is best to drop it for now. Also, it is a good idea to contact your potential collaborators before-hand.

How was the faculty job search and the application package changed over years?

Dr. Clark mentioned that now-a-days the universities are looking for more productive candidates, have a strong grant history and additional non-research activities, or in other words more accomplishments from a faculty candidate than 15-20 years before.

Ujjayini Ghosh, PhD, is a post-doctoral fellow in the laboratory of Robert Tycko in National Institute of Diabetes and Digestive and Kidney Diseases. Her projects involve the use of solid-state NMR and CryoEM to solve the high-resolution structure of a beta peptide obtained from the brain tissues of Alzheimer's disease patients.



CAREER OPTIONS FOR CLINICIANS

Career Options for Clinicians

by Meghan Good, PhD

Panelists:

- ▶ Abigail (Abby) Nash, MD, PhD *Associate Medical Director, Janssen Pharmaceuticals, Inc.*
- ▶ Louis Weiner, MD *Director, Georgetown Lombardi Comprehensive Cancer Center, Georgetown University*
- ▶ Sandra Wolin, MD, PhD *Senior Investigator, Center for Cancer Research, National Cancer Institute (NCI)*
- ▶ David Menschik, MD, MPH *Center for Biologics Evaluation and Research, Food and Drug Administration (FDA)*

“Take every opportunity as if it’s going to be what you are going to do for the rest of your life...sooner or later, something will crystalize for you,” advised Dr. Weiner, who admits that he is still trying to figure out what he wants to be when he grows up.

The consensus among the panelists detailing career options for clinicians is to be malleable and acknowledge the promise in every possibility. Dr. Nash, who earned an M.D. at University of Southwestern Medical School, found she was unable to do research in her area of interest during residency due to a lack of funding. Rather than surrendering to circumstance, she came to the NIH, where she went on to complete a postdoc. Janssen Pharmaceuticals visited NIH during Dr. Nash’s time at the National Institute of Mental Health (NIMH); and although she was an anti-pharm then, Dr. Nash took advantage of the chance to interview with the company. Doing so provided her with both insight and inspiration, as Dr. Nash realized Janssen could provide what she desired – the opportunity to undertake different projects every few years.

Similarly, becoming a regulator was the last thing on Dr. Menschik’s mind during training – but he couldn’t be happier about this unexpected turn of events. As a general pediatrician, Dr. Menschik was disheartened by the impression that nothing seemed to be effective in combatting pediatric obesity. Driven by his discontent, he pursued a Public Health and Prevention residency, after which he obtained a position at the FDA. Dr. Menschik currently works in the Center for Biologics Evaluation and Research (CBER), where he relishes a rarely achievable work/life balance and derives professional and personal fulfillment from the positive impact his position has on public health. Finally, Dr. Menschik feels like he is “really making a difference”.

For those of you possessing a preconceived notion of where you want to end up, it’s important to realize the path to the future is not a straight line. As Dr. Weiner describes, it’s a “voyage of self-discovery.” As an internationally recognized medical oncologist and accomplished researcher, Dr. Weiner recalls the critical turning point in his own career, which occurred when he was asked to make an exigent decision. Pressed with such responsibility, Dr. Weiner’s willingness to take a judicious risk led to the development of novel immunotherapy treatments in his laboratory. He currently holds a list of prestigious positions, including Director of the new MedStar Georgetown Cancer Institute. Dr. Weiner’s advice, “Focus on something that consumes you and something that, whether you get the answer right or wrong, will be interesting”.

Most importantly, “you can’t be what you can’t see,” acknowledges Dr. Wolin while emphasizing the importance of career panels. Despite building her career at Yale School of Medicine, Dr. Wolin doesn’t consider herself a clinician. After acquiring both an M.D. and a Ph.D. degree, Dr. Wolin rose to the rank of Professor in the Departments of Cell Biology and Molecular Biophysics and Biochemistry. Soon after, she served as the Director

of the Yale Center for RNA Science and Medicine; and last year, she was recruited by the NCI as Chief of the RNA Biology Laboratory. "Keep your eyes open and learn everything you can," she advised. By doing so, you will learn how to have an impact in ways you never expected.

The need to be flexible, explore options, and obtain an array of skills was emphasized by all panelists when detailing career options for clinicians. We may not know what the future holds, but we can be confident that these attributes, combined with perseverance and dependable leadership qualities, can lead to a position "in an area you are passionate about, and in an environment where you are supported (Dr. Menschik)".

Meghan Good graduated from Penn State Hershey College of Medicine and completed general surgery residency training at Lehigh Valley Hospital in Allentown, Pennsylvania. She is a clinical fellow in the National Cancer Institute (NCI).



BONUS SUMMARY

New Job – New Mindset
Top tips to be successful in your new position

by Dana Lewis, PhD

Speaker:

▶ Sharon L. Milgram, PhD

NIH Office of Intramural Training & Education

Although this Skill Blitz session was ostensibly about transitioning into a new job following completion of graduate school or postdoctoral training, it was incredibly relevant to anyone transitioning into a new position or environment, from postdocs to tenure-track researchers. This is because, according to Dr. Milgram, a successful transition of any kind depends on culture. Every work environment has differing cultural norms surrounding schedule, dress, communication, group dynamics, social interactions, level of independence, approaches to decision-making, feedback frequency, style, and more. Successful transitions come down to learning and understanding the culture (both spoken and unspoken) of the place to which you are transitioning so that you can "fit in where it is important to fit in and stand out where it is ok to stand out."

To learn a new culture requires one to think like an anthropologist: watch and ask. Dr. Milgram recommends observing culture at varying layers or levels. Watching peers, near peers, direct supervisors, and the dynamics within your specific office or lab can provide clues as to cultural norms and expectations. Asking specific, relevant questions to peers and direct supervisors can provide concrete knowledge of cultural norms. Dr. Milgram recommends asking peers questions about their own experience transitioning into the culture, and asking direct supervisors questions about things like scheduling, communication, independence, feedback, and specific skill sets necessary for success. Conversations with direct supervisors should also include frequently asking for feedback on process and product. Finally, Dr. Milgram recommends seeking out advice from mentors who can help you navigate the new cultural environment.

Regardless of how this anthropological study of a new workplace culture occurs (formally and/or informally), Dr. Milgram argued that it is necessary for getting success in a new position. However, Dr. Milgram cautioned that happiness and contentment in a new position rely on a good match of cultural norms. Because cultural norms and expectations associated with different positions and organizations vary, an anthropological study of a

workplace must start prior to the first day in a new position. Dr. Milgram recommends beginning the process of understanding the culture of a prospective job early in the process so that one might consider if/how the cultural norms of value to the organization align with the cultural norms of value to you.

Overall, Dr. Milgram spoke very positively about transitioning into new positions saying, "In general, if you've been recruited, the organization is invested in your success. You will all be successful, [but] even with success comes a lot of surprises and challenges." Using these tips as guidelines, one can transition into new positions successfully while minimizing the surprises and challenges encountered along the way.

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