

10th Annual NIH Career Symposium Newsletter --2017



10th Annual Career Symposium 2017

On May 11th, 2017, the NIH Office of Intramural Training and Education hosted the 10th annual career symposium. The purpose of the career symposium is to provide intramural and extramural early career scientists with information to help guide their careers. This year, to celebrate the 10th symposium, 98% of our panelists were alumni of the NIH training system. The panels represented the diverse careers available to scientists, from academia and industry, education and outreach, to government and policy to name a few. Panelists shared their job responsibilities, the moves they made to attain the career they wanted, and advice for hopeful job seekers. To review the symposium, we enlisted a group of volunteer trainees to attend and write a synopsis of the panels. We hope the advice contained in these write-ups provides useful information to you as you search for your future career.

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Faculty Careers

Transitioning from Postdoc to Faculty

Panelists:

- Archana Dhasarathy, PhD - Assistant Professor, Department of Biomedical Sciences, School of Medicine and Health Services, University of North Dakota
- David Soto Pantoja, PhD -Assistant Professor/Principal Investigator, Wake Forest University School of Medicine Comprehensive Cancer Center
- Cynthia (Cindy) St Hilaire, PhD - Assistant Professor of Medicine, Division of Cardiology, Vascular Medicine Institute, University of Pittsburgh
- Ameer Taha, PhD - Assistant Professor, Department of Food Science and Technology, University of California, Davis

NIH is a great place to prepare oneself for transitioning from postdoc to faculty positions because it provides a strong training environment which encourages people to develop all the skills required for pursuing an academic research career. In this panel, four faculty members from different universities and hospitals were invited to share their experiences and describe their day-to-day routines.

What are the strategies for transitioning from a postdoc to a faculty position?

Per the panelists, the basic mantra is 'NETWORKING'. Postdocs need to identify the institutes offering faculty positions, get in touch with a mentor sharing common research interests, write grants, and draft a teaching portfolio. Having a faculty position involves managing both funds and personnel. Hence, apart from sound lab skills, one needs to focus and sharpen managerial and administrative skills as well. Another transition path is to simply apply to open positions and in your application, highlight the novelty of your work and why you are a great fit for the position and department. Ultimately, you will be invited for an interview based on your science and the potential to fund it. So, be sure to state in your application why your science is novel, important, and applicable to this particular position.

What are the pre-requisites to be considered while applying for faculty positions?

The panelists provided a list of points they felt were crucial when considering applying for a faculty position:

- Have a sound track record of publications.
- Select the institutes that offer the best opportunities for growth in research careers.
- Network with senior scientists and faculty members at conferences and symposiums and keep in touch with them.
- Draft a sound cover letter and prepare a good application package, as these documents are crucial in the selection process.

What are the strategies early stage investigators should use to meet career deadlines to set themselves up for success?

According to St Hilaire, you need to discuss with your team's technical staff and postdocs the strategies that need to be adopted, revised, and/or implemented to attain your goals of publishing

and grant submission. Depending on your offer you may have between 3 to 7 years to “make it”, thus, you need to know the benchmarks for your specific institution and then set deadline for the benchmarks. Your staff should also be aware of these deadlines so that they may plan and prioritize appropriately. Although you have a plan, a new faculty member should be open to new research ideas that could stem from a discussion or collaboration with a colleague. You also need to have long, mid, and short range projects that you can use for rotation students to draw people to your lab.

How can faculty members seek professional funding and plan their budgets?

Soto Pantoja pointed out that a faculty member should be able to identify the funding priorities of funding organizations and check whether one’s research interests align with any of those priorities. They should consider the grant application screening process and communicate sound, innovative ideas convincingly to the funding authorities. The budget needs to be planned in advance and the funds should be wisely allocated and utilized.

Manju Bhaskar, PhD, is a Postdoctoral Fellow at National Institute of Neurological Disorders and Stroke (NINDS). She received her PhD. in Pharmaceutical Sciences at SPP School of Pharmacy & Technology Management in Mumbai, India, where she studied the formulation of aqueous suspension and pharmacological evaluation of Eclipta alba, Morinda pubescens and Withania somnifera for their neuroprotective activity. Her current research focuses on the mechanistic pathways of crosstalk between protein kinases in Alzheimer's disease. She is also a volunteer writer for the NIH Newsletter and an editor with the NIH Fellows Editorial Board.

Long Term Success as a Faculty Member

Panelists:

- Sharon Milgram, PhD - Director of OITE, former Professor at University of North Carolina, Chapel Hill (1994-2007)
- Erik Shapiro, PhD - Associate Professor of Radiology, Physiology and Chemical Engineering, Associate Chair for Research, Department of Radiology, Michigan State University
- Bradford Wilson, PhD - Faculty Member, Department of Genetics and Human Genetics, Howard University

For early-career scientists in academia, the main challenge is the transition from postdoc to faculty member, however there will be more challenges to face as scientists become established faculty members. This session gathered three scientists to discuss the steps they took to ensure their scientific survival. The messages each panelist conveyed to the audience can be broken down in to the following categories:

When you were a postdoc what did you do to ensure that you would succeed as a faculty member?

The panelists varied in their response to how they prepared for their faculty jobs, but most agreed that challenging themselves and recognizing their passions and interests were important. Wilson mentioned that he initially wanted to break into industry, so he set a goal to learn a new technique every year. When this strategy lengthened the postdoc from a few years to many

years, he realized that he would be better suited for a career as a research faculty. Milgram realized that she enjoyed public speaking and that teaching would be a good fit for her passion.

What strategies for mentoring do you find works for your lab?

The panelists collectively mentioned that finding students who fit the culture and research of the lab was an important priority. They also highlighted that giving trainees projects that have already shown some early success maintains long-term motivation. Finally, interpersonal skills were emphasized as key to fostering a successful lab. After having conflicts with a student, Milgram mentioned that retaining mutual respect is a crucial element in establishing a healthy mentor-trainee relationship.

How do you recommend establishing independence from previous mentors' work while not straying too far out of your field of expertise?

The panel could see the benefits of both scenarios with Wilson agreeing that taking a spin on the previous mentor's project is a good idea for building a solid lab foundation. However, Shapiro mentioned that it is important to emphasize that you, as a new independent investigator, have the capacity for independent ideas and your career will not run on the fumes of your former lab.

When you are hiring a new faculty member, how do you evaluate these applications?

Although faculty searches in theory are going to pick the best candidate, usually a department has already defined the profile of the person they want to hire. Some good advice would be to call the department chair or a search committee member and decide if you match the profile they're seeking.

Camila Coelho is a visiting fellow from Brazil at the Laboratory of Malaria Immunology and Vaccinology (NIAID) and her main project is related to BCR sequencing in B-cells from individuals who are immunized with transmission blocking vaccines.

Non-Traditional Faculty

Panelists:

- Nihal Altan-Bonnet, PhD - Senior Investigator, Laboratory of Host-Pathogen Dynamics, NHLBI, NIH
- Julia Oh, PhD - Assistant Professor, The Jackson Laboratory for Genomic Mutation
- Gabriel Parra, PhD - Principal Investigator, Laboratory of Hepatitis Viruses, Division of Viral Products, Center for Biologics Evaluation and Research, FDA
- Tijana Talisman, PhD - Assistant Professor, Department of Molecular Medicine at Beckman Research Institute, City of Hope Comprehensive Cancer Care

Have you always been interested in a career leading a laboratory, albeit in a different setting? This session featured four panelists who lead biomedical research labs at non-traditional institutions, such as government or private research institutions. As they shared their individual insights, a few themes emerged regarding what their jobs entail and how they obtained their positions.

How did you enter this career track?

All panelists described opportunities that arose while exploring the traditional university track. Parra, Altan-Bonnet, and Oh mentioned applying to academic and non-traditional positions. Altan-Bonnet and Jovanovic-Talisman both held traditional faculty positions before transitioning to their current institutions; they were principal investigators at Rutgers and University of Hawaii, respectively. Parra spent 2 years during his postdoc applying to more than 20 positions and applied for his current position through an advertisement on a society/journal's website. Similarly, Oh spent 6 months during her post-doc at NHGRI applying, mostly to Nature/Science/Cell ads and email alerts, while also making use of existing connections to attain her position at Jackson Laboratories. Altan-Bonnet emphasized using "back-channels" to determine hiring criteria by contacting faculty in the hiring department. Jovanovic-Talisman was hired for her position based on a collaboration that sprang from a presentation she gave at a meeting. Parra urged applicants to only apply to a few departments that suit them the best (i.e. less than a quarter of those for which they are eligible) as "Fishing isn't going to get you anywhere," he said. Jovanovic-Talisman urged applicants not to be tempted to accept offers where there are red flags, such as stories of deserving researchers not getting tenure or drama within the department.

What made you a successful applicant?

The panelists emphasized high impact publications and prior funding awards as the primary desirable resume items. Parra thought the lack of a K99 grant would hurt his chances for university positions more than his chances for non-traditional faculty positions. He said that the best one can do is prove that they are "ready to run", demonstrated by a thoroughly prepared application and stellar interview. Oh recommended tailoring the job talk for each interview, for example, highlighting the use of novel technology that might interest that department. Parra described an interview where his research talk was very close to the specific research topic the panel desired.

What are some alternate funding sources?

Most university professors mostly cover their research from NIH extramural grants, but this was not always true for the non-traditional faculty panelists. All four of the panelists listed in-house funding as a good source of income, such as philanthropic funds from donors and institutional revenue from investments, patents, and/or sales. For example, Jackson Laboratories generates revenue from their mouse strains, but is technically a non-profit because the funds are invested in their own research; City of Hope receives revenue from patented technology. Furthermore, the speakers mentioned being eligible for foundation and NSF grants. Parra mentioned that although the FDA has smaller starting packages than the NIH (to the best of his knowledge), none of that money is spent on core facilities such as microscopy or animal handling, which are performed free of charge in-house.

How different is the competition, evaluation, and tenure structures in such institutes?

The institutions described by our panelists were clearly different from how traditional academic universities are structured. For example, in Parra's case he will receive 6 years of guaranteed support, and the tenure decision of the Board of Scientific Committee will occur after that 6-year period. In contrast to NIH extramural study sections, Altan-Bonnet and Parra described the review processes at the NHLBI, DIR, and FDA, conducted by a panel of external researchers,

based on track record as well as an oral presentation, with only about a quarter coming from a written broad/rough proposal. Oh described her in-house peer review at JAX, where one can talk with their CEO directly about awards, renewals, and promotions. Thus, in both government and private sector, the investigator gets the opportunity to defend their ideas in-person to their evaluators. Although tenure structures were either absent or were structured differently, Oh urged the audience to consider that “even if you have tenure [at a university], what are you going to do if you can’t fund your research?” Overall, the salaries of principal investigators in our panel were comparable to those of university professors, within the range of \$80K to \$125K annually.

What are the other responsibilities beyond research?

The amount of time spent teaching trainees in the lab and students in the classroom varied greatly between panelists. Oh has a joint appointment with their in-house university, while Jovanovic-Talisman voluntarily handles teaching responsibilities comparable to that of university professors. Altan-Bonnet trains mostly postdocs in the lab, and Parra does relatively little teaching. Since Parra is at the FDA, he has the added responsibility of serving as an expert for reviewing FDA applications, which requires one month per application, during which very little research is possible.

Is running a biomedical research laboratory your goal? If so, then think about the research that excites you the most. Is it the logical next step for your field, or an offshoot into the unknown? If it is the latter, then expand your search to include non-traditional institutions and consider applying to those that suit your personality and goals.

Beverley M. Rabbitts, PhD, is a postdoc in the NHLBI, studying the molecular regulation of bioenergetics. She hopes to combine her passions for live imaging, enzyme kinetics, and model organisms in her future research lab, while continuing to communicate about science and science issues to a broader audience.

Teaching Intensive Faculty

Panelists:

- Hadley Bergstrom, PhD - Assistant Professor of Psychological Science, Vassar College
- Suman Mukherjee, PhD - Assistant Professor, Bunker Hill Community College
- Sara Pistolesi, PhD – Lecturer, Iowa State University
- Anca Segall, PhD - Professor of Biology, San Diego State University
- Petra Tsuji, PhD/MPH - Assistant Professor, Towson University

A career path in academia that emphasizes teaching is an often-underappreciated option available to NIH postdocs and postbacs. Five faculty members with a breadth of professional backgrounds, each with current intensive teaching and lecturer positions, discussed the advantages and considerations integral to this path.

The panelists repeatedly emphasized the importance of gaining some teaching experience, not only to serve as a sort of litmus test for your suitability for the field, but also as an essential component of a competitive CV for a teaching position. Moreover, these experiences allow you

to craft a teaching philosophy statement- an almost universally required component of most faculty position applications. Segall mentioned that some opportunities can benefit the instructor and the students. For example, careful engineering of lab courses could provide teaching opportunities to students, and with hard work and luck, preliminary data for grants or publishable experiments. Many of these part-time positions are paid, so these are also opportunities to earn a supplemental wage. Often, community colleges (e.g. Montgomery College) are seeking adjunct faculty, especially during the summer months. The Foundation for Advanced Education in the Sciences (FAES) at NIH is regularly seeking instructors to teach graduate-level courses to NIH postbacs, postdocs, and others. These opportunities will help build seminar speaking skills for prospective full time educators. These part-time, adjunct, and temporary teaching positions are critical; not only do they directly provide relevant teaching experience, they also as means to extend your professional network.

Additional advantages of these positions are numerous. If you are at a smaller, teaching-oriented university, there is less pressure to constantly publish. And since these positions are often funded via “hard” money, you are still paid a salary independent of your publishing output. You often have more flexibility in your overall scheduling capacity, a point that was important to Pistolesi. She pursued lecturer positions to have more time to be home with her children. Built into the job description, you must interact directly with people from all spheres of academia: undergraduates in your courses and their respective TAs, student research assistants in your lab, and other departmental faculty to discuss curriculum development. It is a constant stream of personal exchanges, providing a dynamic that could be a selling point for many.

An important counterpoint provided by Tsuji and Bergstrom, however, is that depending on the university, many search committees still put significant emphases on prior research experience, regardless of the extent of teaching obligations the position entails. The general stance is that it is not possible for the university to teach you how to be a successful researcher in your field, whereas teaching skills can often be learned over time. There are still plenty of opportunities to write grants to support basic science and teaching research (e.g. science education active learning strategies). Both the R03 and R15 NIH funding mechanisms, aimed to support research at smaller universities, were frequently mentioned by the panel as the common grants they targeted. Though it is crucial to continue to foster a productive research career as a postbac or postdoc, pursuing a career as teaching intensive faculty member will give you the satisfaction of being directly responsible for the education and scientific development of the future leaders in STEM.

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

Staying Close to the Science

Panelists:

- Silvia Arredondo, PhD - Staff Scientist, Center for Infectious Disease Research, Seattle
- Rebecca Berman, PhD - Staff Scientist, Section on Cognitive Neurophysiology and Imaging, Lab of Neuropsychology, NIMH, NIH
- Ludmilla Kelly, PhD - Senior Scientist at BioReliance
- Uri Manor, PhD - Director, Waitt Advanced Biophotonics Core, Salk Institute for Biological Studies

For many scientists, a dream job is working at the bench; however, we often overlook some of these positions without realizing how close they are to this dream. A diverse group of scientists discussed with the audience their experiences working as scientists at the NIH or in private sectors.

Staff scientists in academic institutes are senior researchers that work directly with their Principal Investigators, but they generally have greater autonomy on projects and pursue their research independently. They mentor students and trainees, help write grants for research funding, collaborate with other scientists, and attend scientific meetings to discuss their work. These positions can provide a high level of job security with guaranteed funding and salary. In industry, these roles have a similar job description and scientists there can have the power to decide which projects to accept or reject.

Manor gave some insightful advice, “Read the job description and if you love doing what is in the description, apply for it. You must be prepared for everything from managing to networking with experts in your area and being confident that you can do the job.” Berman mentioned that the OITE office provided excellent counseling to determine her best career fit, which led her to seek a staff scientist position within the NIH. Arredondo pointed out the importance of perseverance stressing that “job hunting takes time; it can be three, six or even twelve months.” Kelly stated she often notices someone with broad scientific knowledge tends to prevail in industry noting that “you have to understand what the company is asking for and you have to sell yourself to fill that need.” Furthermore, Berman and Arredondo emphasized that “Networking is very important to build the next step for your career.”

As a concluding remark, Berman emphasized that we should highlight our experience at the NIH, which can be used to showcase our excellent training. As NIH is one of the largest research centers, we should be proud to be part of this well-known research institute and take advantage of the opportunities that this place has to offer.

Jennifer Casiano-Matos is a Predoctoral candidate at NIAID/NIH, and her research focuses on unraveling the structure and activity of Chikungunya Virus nonstructural polyprotein. Her passion for research and communication prompted her to be a writer for the iJOBS Program at Rutgers University; her aim is to find a leadership position which she can promote science to a broader audience.

Consulting, Business Development, & Equity Research

Panelists:

- Gabriel Eichler, PhD - Founder and Managing Director, Oak Health Partners
- Grace Ha, PhD - Technology Consultant, Deloitte
- Yang Huang, PhD - Senior Associate Equity Research, Citi Research
- Sebastien Maloveste, PhD - Director, Business Development, GenVec

How does a science background stack up against a business degree in consulting? “A consultant who has a PhD and learns business is more valuable than a business person who learns science,” said Eichler. It is a tough transition but for those who manage to do so, they are valuable asset for the company. In many cases, whereas you can learn a lot about business on the job or in a few months, it is an advantage to have the technical experience and background that is hard to learn. The leadership positions of most pharma companies have MBA as an optional degree, but list a PhD degree or an MD degree as an essential qualification. With that in mind, “Having scientific skills is undeniably a plus, but they alone are not enough to get you into a consulting company or equity research,” argued Huang. Scientific skills can get you an interview but to go further, your resume must show your interest in business, consulting, or a related field.

Consulting is all about meeting people who are not just part of your consulting team but also clients from diverse fields. Thus, communication, confidence, adaptability, a desire to learn, and the ability to learn quickly are essential skills required for the job.

Having a strategy before venturing out for an alternative career is imperative. Research the profiles of businesses and people you want to work with and look for the qualifications required, catalogue skills that you have, and identify the skills that you need to acquire. If you wish to start a new company, bring on good advisors that compliment your weaknesses and blind spots. Do not juggle everything by yourself. Instead, be technically mindful and assign roles to other people responsible for the business structure, the maintenance of strong relationships with clients, etc.

Good communication skills are indispensable, where ‘story telling is fundamental to a human being.’ No matter what you tell a person, the most memorable aspect of the conversation is how you made them feel while you delivered the information. The better your elevator pitch, the better you will be at networking and creating meaningful connections. Moreover, your resume must show that you can work in a time sensitive environment while simultaneously coordinating complex research projects. If you can demonstrate how you communicate with different stakeholders in your complex research projects, that would be a key skill for not just equity research but for any top position.

Finally, networking is important in getting a job. All the panelists obtained their first jobs, if not all the jobs positions they have held to date, through networking. Your network is your insurance policy in the job market and the moment you begin your position. It is a resource that cannot be underestimated.

Shalini Tanwar, PhD, is a Postdoctoral Fellow at NIAID in the Laboratory of Immunology. Her PhD from National Institute of Immunology, India, involved the elucidation of unique roles of death pathways during development and differentiation of B and T lymphocytes. Her current research focuses on the intercommunication of T regulatory cells and myeloid derived suppressor cells in autoimmunity.

Regulatory Affairs & Science Management

Panelists:

- Christopher Case, PhD - Senior Scientific Administrator, Leidos Biomedical Research
- Dietrich Conze, PhD - Director of Pharmaceutical Development at ChromaDex, Inc
- Jason Warfel, PhD - Analytical Method Validation and Technical Transfer Lead at Bristol-Myers Squibb
- Corinne Zeller-Knuth, PhD - Senior Medical Information Scientist at Fresenius Medical Care North America

For those interested in performing feasibility studies and research evaluation for companies to fund products, while balancing product marketing within legal boundaries, a career in regulatory affairs and science management might be the right fit. Christopher Case chose his career path because he did not want to be limited to one science problem and preferred to use “diversity and variety to achieve scientific goals.”

So how do you get into regulatory affairs? Interestingly, all the panelists came from very diverse backgrounds, and like many recent PhD graduates, assumed an academic future. As time progressed, they ultimately decided to pursue non-academic positions. As postdocs, some panelists performed informational interviews to determine career options that interested them. Three out of the four panelists utilized their networks to access their job opportunities, while the fourth panelist applied online cold-call style. When asked “how do you get the job without any experience?” many of them pointed out simple methods that help them select applicants for interviews. Dietrich Conze suggested “knowing the lingo and tailoring your resume to the job” to help the company understand how you fit in. All panelists agreed that PhDs need to extrapolate their academic skills to a broader skillset and loosely interpret “experience”. Case suggested taking relevant classes or seminars to highlight on your resume, which would also feed into “knowing the lingo”. Ultimately, it comes down to packaging your experiences and collaborations to sound relevant to what many hiring managers want.

Now that we know how to delve into regulatory affairs, what is your role once you’re there? There is no simple answer. Each panelist had vastly different experiences from their positions – but there was one common thread. The panelists agreed that their days are a “mixed bag”, and their everyday goals vary depending on the needs of the client and company. They have all performed the following tasks at some point:

- interfacing with the commercial side of the company and multiple quality control and regulatory groups for method development and validation
- substantiating claims and supporting the development of new products
- researching potential company investments

- developing education for healthcare providers and promotions within federal guidelines
- designing studies to ensure federal requirements are met while also accurately testing the product
- researching companies and products for risk determination prior to acquisition

The panelists also discussed an important skill required for a successful career in regulatory affairs – the ability to learn. They felt that the thinking skills acquired during the PhD provides insight into various processes, and ultimately, taught them how to learn. Zeller-Knuth emphasized this by describing her experience in learning topics not related to her PhD studies and had never encountered prior to her career. Each panelist stressed the importance of learning from mentors through observation and critiques, which allowed Warfel to hone his writing skills by developing different writing styles. While not specifically discussed, a major skill all the panelists demonstrated was communication, as a significant portion of their day is filled with meetings, conference calls and emails, and interfacing with labs and clients.

Importantly, what would the panelists tell their former selves to better prepare for their career transition away from academia? They once again elucidated the importance of networking from unexpected networks (spouses and high school teachers) to common networks (coworkers and informational interviewers) and utilizing these networks you build. The panel also encouraged developing solid writing skills and suggested OITE training to hone writing style for content and keyword usage that tailors the document to specific audiences.

Tara Capece, PhD, is an IRTA post-doctoral fellow at NIAID. She received her PhD in Immunology from University of Rochester in August 2016 and began studying the lasting implications of the tumor microenvironment on immune cells in April 2017.

Sales & Marketing

Panelists:

- Mawadda Al-Naeei, PhD - Team Lead, Clinical Genomics Group, Illumina
- Jahda Hill, PhD - Scientific Director, Dudnyk
- Yeong Sang Kim, PhD - Technical Application Specialist, Biolegend
- Christopher McNabb, PhD - Medical Science Liaison (MSL), Bayer

Smiling and engaged, the panelists kicked off the session with a brief introduction of their background and how they transitioned into sales and marketing. Hill highlighted her role in developing and producing materials for pharmaceutical representatives, while McNabb explained his role representing Bayer in various scientific capacities from conveying to clinicians the scientific advances at Bayer to the type of travel he does as an MSL. Al-Naeei detailed her experience as a product transfer scientist and how she facilitates product advancement from the development stage to the implementation stage. Finally, Sang Kim discussed his chemistry training in Korea, his time at the NIH as an IRTA, and the technical support he provides in meetings for business development. The moderator then opened the floor for questions.

When in your postdoc did you start looking for a job and why?

The panelists said they started looking for a career as soon as they realized that academia was not their path to tread, whether at the beginning of the postdoc or several years into it. The reasons for leaving the bench varied, but often involved boredom or disenchantment with traditional academic roles, a desire to stay in science without being involved with hands-on experiments, and a passion for science communication.

What did you do to identify your “dream job” and how did you make yourself marketable for that position?

Making the switch to sales and marketing begins by identifying what aspects of a position you are most interested in. Informational interviews with people in positions you are considering and online resources like MyIDP, which helps match your interests with your abilities, are very helpful with this step. Next, it's important to focus on bridging gaps between what is missing from your resume and what you need for the role you're considering. You can improve your marketability through mentorship opportunities, courses offered by FAES, and developing your ability to organize and present science to a variety of audiences. Be aware, however, that sometimes you may have to take a pay cut or obtain additional certifications to gain necessary experience, but be confident and stick to your goal.

What was the application/hiring process like, including resume building, and how did you handle rejection?

Applying for jobs is an iterative process and you need to be persistent to be successful. Each resume you submit, as well as any cover letter, needs to be geared towards the position you are applying for. This process takes time and effort, but it is important to establish a good quality template to make these quick modifications easier from the get-go. On average, job hunting via LinkedIn, recruiters, and company career posting sites takes about 6 months, with an interview-to-hire timeline of about 1-2 months. There are many interview rounds, which usually includes behavioral and in-person interviews with human resources, hiring managers, and direct supervisors. Any job hunt will involve rejection and Mawadda stressed the need to stay positive to help deal with these, with the panel agreeing that handling rejection gets easier the more it occurs.

Change is frightening, but panelists urged the audience to remain positive, be persistent during the application process, and always work towards your career goals. While communication skills and the ability to present scientific material to a variety of audiences are essential skills for success, maintaining adaptability to changing situations within a company or market are key for excelling in sales and marketing positions.

Peter Cheney, PhD, is a first year CRTA Postdoctoral Fellow in the Developmental Therapeutics Branch of the NCI. He obtained his PhD in Biophysics and Biochemistry from RPCI/SUNY Buffalo where he characterized the mechanism of action of novel DNA intercalating small molecule anti-cancer compounds. His current research focuses on characterizing the mechanisms of action of novel topoisomerase 1 inhibitors entering phase 1 clinical trials.

Research & Development

Panelists:

- Nicholas Buss, PhD - Toxicology Project Leader, Biologics Safety Assessment, MedImmune
- Yevgeniy Gindin, PhD - Bioinformatics Research Scientist, Gilead Sciences
- John Simmons, PhD - Director, Translational Science & Diagnostics, Personal Genome Diagnostics
- Molly Perkins, PhD - Associate Director of Immunotherapy, Bluebird Bio
- Swati Mukherjee, PhD – Scientist, Vaccine Business Unit, Takeda Pharmaceuticals

The panel on careers in research and development featured many former NIH postdocs who have established themselves in medium to large sized companies. The themes of discussion for this panel were: networking, communication, and technical skills that are essential to these industry careers.

The panelists emphasized that employers always look for a skillset, including hands-on experience with specific models and methods. The panel agreed that while most technical skills can be taught, communication and “fit” of the potential hire with the existing team is equally important. Not only are interpersonal skills essential for success in industry, you must also demonstrate high motivation and success while working under strict deadlines. The ability to communicate a complex story in a simple way is more valuable than publishing high impact papers. Finally, during the interview it is important for the candidates to come across as personable and confident.

The panelists who pursued a postdoc valued their decision because it helped them build connections and collaborations with academic labs while strengthening their existing skills. Numerous publications will not greatly influence recruiters as hiring managers are looking for candidates with specific skills. If you have already nurtured those skills during graduate school, then a postdoc will not necessarily make you more competitive. Those panelists who did not do a postdoc stressed that mentors can give advice on whether a postdoc will be a necessity.

A better work life balance found in industry than that of academia is something the panelists strive for. Due to the rapid growth of his company, one panelist was candid about the lack of work life balance, but he also mentioned that this was his choice. Nonetheless, all the panelists agreed that work life balance is valued at their respective companies. Supervisors do not want stressed employees as it decreases productivity. When comparing large to small companies, the panelists acknowledge that one may work more than forty hours a week due to a smaller workforce. Occasionally, the panelists do work on the weekends, but they all mentioned that this is not very often.

The panel also stressed on the importance of networking. Industry professionals are always eager to talk and network with potential employees. It’s also helpful to remember that industry scientists may receive a reference bonus when they refer someone who’s subsequently hired. One panelist stated that she recently hired two new scientists who had reached out to her through networking. It was easier for her to hire these scientists than it was to read through twenty resumes from strangers. All the panelists noted that an additional way to contact industry

professionals is by visiting their posters at conferences and following up with them on LinkedIn. The worst thing that can happen is they ignore you on LinkedIn, so you have nothing to lose from talking to industry representatives. LinkedIn was the panel's most utilized networking tool. As a take home message: make sure you have a LinkedIn profile with all your skills listed. Finally, keep in mind that hiring managers are looking for friendly people who can interact with others. Interpersonal skills are essential for research and development careers in biotechnology and pharmaceutical companies.

Jennifer Symonds, PhD, is a postdoctoral fellow at the NIDCR and her research focuses on Fibroblast Growth Factor Receptors in developing salivary glands. She obtained her PhD in Cancer Biology from the University of Colorado Anschutz Medical Campus.

Non-Bench Careers

Technology Transfer & Intellectual Property

Panelists:

- Jason Warfel, PhD - Analytical Method Validation and Technical Transfer Lead, Bristol-Myers Squibb
- Julie Wu, PhD - Patent Examiner, United States Patent and Trademark Office
- Caren Petrie Aronin, PhD - Patent Agent for Intellectual Property, Wilson, Sonsini, Goodrich & Rosati
- James Whittle, PhD - Patent Attorney, WilmerHale LLP

Are you thrilled when you learn of an invention that is on its way to commercialization? The feeling of going through the details of a potentially impactful novelty can be sublime. A career in Technology Transfer and Intellectual Property (IP) will be the right fit for you if you would like to play a major role in the commercialization of an innovation.

This year's panelists came from diverse backgrounds. Warfel chose his profession even though he missed the opportunity of obtaining experience in regulatory work while at the NIH. Wu and Petrie Aronin mentioned how they explored the OITE resources to improvise and leverage their skills. Finally, Whittle highlighted his will to follow his passion of prosecuting patents.

During the discussion, panelists debated whether a Juris Doctor (JD) degree is necessary for a career in the field of IP. James Whittle mentioned that since he was always interested in becoming a lawyer, he went for a JD. Plus, to practice as a patent attorney, one must have this qualification. To consider the financial aspect of the JD, Petrie Aronin added that law firms often pay for those courses when required and it is always an option to consider if an individual is already working at one.

Candidates often encounter the dilemma of whether they are well suited for the advertised job. To this, Warfel encouraged the audience to seek out informational interviews with as many professionals as possible, which would allow the candidates to gauge whether their interest overlaps with field. He also recommended courses offered by FAES about the functioning of technology transfer and IP. Wu chipped in with the suggestion of internships – the best place being the NIH Technology Transfer Office for NIH fellows. For those interested in patents, United States Patent and Trademark Office and other law firms also provide such opportunities. Petrie Aronin emphasized the importance of transferrable skills that all scientists possess – writing, technical knowledge, interpersonal skills etc.

Transitioning from the bench to a technology transfer or IP-based career is not straightforward. It involves proactive preparation beforehand. Wu recalled that when she decided against pursuing an academic career during her postdoc, she started employing resources that could help her leverage her resume and secure a job as a patent examiner. Petrie Aronin made full use of the OITE resources for informational interviews. She contacted NIH alumni and networked ardently. Whittle started preparing for his LSAT and the patent bar during his postdoc. Choosing a career based on a geographical preference is also something that candidates should consider, especially if they have a family, said Warfel.

All-in-all, the panelists agreed upon the fact that the postdoc tenure should be used as a platform for individuals to seek out the best career opportunities and simultaneously develop skills for the job they so desire. More importantly, exploring the OITE resources and networking with professionals in the field of interest are immensely valuable.

Sayantana Chakraborty, PhD is a postdoctoral fellow at the NIA, NIH. He is seeking the connection between immune cell activation and its downstream response. He is also the editor for science communication, transition stories, and the idea generator for an online journal Club SciWri. Club SciWri is a group of science writers who focus on science communication and aim to strengthen the bridge between Science and Society.

Science Administration

Panelists:

- Betsey Wagener, PhD - Research Administrator, University of Arizona Cancer Center
- Rocio Benabentos, PhD - Associate Program Director, HHMI Science Education Program at Florida International University
- Rayna Truelove, PhD - Program Officer, Woodrow Wilson National Fellowship Foundation
- Nick Anthis, DPhil - Program Officer, University of California, Office of the President

The science administration panel featured former NIH fellows that have pursued a career path in science management at universities and non-profit organizations. Interestingly, three out of four of the speakers have worked in the OITE office in one way or another, demonstrating the value in seeking opportunities outside the lab to round out your resume.

The panelists unanimously highlighted the importance of networking, especially by staying in touch with your previous mentors, via the occasional email. The speakers pointed out that your network is larger than you would think and can include friends, colleagues, mentors, and the added resource of these persons' networks. They also insisted on the importance of informational interviews as an essential networking tool.

They agreed that one of the most challenging transitions away from the bench is coming to terms with the possibility of no longer being an expert in your field, as you may work on a topic different from what you've trained for previously. Science administration requires you to be a constant learner because you read proposals from multiple fields. Additionally, because you work with others to meet submission deadlines, the work culture is very different, especially when it comes to time management and interpersonal skills.

Concerning work life balance, the panelists stressed the importance of being confident and asking for what is needed. A good supervisor will work with you to maintain that balance. All the panelists indicated that they enjoy a good work life balance, even though they might have to work outside normal business hours from time to time to meet a big deadline.

Since many of these positions are found in universities, hiring of non-US citizens will be possible, but science administration positions within the US government will have more restrictions. If you are concerned about this, develop your networking skills and ask for informational interviews to discuss this topic with future potential employers.

You should also look at the broader implications of the side activities you've pursued during your research career. For example, running a journal club will show one's ability to organize meetings for a group to meet and discuss a specific topic. Try to emphasize the relevance of your activities, like how journal clubs provide education and communication opportunities for scientists. It also helps to closely examine the job description and line up what the employer wants with the skills you already have. When you work in a lab, you are a project manager, you order materials and you present your work at conferences. Also, remember to seek out other activities, like volunteering or writing to round out your resume. As demonstrated by this panel, the OITE office at the NIH can provide volunteer opportunities within their office or point you in the right direction for seeking out other prospects. Finally, all the panelists insisted on the importance of informational interviews as networking strategies to learn about these types of positions and thus find your next career.

Jennifer Symonds, Ph.D., is currently a post-doctoral fellow at the NIDCR and her research focuses on Fibroblast Growth Factor Receptors in the developing salivary glands. She obtained her Ph.D. in Cancer Biology from the University of Colorado Anschutz Medical Campus

Federal Government

Panelists:

- Prince Awuah, PhD - Biologist at Food and Drug Administration (FDA)
- Jue Chen, PhD - Health Science Administrator/Program Director, NHLBI, NIH
- Ian Hutchins - PhD, Data Scientist, Office of Portfolio Analysis, Division of Program Coordination, Planning and Strategic Initiatives, OD, NIH
- Marijke Koppenol-Raab - PhD, Biomedical Life Scientist at Leidos supporting Congressionally Directed Medical Research Programs

Details, how to get a detail, and more on details – the main topic of discussion at the Careers in Federal Government panel was clear early on. While other useful strategies, such as networking and informational interviews were also emphasized, details were the stars of the hour when it came to landing and succeeding in a federal government career.

The panel consisted of four members, who represented a broad spectrum of careers in the federal government for scientists, all started as postdocs at the NIH. This allowed them to access career development support from NIH Office of Intramural Training & Education (OITE) and exposed them to a plethora of networking opportunities. Half of the panelists found their current position by doing a detail, while the other half credited networking for the success of their job search.

A detail is a federal government version of an internship that allows trainees and employees to gain experience and explore careers in a different federal office, typically in a career area away from the bench. Details can be part- or full time, and last anywhere from three months to a full

year. While typically the PI continues to pay the detailee, it is possible to find a funded detail opportunity, albeit significantly more difficult. All the panelists stressed that doing a detail provides a postdoc with the best opportunity to transition to a non-bench federal science career. Often times, a little less than half of all the details lead to a permanent position. Even when they don't, they provide the detailees with relevant work experience for a competitive resume. It was agreed upon that the best time to do a detail is towards the end of a postdoc, ideally the year before one starts looking for the next position. Different tactics to find a detail were discussed in great length. The most common way is through networking and informational interviews, but there are also more formal ways, such as through official detail postings and the OITE. Panelists gave sound advice on getting your PI's permission to do a detail with an emphasis on the fact that permission is more readily given if the detail is part-time. Also, having an independent source of funding, such as Postdoctoral Research Associate Program (PRAT) fellowship, can really help. Transitional fellowships such as AAAS generally provide another great way to ease into federal government careers.

It was also pointed out that informational interviews are excellent career development tools with many benefits: not only does one get to learn more about prospective career path, but also to network and learn about possible detail and job opportunities. All the panelists highlighted the importance of networking when transitioning into a new career area.

Finally, the skills necessary to be successful in a federal government career were discussed, and it was agreed that most postdocs already possess appropriate skills developed through their research career, the so-called transferable skills. Also, lots of training for new employees is available at the federal movement, and any lacking skills could be learned and developed. Overall, the participants encouraged the audience to try and ask themselves what they are looking for, to start preparing for it early on, and to network a lot for a successful transition.

Tatjana Atanasijevic obtained her PhD in Nuclear Science & Engineering from Massachusetts Institute of Technology, where she worked on design and development of calcium-sensitive contrast agents for functional magnetic resonance imaging. Currently she is a research fellow at NINDS in the Laboratory of Functional and Molecular Imaging where she focuses on less invasive manganese delivery methods to the brain.

Science Education & Outreach

Panelists:

- Catherine Swanwick, PhD – Chief Executive Officer, Catilli Games, and Teacher at Fauquier High School
- Madeline Sofia, PhD - Science Reporter, National Public Radio (NPR)
- Michael T. Kim, PhD - Physics Teacher, Wootton High School
- Julie Louie, MA – Exhibition Designer, Smithsonian Institution, National Museum of Natural History

“Overqualified” is the nickname given cynically by fellow teachers to Swanwick, who finds herself having to explain why someone with a PhD would teach high school science. Her overwhelming passion for teaching and communicating science led her from being an NIH

postdoc to becoming a full time high school teacher and CEO of her own educational board game design company. The other three panelists are driven by the same amount of passion for communicating science to the public, whether through museum exhibits, radio journalism, or being a school teacher.

The path to a science outreach job often begins with a volunteer opportunity to gain experience. Sofia, a science reporter for the National Public Radio (NPR), started out with science podcasts during graduate school. Julia Louie, an exhibition designer, volunteered at the National Museum of Natural History during her postbac at the NIH. What started out as a hobby eventually became a career when they realized they were getting more satisfaction from their volunteering activities than from their day jobs.

The different types of science education/outreach have different desired outcomes and thus, different challenges. Kim, a high school physics teacher, wants to teach his students much more than just physics, chemistry, and biology. He wants to show students that beyond their AP tests, science is relevant to their lives and hopes that this would eventually translate into a lifelong curiosity for science. While he gets to interact for several hours a week with his students, the average visitor to the Museum of Natural History spends about only ten minutes on an exhibit. Consequently, exhibits are designed not to teach, but to let the visitors explore and give them the resources to find out more on their own. For an even shorter experience with the target audience, a science story on NPR runs on average for just a few minutes. Radio journalists need strong story telling skills to distill a journal article down to an engaging sound bite that the average listener can understand and find interesting. Sofia from NPR said that while it is uncomfortable at first, you learn that “you can and have to leave information out” otherwise no one will get the story.

All the panelists agreed that strong presentation skills are a must. Whether it is dealing with difficult parents, teaching science in a classroom, or recording a story for NPR, making things as simple as possible is invaluable. Swanwick recommended using the NIH training resources (volunteering for the editorial board, writing, or even mentoring a high school summer student) to brush up on communication skills. The panelists also agreed that “being able to wear a lot of different hats” is another useful skill. When you build a museum exhibit, you must draw the plans, design and source for materials, write the text, and take on all the different jobs an exhibit needs from start to finish. When you produce a radio story, you should read the press release, call the scientists, write the script, work with the editor to make sure there is no jargon, build the accompanying gifs, videos, photos that go with the story online, record the story, and then finally do some of the audio engineering. Rather than the depth of knowledge that academic science requires, some of these jobs require you to be a “skimmer rather than a diver”, where being a jack of all trades is more valuable.

It was not difficult for each of the four panelists to leave their research career behind because they were so passionate about their respective pursuits. However, Sofia of NPR stressed that scientists need to learn how to communicate their science better and they do not necessarily need to leave the bench to do it. She helps run “Joe’s Big Idea”, a nationwide outreach program that trains scientists to become better communicators, and gives them the resources to network or run science cafes in their local areas. Whether you are “overqualified” or not, science education and

outreach is a diverse field with many interesting jobs that can provide a rewarding career for those passionate about it.

Huimin Chen is a postdoctoral fellow in the Laboratory of Receptor Biology and Gene Expression. She received her Ph.D. in Applied Physics from Cornell University, and is currently trying to develop a tool for site-specific perturbation of alternative splicing.

Science Policy & Advocacy

Panelists:

- Greg Frank, PhD - Director, Infectious Disease Policy at Biotechnology Innovation Organization
- Stephanie Mok, PhD - Policy Analyst at the Office of Information and Regulatory Affairs, within the Office of Management and Budget, Executive Office of the President
- Kevin Ramkissoon, PhD - Health Science Policy Analyst, Office of Science Policy, OD, NIH
- Anna Burkhart Sadusky, PhD - Director, Regulatory Science and Policy at American Association for Cancer Research

Have you ever wondered how to make a difference within the scientific community without having to lift a pipette? Do you wish to use your scientific expertise to impact the outcome of future regulations and/or public communication? If so, a career in science policy may suit you. Science policy can be broadly defined as a career bridging the field of scientific research to public knowledge and making recommendations for changes in statute which may dictate future law. Clearly, science policy exists as a multitude of careers under one label. This was evident at the science policy and advocacy expert panel, with panelists representing policy within non-profit associations, government, and industry.

Sadusky described her current position as a liaison to government agencies, non-profits, and the public on issues relating to cancer research and discovery. If an issue is gaining interest, she becomes a resource for the American Association for Cancer Research base relative to that subject. This job therefore, requires a strong background in the sciences to understand the current research and to determine the outlook and level of interest generated from the FDA and industry toward each new finding.

Science policy in the government is significantly driven by federal regulations in healthcare and science research sectors. Some policy analysts within the government spend time evaluating the scientific literature to ensure regulations are based on evidence-based research and public health need. Mok oversees federal regulations across a wide-range of health and science topics including drugs, devices, biologics, biosecurity, clinical research, and reporting. Ramkissoon also works in the field of government policy and said that there is “no typical day” in government policy, he mentions that the job includes providing recommendations on policy, determining how the policy will impact the scientific community, and rapidly changing focus based on current events.

Representing the policy side of smaller biopharmaceutical companies, Frank's work focuses mainly on policy subjects such as antimicrobial resistance (AMR) and vaccines. Within this type of policy, the goal is to ensure consensus on the representation of the written policy as well as engaging with the FDA, NIH, and other federal agencies to advance key AMR and vaccine policies. In addition to a scientific background, Frank emphasizes that skills such as effective researching and quick reactions, often obtained in graduate and postdoctoral environments, are essential to be successful in a policy career. Frank also highlighted the importance of communication with members, as consensus building is key in science policy.

Although each of the panelists represented a different section of science policy, all had similar advice on how to transition into this career from the bench. Having moderated the science policy panel in a previous OITE career symposium, both Ramkissoon and Frank suggested getting involved in extracurricular activities. Practicing writing skills, for scientific and lay audiences, was indicated as being greatly important by all panelists. Mok and Sadusky recommended finding ways to broaden knowledge about different areas of research and determine their big picture impacts. Each of these attributes will result in a strong science policy candidate.

Abbey D. Zuehlke, PhD, is a Postdoctoral Fellow within the Urologic Oncology Branch of the National Cancer Institute. Zuehlke works in Len Neckers' lab and her current research focuses on the molecular chaperone Hsp90 and its role in oncogenesis. She received her Ph.D. at the University of Idaho studying the role of co-chaperone proteins in the regulation of Hsp90 function.

Writing & Communication

Panelists:

- Nicole Hunt, PhD - Senior Medical Writer, Citizenship LLC
- Mac (James) McGuire, PhD - Medical Writing Manager, Cardinal Health
- David Mellert, PhD, PMP - Senior Scientific Writer at The Jackson Laboratory
- Lindsey Pujanandez, PhD - Associate Editor, Science Translational Medicine

"I remember adapting to describing unfamiliar data and summarizing it in less than an hour to a superior. It felt like a sink or swim situation. The writing can be taught on the job, but not your analytical thinking," said McGuire.

Throughout the discussion, critical, structured, and fast thinking were constantly highlighted as essential skills one needs in science communication. The good news is, "Critical thinking is what we are all trained in," said Pujanandez.

Except for editing science journals, a postdoctoral training is not necessary, especially if your portfolio highlights your capabilities, such as a blog or previous experience in scientific communication. However, all four panelists urged not to dismiss your postdoctoral training. "Your writing may not dramatically change, but postdoctoral training helps improve your thinking", explains McGuire. "As a scientific writer, you need to be able to think like a grant writer or reviewer, and a postdoc helps you hone these skills", said Mellert.

Despite reassurance, the job search process for a non-bench field can be daunting, and the panelists warn that it might take longer than anticipated. Using networking platforms like LinkedIn is an efficient way of advertising your skills. “If you leave a phone number, recruiters will contact you through LinkedIn,” explains Hunt, who found her first job after her NIH fellowship through a recruiter. However, the consensus was that once your foot is in the door, promotion and transition between similar positions in science communication are generally quick. Indeed, while science communication includes several forms, from the more structured regulatory writing that McGuire or Hunt perform to the wide range of editing grants and manuscripts that Mellert and Pujanandez tackle, their respective skills are transferrable. After spending several years in pharmaceutical companies as a medical writer, Hunt has even started a freelance writing business, where she anticipates covering a wide range of writing, including scientific, inspirational, as well as scripting property management documents.

What’s a good way to approach this path? The panelists suggest highlighting your transferrable skills on your résumé – such as interpersonal skills, developing new protocols, etc. A scientist’s arsenal is rich in these and are directly applicable to non-bench careers. “Future employers should realize your tangible assets and the candidate must demonstrate their value”, says Pujanandez. While you may not possess the exact experience described, job descriptions shouldn’t be taken too literally. “Obviously, don’t misrepresent yourself, but also learn to loosen up the restrictions you set on yourself”, adds McGuire. Practically, bringing your publications, grants and manuscripts to interviews can be a good way of showcasing yourself.

Ultimately, all forms of science communication are about storytelling, that’s what the audience connects to. “Think about how you would explain your research, or a scientific subject to your grandparents,” joked McGuire. Identifying your target audience and distilling down complex concepts to easily digestible ones is fundamental to communication. “Develop the need to see the big picture of the science you want to relay,” advises Hunt. Understanding how scientific research comes full circle and the real-life impact it has on people is a good way of remembering that. A final unanimous advice the panelists gave was that the best form of writing is collaborative. Just like in our research, an accurate way of improving skills is to be open to feedback and criticism, especially from colleagues with different areas of expertise.

Caecil 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.

Bonus Panels

Options for Clinicians

Panelists:

- Antonio T. Fojo, MD/PhD - Professor of Medicine, College of Physicians and Surgeons, Columbia University, and Co-Director, Adrenal Center, Department of Medicine, Division of Hematology/Oncology, Columbia University Medical Center
- Tiffany M. Powell-Wiley, MD/MPH - Stadtman Tenure-track Investigator, Cardiovascular and Pulmonary Branch, Division of Intramural Research, National Heart, Lung and Blood Institute (NHLBI), NIH
- Meghna Alimchandani, MD - Branch Chief, Pharmacovigilance in the Division of Epidemiology, Office of Biostatistics and Epidemiology, Center for Biologics Evaluation and Research (CBER), FDA
- Lee-Jah Chang, MD - Director, Clinical Sciences, Sanofi Pasteur, Swiftwater, PA

Life is defined by our choices, and medicine is certainly a life-defining choice. From there, what's next? The formative stages of the panelists' careers occurred at the NIH, with opportunities for advancement in academia, industry, and government. Each panelist emphasized the role that mentoring had in shaping their own careers. "When you find mentors who are selfless in their support of you... you want to foster and maintain those relationships." said Powell-Wiley.

"The NIH is a great place to train. You're in an excellent position to receive excellent training." said Fojo while emphasizing to the audience that what you're doing now matters as you accumulate experience. He built a career at the NIH, spending 32 years at the NCI, as the program director for the Medical Oncology Fellowship Program for eight years before becoming a professor at Columbia University, New York.

Powell-Wiley began her training in the NIH Clinical Research Training Program and returned to the NHLBI in 2011 as an assistant clinical investigator. Her internal medicine training at Brigham and Women's Hospital and cardiology fellowship at the University of Texas Southwestern Medical Center nurtured an interest in epidemiologic and community-based research with a particular focus on obesity in cardiovascular disease prevention for populations most impacted by health disparities. She was recently promoted as a Stadtman Tenure-track Investigator at NHLBI where she leads the Social Determinants of Obesity and Cardiovascular Risk Laboratory.

A short-term training experience at the FDA opened up a previously unforeseen career path for Alimchandani during her time as a clinical research fellow at NCI. In her current position, she directs the Pharmacovigilance Branch at the FDA Office of Biostatistics and Epidemiology, which is tasked with monitoring market drug safety. The FDA provided coursework and other resources to build upon her medical knowledge base and ease her transition into the agency. When describing how her job fits into a clinician's skill set, Alimchandani said, "... what I like is the writing aspect of it [the FDA]... and bringing new treatments to patients. It's very exciting to be a part of the process."

Highlighting the difficulty of breaking into industry as a clinician, Chang encouraged the audience to apply and interview broadly. With experience running vaccine studies at the Vaccine Research Center (VRC) with NIAID, he found a welcoming atmosphere at the international pharmaceutical company Sanofi Pasteur, where he is the Clinical Team Leader for six vaccine programs. A background in the operational aspects of clinical research at the VRC provided a stepping stone for his industry entrance. Chang now finds himself applying his medical skills in clinical development strategy, traveling abroad on a regular basis. Chang said “You are what you imagine yourself to be... The possibilities are endless” while encouraging the audience to envision how their own interests inform their career aspirations.

At different stages of their careers, one thing was clear: the NIH had played an integral part in shaping the panelists’ career paths. With a myriad of fellowship programs available to clinicians in the intramural research program, opportunity is always out there for those who seek it.

Alec Calac graduated from the University of Arizona with a B.S. in Neuroscience and Cognitive Sciences. He is a postbac IRTA in the National Institute of Neurological Disorders and Stroke (NINDS).

Building an Online Presence for the Job Search

Presenter: Anthony Williams, PhD - Scientist, National Center for Computation Toxicology, EPA
20th Annual NIEHS Biomedical Career Symposium – EPA Campus

In the age of the internet, an online presence can be the perfect accessory to a resume or curriculum vitae. Dr. Antony Williams (U.S. EPA) gave an instructional talk focused on the free tools that are available for building this presence. He noted that human resources departments will examine these profiles as part of the vetting process. Williams discussed the tools available and noted which he felt were the most valuable.

As researchers, disseminating work is crucial for reaching an audience beyond one’s lab or institution. Typically, this occurs via publications or conference presentations. However, Williams referenced disappointing statistics on the number of times an academic journal article is cited, and conference presentations often reach a limited audience. Two tools available are ResearchGate and SlideShare. ResearchGate furnishes the ability to share pre-print versions of manuscripts (publisher and licensing rights pending), open access manuscripts, presentations, and data files. SlideShare is a resource for sharing presentation slides, documents, videos, and infographics; view Williams’ own profile with the slides from this workshop via slideshare.net/antonywilliams. Both tools lead to a wider audience, more citations, and direct feedback from viewers.

Social media is also a great tool for networking and sharing work or ideas. From Twitter to LinkedIn, wider audiences and new connections are one click away. Connections made on these platforms lead to academic banter and discussion, self-promotion via endorsements, scientific collaborations, and even job opportunities. Academic journals have begun making digital prints

of articles ready to share on social media sites. This capability can lead to criticism and new insights, both of which are crucial for research. Williams stated that LinkedIn is the most commonly used site for human resources inquiries.

Publons is a useful and novel website which allows users to anonymously, or non-anonymously depending on the publisher, take credit for performing peer reviews of manuscript submissions to academic journals. Since performing peer reviews is a part of many scientists' careers, a public profile showcasing their activity indicates a researcher's expert status and participation within a certain area. Prior to Publons, this duty and honor was difficult to acknowledge and largely overlooked. Further, Publons delivers an additional location to document publications and link them with Altmetric, a tool which shows online activity of research content. Similarly, Kudos associates publications with Altmetric but also allows users to comment on their own publications from a personal, non-technical perspective.

Finally, many of these tools and academic journals are linked via ORCID, a unique scientist's identifier accompanying a public profile that can also function as an electronic curriculum vitae. Devoting a minimum of two hours per month on developing and maintaining an online presence is all it takes to promote professional activities and make a larger impact. Focusing on ResearchGate, SlideShare, LinkedIn, Publons, Kudos, and ORCID leads to an ideal combination of self-marketing that can boost a researcher's professional online presence.

Rachel Carroll, PhD is a research fellow in the Biostatistics and Computational Biology Branch of the National Institute of Environmental Health Sciences. Much of her work there involves spatial survival analysis of breast cancer data.