

9th Annual
NIH Career Symposium
Session Synopsis

2016



9th Annual Career Symposium 2016

The diversity in career options for doctoral-level scientists continues to expand; yet identifying opportunities and choosing the right path can seem daunting and overwhelming. On May 6, 2016, to inform trainees about potential career paths, the NIH OITE hosted its 9th Annual Career Symposium. Over 60 speakers from government, academia, industry, among other sectors, shared their experiences in an effort to inform future job seekers about different career trajectories. To recap this year's career symposium, we have compiled summaries from the 16 panels, written by an excellent group of trainees that attended the sessions. We hope these synopses serve to remind or inform you of what it takes to get a job in the career of your choice.

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Sharon Milgram's Opening Remarks "Thoughts on Being Happy in Work and Life."

Your internal monologue is constantly commenting on your life. Paying attention to this voice in your head can be stressful, but we can change the tone of this voice to guide our happiness. Citing the work of social scientist Dr. Martin Seligman, Dr. Sharon Milgram named our negative internal monologue as ANTs, or automatic negative thoughts. Like the pesky picnic arthropod, these ANTs slowly steal away our happiness, one crumb at a time. We frequently tell ourselves that we don't work hard enough, or that we don't belong. We often get caught in a swarm of ANTs that can decrease our happiness for the whole day. When we recognize ANTs, we can learn to alter them and encourage positive thoughts that set us up for success instead of failure. When you realize your internal monologue is riddled with ANTs, Dr. Milgram suggests taking a pause, naming the negative thought and questioning its validity. Examine your own ANTs and you'll find that these worries are unreasonable. Do you really think your PI is going to fire you because you misspoke in lab meeting? No, of course not. Practicing self-awareness like this in small ways will eventually tame ANTs and make everyday anxieties easier to manage.

Next, Dr. Milgram focused on stress in young scientists' lives. As post-docs, we are constantly asked about our career goals increasing our anxiety. Typically, we are offered two career choices: principal investigator or "alternative." Dr. Milgram stressed, "there is no such thing as an alternative career." Realizing that any career you chose is the right decision, and is therefore not an alternative, may be the most liberating thing you do as postdoc. When choosing your career path, it is important to remember that the only opinion that matters here is yours. We need to work together to focus on what we each want out of our careers, not what is expected.

We also need to recognize the training we received during our theses can be applied to many different career paths and our personal lives. Training as a scientist gives you a valuable tool for success and happiness: resiliency. You've gained your resilience, now apply it to every aspect of your life. Now is the time to become self-aware and build the emotional intelligence to make it through your postdoc. When you doubt yourself, retell your own resiliency story. You know what it means to do the same western blot for a month to test a hypothesis. You know you can work hard and still come through.

Another way to boost your resiliency and find happiness and success is to figure out your go-to strategy for self-care. Unfortunately, we learn so many things in graduate school, but we often don't learn to work hard and still be functionally human. Everyone finds self-care through different avenues and it truly must be an individual experience. We can find our own strategies for self-care by tapping into our non-scientific communities. Dr. Milgram points out that our identities do not solely stem from our roles as scientists. There's more to each of us than those letters after our last names. We are all family members, friends, and partners. Some of us are athletes, artists, or musicians. Belonging to multiple communities enriches our happiness and lives. This can act as a well of resiliency, as safe spaces to temporarily escape the lab. Learning to embrace our whole selves and recognize negative thoughts are all part of becoming self-aware. These strategies for finding happiness and exterminating negativity are tools for success in any career or life.

Jennifer Symonds, PhD, 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 PhD in Cancer Biology from the University of Colorado Anschutz Medical Campus.

Industry Panel

Careers in Large-Sized Companies

Many scientists choose to transition to a career in the fast-paced environment of industry. In this panel, four scientists from large pharmaceutical and biotech companies discussed their transition from a postdoctoral position to industry, daily tasks and expectations on the job, what hiring managers are looking for in a future employee, and how common myths associated with industry careers don't hold true. The speakers included Rose Brannon, PhD, Investigator from Novartis Institutes for Biomedical Research, Eric Dixon, PhD, Senior Research and Development Manager from BD Technologies, Wenny Lin, PhD, MPH, Senior Real World Data Scientist from Genentech, and Patrick McTamney, PhD, Scientist I from MedImmune.

Tip for job applicants

Large companies often seek candidates who have completed a postdoctoral fellowship since it is rare to possess the necessary skillset with only graduate school experience. While job postings for positions in industry include a laundry list of every skill and experience desired, it is not necessary to possess all the required skills to apply. The hiring managers will select the applicants that most closely match to the posting and it is unlikely any single candidate meets all criteria. Networking is key to landing a position in industry. Knowing someone who already works there and is willing to pass your CV to the hiring manager will increase your chances of having your application viewed and getting hired. Many industry companies sponsor work visas for non-US citizens as long as the candidate possesses the required experience for the position. If a job is needed to fill immediately, companies are less likely to hire non-US citizens due to time constraints.

Can you describe your transition to working in industry?

The main difference between working in academia and industry is the mentality with which you approach your project. The mindset in industry is focused on product development and a project can be terminated if it does not reach the required milestones. There is less time dedicated for each project and thus it is necessary to work efficiently and have a flexible attitude to transition to the next idea. Dr. McTamney described how his prior postdoctoral experience in vaccine development at NIAID really helped him make a smooth transition to the vaccine work he currently performs. Despite the fast-paced nature of working at a large pharmaceutical company, he mentioned how his employer really values employees maintaining a balance between work- and family-life.

Is there any truth to the belief that there is a lack of science being carried out in industry or that those with too much academic experience are not hired in industry?

In addition to promoting product development, many pharmaceutical companies also publish scientific articles in reputable peer-reviewed journals. Having an outstanding track record of

publishing in industry can really help further your career. Many scientists that work in industry were hired after gaining research experience at an academic institution. Dr. Brannon discussed how her section lead acquired the current position after having worked for many years in academia. In general, obtaining a job in industry is closely tied to how well you meet the position's desired experience and skillset.

Pragnesh Mistry, PhD, is a Postdoctoral Fellow in the Systemic Autoimmunity Branch within NIAMS. He received his PhD in Microbiology and Immunology at the University of Maryland, School of Medicine where he identified novel small molecule inhibitors of Toll-like receptor 2 signaling using Computer-Aided Drug Design. His current research focuses on characterizing low-density granulocytes in autoimmune and autoinflammatory diseases.

Careers in Small/Medium-Sized Companies

To the many postdocs and graduate students who are looking beyond the tenure-track academic career path and still stay in touch with cutting-edge scientific research, startup companies offer perfect career paths. Either by developing a niche idea into a marketable product or by joining an existing startup company, there are many opportunities to directly apply technical skills acquired from graduate and postdoctoral training and to pursue translational applications of scientific research to improve lives. Four speakers in the Careers in Small/Medium-Sized Companies panels discussed their backgrounds and current roles while providing some advice for people considering similar career paths.

Maria Sol Collado, PhD, a neuroscientist by training, is currently a Program Leader in Rare Diseases at Hemoshear Therapeutics. Her job entails developing and implementing new neurological disease models for the development of therapeutics. She transitioned from a career in basic research as a postdoc at the NIH into industry, and advised postdocs and graduate students contemplating a similar path to be strategic in choosing research areas as well as advisors. In her case, the technical skills acquired during her graduate and postdoctoral training proved critical in securing her first position at Hemoshear Therapeutics, from which she worked her way up to her current leadership position.

Anastasia Aksyuk, PhD, also an alumna of the NIH postdoctoral fellowship program, is currently a Scientist at Meso Scale Diagnostics. In her current role, she works with clients in industry and academia to develop assay solutions for their research and clinical needs. She performs bench research as well as data analytics and presentations to clients. Dr. Aksyuk listed analytical thinking and multitasking as some of the most important skills required for her job. When asked whether postdoctoral experience was relevant for her role, Dr. Aksyuk stated that while a postdoc is helpful in allowing an applicant to show a wider range of experience, industry experience is even more valuable. She encouraged postdocs to consider pursuing industry job experience before starting graduate school as this would give them a leg up in pursuing industry jobs in the future.

For his part, Matthew Mulvey, PhD, who is the CEO of BeneVir Biopharm, summarized the path to his current position as involving “10% hard work, 40% luck and 50% networking”. In pursuing his career goal of providing healthcare solutions to the poor, Dr. Mulvey co-founded BeneVir Biopharma, a biotechnology company that develops virus-based cancer therapeutics. He described the process of building a startup as non-linear and compared it to “flying an airplane while building the airplane”. His advice was to not expect things to always go according to plan and to consider mistakes as part of a potential success story.

The fourth member of the panel was Dr. Chandler Robinson, Co-founder and CEO of Monopar Therapeutics. Dr. Robinson’s background experience includes economics, science and medicine. To him, the benefit of having such an eclectic background was that he developed a broad perspective of the issues he was interested in which proved helpful in starting his company. In

his experience, two things were critical in setting up a company: mentorship and team selection. To be able to navigate the tenuous breakout stage of a startup, he advised that it is essential to cultivate a network with industry leaders and to recruit people who effectively complement your training or skill set.

While the panel was unanimous in highlighting the undeniable risks associated with starting a new company or working for startups, it strongly encouraged the audience to seek out and take advantage of opportunities in small/medium-sized companies as such positions are very rewarding and provide some of the best opportunities for personal growth and career development.

Yaw Adomako-Ankomah is a third year Postdoctoral Fellow in the Laboratory of Malaria and Vector Research at NIAID/NIH. The focus of her research is on understanding the dynamics of malaria prevalence in malaria endemics in West Africa.

Careers in Sales and Marketing

“How comfortable are you with meeting different people and learning new things every day?” This question from Richard Kim (Vice president of sales-Americas, TTP Labtech Inc) is the one you should ask yourself if you plan to embrace a career in sales and marketing. Companies are looking for people who have strong social skills. Thus, when applying for a job, emphasize your teaching and volunteering experiences. What helped Rima Adler (Technical Sales Consultant at Miltenyi Biotec Inc) was her three-month experience in science policy at the National Academy of Sciences, which proved her interest in career paths outside of academia. Selling products is not part of a researcher’s training but according to all panelists, graduate students and post-doctoral fellows already have the required skills, such as autonomy, curiosity and analytical skills, that are essential to understand customer’s needs. Indeed, researchers are able to identify technical issues, help the clients to troubleshoot and even suggest different techniques or methods to help the clients reach their goals. Presenting in a clear and precise way is also very important, which is why Christopher McNabb (Medical Science Liaison (MSL) at Bayer Healthcare Pharmaceuticals) recommended highlighting these skills during your interview, especially for a position as an MSL.

One of the biggest challenges panelists had to face when starting this new career path was being turned down and therefore each found new ways to reach people. Louis Lichten (Senior Manager, Sales and scientific support, Canon BioMedical, Inc) confessed that he was depressed during the first 6 months but succeeded by persevering and by wisely using his social skills. Richard Kim warned that it can also be challenging to quickly analyze and understand people in order to rapidly identify whether the conversation will lead somewhere interesting for the sale or not. Their advice is that you need to keep in mind you have goals to reach and cannot waste any time.

The challenge of reaching these goals brought about the question of job security. In Chris’s case, his position is totally dependent on the longevity of the product. However, he has the advantage of being hired by a contractor, so both companies will look after him. For the other panelists, it was clear that your job is safe if you are part of the top 20%. Nevertheless, some companies take care of their people like Thermo Fisher Scientific that, according to Michelle Beaucher (Technical Sales Associate, Thermo Fisher Scientific), gives 60 days to find another position in the company.

The load of traveling depends on the geographical area covered by the company. Christopher sleeps in hotels 2 to 3 days per week, while Rima is 100% based at the NIH, Bethesda Campus. For most companies, travel frequency decreases when you get older. Keep in mind that “the more you travel, the more you sell” explained Senthil Saravanamuthu (Director of Business Development and Sales, Bio Basic Inc.)

Work/personal life balance mainly depends on you. You organize your own schedule but the amount of time you work directly impacts the amount of your paycheck. The more you work, the more money you make.

For the ones who could have the feeling that moving to sales and marketing will be giving up on what brought them to research, Christopher clearly disagrees by stating that he thinks he has a much larger impact on patients' lives by working as an MSL than at the bench.

Finally, one very positive quote was provided by Rima Adler: "I do feel that I do more to cure disease by helping 100 labs in their work than working on a research project in one lab".

Lise Pasquet, PhD, is a post-doctoral Fellow in the Tumor immunology group of the Vaccine Branch headed by Jay Berzofsky. She obtained her PhD in Immunology from the University of Toulouse III, France working on the role of ex-vivo expanded Tregs on transplantation tolerance. Her current research focuses on the characterization of Sulfatide-reactive type II NKT cells from mouse lung and their role in tumor protection.

Careers in Consulting

It is often the case that scientists decide to leave the bench and enter into careers in industry. One industry career that allows PhDs the opportunity to tackle complex problems, work in a multidisciplinary team, and continue to utilize skills that were developed as a PhD is consulting. In this panel, a group of PhD-level consultants provided insight on applying to consulting positions, marketing your skill set to properly highlight the strengths you bring to consulting as a PhD, and the day to day life of a consultant entering at the doctoral and post-doctoral level.

How did each consultant make the transition from benchtop to a consultant?

Networking. Panelists shared this same phrase when explaining how their consulting careers began. Becoming involved in consulting clubs and developing relationships with contacts that are consultants can vastly improve your prospects when attempting to enter this field. After networking, developing a diverse background of experiences to market to consulting firms makes you an attractive applicant. However, these experiences are worthless if you cannot successfully market the abilities you have gained. Consulting firms want PhDs for the talents you have developed as a scientist. You are valued for your ability to think, come up with ways to tackle problems and answer questions. Essentially, PhDs are wanted because “they can solve really hard problems,” stated Michael Ferenczy, PhD (Associate, McKinsey and Company).

The Case Interview

After networking and properly marketing your strengths gets you an interview, adequately preparing for the case interview, the special interview given by consulting firms, is the next important step. One panelist stated that he spent six months practicing and preparing for case interviews. Learning how to ask the right questions, receive information necessary to formulate the best strategy, and solve a problem is key to acing the case interview. This is where utilizing your training in science plays an important role. The ability to break down a problem into its constituent parts, develop ways to tackle each smaller problem, and then put the knowledge gained back together to contribute to the bigger picture is the asset your PhD offers. Marketing this beforehand and showcasing it during the case interview will aid you in getting hired.

A Day in the Life of a Consultant

Most PhDs or post-docs are accepted at the Associate Level in consulting firms. Depending on what consulting company you work for your hours can be comparable to a graduate student. In other words, long. However, it can also be a set 9 to 5. Each firm has its own workplace culture and dynamics and these should be noted and evaluated when deciding where to work. All the panelists agreed that travel is always a given. Whether it is twenty minutes or two plane flights, a consultant must be able to travel to his or her clients. Day to day operations are centered around meeting with the client, evaluating the issues that are to be tackled, and then developing ways to address those needs. All you do is help the client. As one panelist stated, “replying to the client within thirty minutes is a must”. That being said all the panelists agreed that they are easily able to maintain a great work-life balance and the companies they work for are compassionate, understanding, and supportive in helping them maintain this balance.

Consulting, according to the panelists, offers a career route where the ability to problem solve, answer complex questions and be exposed to countless disciplines is possible.

Jhullian "JJ" Alston is a Post-Bac IRTA in the Laboratory of Cellular and Molecular Biology at the National Institute of Diabetes and Digestive and Kidney Diseases under John Hanover, PhD His research focuses on studying the impacts of aberrant O-GlcNAcylation.

Careers in Regulatory Affairs

Are you looking for a highly rewarding career that is also high in demand? If so, you may want to consider a professional career in regulatory affairs. It is a profession that helps take products to market and keep them on the market, under the constraints of laws and requirements. Unlike a lot of other careers, there is no set path for regulatory affairs, and it is never too late to start.

This session about careers in regulatory affairs included several experienced professionals in the field including Dr. Stacey Cromer Berman from MedImmune, Dr. Srinagesh Koushik from BDRA Consulting LLC, and Dr. Julien Senac from LNE GMED North America. These experts gathered together to share their experiences transitioning into this career path with the audience.

Dr. Koushik started with the question “How many of you are younger than 40?” He did not start to look into regulatory affairs as a career until he was 45, after being a research fellow in NIAAA for over 8 years. He started to take some related courses provided by FAES at NIH and Hood College in Frederick, where he met a good mentor who greatly helped him during his career transition. He also did a lot of volunteer work and an internship before he finally set foot into this field.

Dr. Julien Senac also spent 5 years at NIH as a post-doctoral fellow. During this time, he participated and served in many different organizations and committees. He discovered a career in regulatory affairs fit his personal and career goals. Even without a lot of related experience, he got his first job in this field through emphasizing what he knew and what he could do. Among the most important qualities for regulatory affairs are critical thinking, strong attention to details, ability to problem-solve, and effective communication. These are skills that PhDs and post-docs gain during the research training.

Different from the above two examples, Dr. Stacey Cromer Berman got her job in regulatory affairs directly after her PhD, without a postdoc and without any experience in this particular field. She learned quickly through on-the-job training, and continues to expand her knowledge base. She states, “What you need to show to the company is your potential to be trained to do the job well, even without related experience”. She went on to say, “detail-focused, critical thinking, writing, organization, and communication are exactly what we PhDs are good at”.

If you have a passion to help people, to promote public health by controlling the safety and efficacy of products, and also have the skills mentioned above, regulatory affairs might be an ideal career track for you. It’s never too late to start planning your transition. Attending related courses, joining the regulatory affairs professional society, doing volunteer work or completing an internship will all help you to land an entry-level job in regulatory affairs.

Qiong Fu, PhD, is a CRTA post-doctoral fellow at NCI. She got her PhD in microbiology from UT Austin in December 2014, and started her research in liver cancer immunology at NCI in January 2016.

Non-Bench Panel

Careers in Science Communications

“You don’t realize the skills that you have, and that these are applicable to many, many careers,” implores Sean Sanders. Frustrated by a massive bottleneck at work due to a slow, outdated email system, Sanders presented an analysis of lost company time to his superiors. He likes to think this analysis contributed to the eventual upgrade of the company email to a more efficient system. Sanders isn’t an IT professional—as an Editor of Custom Publishing at AAAS/*Science*, his responsibilities include the editing of special booklets, editorials and features. He emphasizes that scientists are experts at analyzing problems to find solutions, a unique, valuable skill that should not be discounted.

Other Careers in Science Communications panelists echoed similar sentiments—“You have [the necessary skills] because you are always approaching a different problem,” says David Crotty, Editorial Director at the Oxford University Press. “You have to drill down into knowledge and papers the same way you do in research.” He emphasizes that a new assignment in a science writing or editorial position isn’t much different than being thrown a curve ball in research, but typically with a shallower approach. Jennifer Sargent, Senior Editor at *The Lancet*, strives to embrace all the complexity of science, but emphasizes that the simplification necessary while writing for the public does not invalidate or “un-complicate” it. At *The Lancet*, a clinical journal that typically does not emphasize research into biological mechanisms, she has learned that such research involves complexity at a different, but not inferior, level.

Jessica Deckman, Senior Medical Writer for InScience Communications/Springer Healthcare, left the bench not because she was unable to work in science, but because she felt a calling to think about science on a broader level. She no longer feels stuck in the “one narrow piece” of science represented in her PhD research. Instead, she has worked in many fields where she hasn’t received training—she “picks it up in a broad picture and works within it.” Currently, she works with pharmaceutical companies to shape their experimental data into cutting-edge manuscripts, presentations, and occasionally, reports to Congress.

How might one go about breaking into the biz? Unsurprisingly, every panelist credits networking as crucial to their success. Deckman gave a special shout-out to the Association of Women in Science, where she was approached by someone who knew about a newly open position in medical writing. Jennifer Sargent was working as an Associate Editor for *Nature Reviews Endocrinology* when she met—and was inspired by—the Editor-in-Chief for *The Lancet*. Greg Buchold, self-described “stupidly fearless extrovert,” turned to LinkedIn, generating and

mining a small list of U.S.-based science editing companies after having been “made redundant” at his research position.

Importantly, each panelist emphasizes that the best way to prepare for a career in scientific communications is to dive in early and get experience. A PhD is not required, but it will help provide a critical scientific mindset. (Regarding getting further education tailored to a writing career, Deckman begs you, “Don’t go to school any more than you have to.”) Sargent worked a detail in the NIH *Catalyst* for six months during her postdoc, summarizing NIH research for a lay audience. However, she felt that some of her best training for an editing career came from her long series of unsuccessful interviews with scientific journals. Rather than seeing each interview as a failure, she viewed each as an opportunity to learn from professionals and to prepare for the next one. While such determination may seem daunting, Sean Sanders insists that regardless of pay, any career requires passion for it to be your day-to-day job—for true career success, you should “find your bliss.”

John Ball is an IRTA post-doctoral fellow at the National Eye Institute with a PhD in electrical engineering. Currently, he studies retinal neurophysiology while being a part-time science education and communications enthusiast.

Careers in the Federal Government

If you're interested in obtaining a career in the federal government, a postdoctoral training at the NIH is a great first step. All of the panelists at the Careers in the Federal Government session did a postdoc at NIH, which opened doors to them that were unavailable to trainees at academic institutions. The panelists represented a wide range of experience from senior positions such as program director and scientific review officer (SRO) to junior-level positions such as consumer safety officer, program analyst and technical coordinator with Leidos, a contracting company which staffs federal offices.

As a postdoctoral fellow at NIH, the panelists described how their access to networking opportunities, informational interviews, and volunteer positions in government offices were used as stepping stones to get their first government position. Several panelists cited their volunteer work with the Office of Intramural Training & Education (OITE) as a significant leg-up on their resume. Other benefits of doing a postdoctoral fellowship at the NIH included more time to dedicate to research and career development with less focus on grant writing and teaching.

Much of this panel focused on the specific skill set required to jump through the hoops of USAjobs.gov, the federal government's hiring website. All the panelists urged attendees to have the resumes reviewed by somebody who has already successfully navigated the system. Filling out your job-tailored resumes and KSA (knowledge, skills and abilities) tests are crucial to getting your application past the computer and human resources staff and into the hands of those actually reviewing candidates for the position. Other ways to obtain a career in the federal government are to get a foot in the door via programs such as the FDA Commissioner's Fellowship, AAAS Science and Technology Fellowship, and the Presidential Management Fellowship.

The benefits of federal employment were many, including a broad exposure to scientific research, a steady paycheck, a set schedule with concrete deadlines as well as being able to "shut your brain off on Friday at 5:00 without feeling guilty" said *Dr. Rathore*, a SRO in NIAID. There are unique challenges associated with federal employment, such as bureaucracy, congress, and a required willingness to work in a "grey zone" of rules interpretation - which was unexpected to multiple panelists.

Finally, panelists encouraged attendees to cultivate their people skills, maintain peer networks, find a career mentor, and be flexible. "Everyone has wonderful, transferable skills that we tend to think of in silos, like making money for industry, or being detailed oriented for government...so get aggressive, nobody can champion your accomplishments better than you," said *Dr. Lockett*, as words of encouragement and advice for those looking to get into a federal government career.

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 while studying

the mechanisms of synaptic plasticity underlying enhanced hearing in blind individuals. Her current research focuses on the adaptive capabilities of the adult brain after peripheral sensory loss.

Careers in Science Administration

The panel on careers in science administration included six panelists from diverse backgrounds.

Katia Garcia-Crespo, a Scientific Review Manager at CSRA, developed an interest in scientific review during her postdoc. In her current position, she works in managing peer review, including managing application receipts, forming panels, and planning meetings for scientific review.

Ben Porter, an Academic Program Officer at University of Texas at Dallas, was first interested in a writing career. After gaining writing experience at The NIH Catalyst during his postdoc, he took a writing position at UT, and then accepted his current position when it became available. This job entails acting as a liaison between faculty, staff, and students, and includes managing staffing and evaluations.

Leigh Jackson, a Program Officer at the National Academies of Sciences, Engineering, and Medicine, heard about her employer through discussions about career options while she was a postdoc. Her job involves a lot of coordination between working on consensus studies, reaching out to different experts in the field, and managing reports.

Ravikiran Bhairavabhotla, a HIV/AIDS Specialist at UNICEF, was a postdoctoral fellow when he started to explore his career options. Upon joining UNICEF, he became involved in a project that covers HIV point of care diagnostics in several countries, and found that passion was very important for his position.

Mark David Lim, a Program Officer at the Bill and Melinda Gates Foundation, used the AAAS Science and Technology Policy fellowship as an early opportunity to project himself into his current position. After acting as Chief of Technical Staff at DARPA, he worked at the think-tank FasterCures. In his current position, he has helped with strategies related to tropical diseases. Following his experiences, he recommended that the audience try to work within different sectors.

Jennifer Reineke Pohlhaus, Vice President of Ripple Effects Communications, Inc., developed an interest in science policy and business as a graduate student, which led her to serve as an AAAS Science and Technology Policy fellow. After her fellowship ended, she joined her current company. Her job now involves management of staff and projects. She described the diverse tasks that are required at a small company but explained how the positions can become more specialized as you advance.

Most speakers mentioned the importance of networking and informational interviewing as ways to learn about diverse career opportunities. Several speakers mentioned that effective time management and organizational skills were paramount in their current positions since they juggle many different tasks. Likewise, they said that excellent communication and

interpersonal skills were important in science administration in order to interact with a variety of personalities. A few panelists said that by helping to plan events as graduate students and postdocs, they gained useful experience for their current positions. When interviewing, they mentioned the importance of tailoring your story to fit what the organization is seeking, preparing to talk about your non-bench experience, and giving specific examples when possible. Overall, the panelists described science administration as very rewarding, and allowing for many unique work options.

Courtney Kurtyka received her PhD in Cancer Biology from the University of South Florida in Tampa, Florida, where she studied novel methods for treating lung cancer. She joined NICHD as a postdoctoral fellow in the lab of Melvin DePamphilis in 2015.

Careers in Science Policy

“A job in Science Policy means a lot of coffee,” laughed Chad Jackson, Emerging Technologies and Innovation Officer at the U. S. Department of State. Rebecca Cerio, Health Science Policy Analyst at NIDDK agreed with Chad and continued, “it is mostly a desk job and at times, I can spend the whole day glued to my computer screen if I don’t coax myself to go around and talk to people.”

“There is no Science Policy job. Every job in science policy is different and every organization approaches it with a different perspective” said Elizabeth Barksdale, a Science Policy Analyst at the Federation of American Societies for Experimental Biology (FASEB) in a response to explain a typical day working at FASEB. Her specific job is to identify policies being proposed by federal agencies and work as a link between the science being published and the people behind the science.

Rebecca Cerio stated that writing, be it a reply email to a query of a colleague or a congressional report; makes up a large part of her work. But the writing has to be clear, concise and most importantly, target specific audiences. Erica Goldman, explained that her ability to think strategically, see the bigger picture, communicate effectively and sustain relationships as a trusted resource, helps her navigate as Director of Policy engagement at Compass. A focus on detail and ability to keep things in perspective make David Bernstein, Director of Program Management and Strategic Initiatives at Stand Up To Cancer, successful in his current position.

“Do not be afraid of not knowing something because you learn constantly in this job” noted Rebecca while explaining that she found her current position at NIDDK through USAjobs.gov while working as a fellow at NCI and having no experience in Diabetes at all. Chad Jackson added that his relationship with in academia and industry helps him to regularly gain new knowledge, as his job involves everything from robotics to Zika. For Erica Goldman, diverse experience within and outside of academic science gave her a broad perspective that helps her connect science to policy dialogue at transformative decision points.

Chad Jackson and Rebecca Cerio also insisted that their jobs require them handling multiple tasks at varying levels of completion simultaneously and the outcome of their efforts can either be seen in a day or in months. Elizabeth Barksdale maintained “time management and organizational skills are important while juggling three or more projects at a time, but you cannot get attached to things you do because the end result depends on a lot of people.” The panelists suggested attending NIH science policy discussion groups for networking, in addition to AAAS events.

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

Careers in Technology Transfer and Patent

If you feel like you might want to return to the bench, or if you need to work in-depth on world changing, mind-meltingly cool science, Tech Transfer and Patent careers might not be for you. With Technology Transfer and Patent careers, you will witness the most cutting edge science. However, according to panelist and patent reviewer Julie Wu, not every drug is a billion dollar blockbuster, and not every invention is CRISPR/Cas9. What Technology Transfer and Patent careers do offer are fast paced careers that allow you to be a generalist rather than a specialist in your field. Your ultimate reward is working with leading scientists protecting ideas or monetizing their discoveries.

The symposium panelists came from diverse backgrounds and ended up in Patent Law, Technology Transfer and Patent review through multiple avenues. Nigram Acharya, a patent lawyer, always wanted to get his PhD in biology, but after law school, his father told him to practice law for two years before going back to school. He eventually got a master's degree and found a way to incorporate his passion for science into his already successful law practice. Sue Ano, Director of the Technology Transfer Office at NINDS, had an interest in Technology Transfer and broke into this career by attending a regional tech transfer conference and making connections with the right people. Alicia Evangelista, an Innovation Services Manager at a private company, took Classes at FAES and completed a Fellowship in the Technology Transfer Office before moving into the private sector. Jeremiah Mitzelfelt, on the other hand, started as an unpaid part-time intern while working as a postdoc in academia. The common denominator among these panelists is that they all have a passion for science along with a knack for interpersonal skills.

Those interpersonal skills are what will make you stand out as a candidate applying for a technology transfer or patent position. The panelists unanimously agreed that, soft skills are the most important qualities in future candidates. Alicia Evangelista stressed that candidates should demonstrate a dedication to the technology transfer career path through participation in conferences and continued education. Nigram Acharya pointed out that communication, interpersonal skills, and one's passion for the work are important in the world of patent law. Sue Ano, on the other hand, emphasized that technology transfer also requires a person that can guide passionate people in order to help manage their expectations.

Most importantly, Jeremiah Mitzelfelt pointed out that you can't move directly from the bench to tech transfer, but there are other paths that you can take. To get into a tech transfer career path, one will need real, hands-on experience, and there are many ways to get involved. Classes are offered through FAES that prepare you for many aspects of tech transfer. Additionally, one can get hands on experience through internships and volunteer work at the NIH, universities, or law firms. Patent externships will give you the experience that is needed to become a productive member of a law firm or as a reviewer in the US Patent and Trade Office (USPTO). Additionally, Julie Wu points out that patent review careers at the USPTO have a mentorship program designed to usher people into independent preparation of patents within two years.

Overall, tech transfer and patent careers will require all of the research and scientific knowledge you have developed over your career, along with the interpersonal and legal knowledge that you haven't yet developed. Ultimately, you should get to know the people in the field. Have you started networking yet? Go log into your old LinkedIn account and update everything, they won't wait...

Clay Albracht, PhD, is an IRTA Postdoc Fellow in the lab of Jim Sellers in the Cell Biology and Physiology Center of NHLBI. He received his PhD in Biology at Rensselaer Polytechnic Institute under the guidance of Dr. Susan Gilbert where he studied the kinetics of a kinesin motor protein involved in the establishment and maintenance of cilia and flagella. His current research focuses on non-muscle myosin IIs and their role in early embryogenesis.

Academic Panel

Research-Intensive Faculty Careers

NIH is a great place to prepare oneself for a research intensive faculty career since it gives the trainees a strong training environment encouraging them to develop all the skills required for taking up a research focused academic career. In this panel, four faculty members from different universities and hospitals were invited to share their experiences and describe their day-to-day life. The panelists were Sara Cooper, PhD, Faculty Investigator from HudsonAlpha Institute for Biotechnology, Neil Hanchard, MD/PhD, Assistant Professor at Baylor College of Medicine, Monik Jimenez, ScD, SM Instructor at Brigham and Women's Hospital, Harvard Medical School, and Antonio Nunez, PhD, Professor and Associate Dean at Michigan State University.

What are the strategies for making way towards tenure track positions?

According to the panelists, a post doc needs to devise certain strategies to get into a faculty position, such as identifying the institutes offering research intensive faculty positions, getting in touch with a mentor sharing common research interests, writing grants, and drafting 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.

How to consider a young research institute while applying for faculty positions?

Young research institutes offer the best opportunities for growth in research careers. They focus more on building up on research compared to teaching. Faculty members mentor students in channelling their energy and mutual interests into research.

How can former postdocs sustain themselves when they get a research intensive faculty position?

Antonio Nunez and Neil Hanchard stressed on the fact that “Postdocs need to come out of the ideal model of single investigator locked up in a lab. They should look upon science as a social activity and collaborate with peers. Strive to become a lifelong learner by the participating in collaborations”.

How to balance personal research interests with research interests of an institute?

According to Sara Cooper, while keeping the tempo on for fulfilling an institute’s research interests, a faculty should be open to new research ideas and mentor students in designing their research projects, encouraging own team to pursue their research interests.

How to deal with professional funding?

Monik Jimenez pointed out that faculty should be introspective and identify funding priorities of the funding organizations and check whether one's research interests fit into the funding interests of the organization. Look into the screening process for grant applications and communicate your sound innovative ideas convincingly to the funding authorities.

How to strategize the transition from one project grant to the next?

Neil Hanchard emphasized on how a strong publication record can form the foundation for streamlining current projects and focusing on the future ones. Mapping and devising timelines helps in smooth transition from one project to the next.

How to deal with institutional biases?

With his immense experience in the field, Antonio Nunez suggested developing one's own methodologies to unwind the loopholes and not to deplete one's energy. Be communicative about the issue, discuss and pass on the responsibility to solve the matter to a larger group in the institute rather than solving it one on one.

How to set up a lab after receiving a grant?

Research intensive faculty positions require individuals to multi-task. Once a grant is received, one has to plan managing the funds appropriately. Consult senior mentors like former PhD and postdoc advisors for setting up your lab. A key process is staffing the lab with productive working force and identifying the instruments required to execute the project. It's a good idea to come up with timelines for effective project management.

How to maintain a productive career while meeting the professional demands?

Setting up priorities is the best strategy. Instead of constantly responding to immediate demands, identify the important ones that need to be addressed. Devising one's own deadlines helps focusing on better execution and timely completion of the projects. Balancing work hours and setting personal boundaries are also important. Once the first project is started off, plan for the next grant and start writing the proposal for that grant.

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 and their significance in Alzheimer's disease. She is also a volunteer writer for NIH Newsletter and also an editor with NIH Fellows Editorial Board.

Success as a Faculty Member

Evolving from a naïve post-doctoral fellow to a tenured track investigator and establishing yourself as a senior researcher is both competitive and overwhelming. Constructive advice based on the experiences of our four panelists: Nancy Adelman, PhD, The Catholic University of America; Stacey Gilk, PhD, Indiana University; Tonya Webb, PhD, University of Maryland, Baltimore and; M. Raza Zaidi, PhD, Temple University School of Medicine, gave us a great introduction to the early life of a faculty member.

‘It is a challenge to attract a new graduate student or a post-doctoral fellow in a new lab’, quotes Dr. Zaidi, when questioned on what surprises them in the beginning of a faculty career. On the other hand, ‘you have to be everyone’, was emphasized by Dr. Webb. Whereas, ‘you still need mentors!’, was exclaimed by Dr. Gilk. Shifting to a faculty position is challenging initially because one performs the duties of a researcher, a technician, a student and a fund seeker organiser. To become a successful faculty member, support from mentors is equally important. Time management, building up excellent co-ordination among lab members, and learning to prioritize between multiple tasks (grant or paper writing) are some of the important strategies for a successful transition into being a faculty member. It is important to consider the faculty position as the beginning of achieving something rather than experiencing special privileges. Dr. Adelman advised a scheduled work plan for efficient time management. All the panelists stuck to one notion that, in the start of a faculty career, grant writing is unavoidable. Also, post-doctoral publications and some preliminary results are other important things which lay the foundation for grant writing.

Duration of a post-doctoral fellowship does not determine how successful a candidate can be as a faculty. According to Dr. Gilk, her post-doctoral position has taught her many techniques and skills for becoming resilient and scientifically sound. The failures during a post-doctoral position can be foreseen as a learning step for a transition into a faculty position. The biggest key to success is the flexibility to grab opportunities and take risks whenever necessary. All the panelists emphasized that long term success as a faculty member is dependent on passion and on a real need to satisfy curiosity. Another factor highlighted by the panelists is ‘networking’. Collaboration and communication among researchers are factors that are useful to grow in order to leverage resources within the scientific community. Building up good professional relationships with your peers is always important.

On the views of criteria for selecting laboratory members in setting up a new lab, all panelists explained the need for candidates with motivation, eagerness, scientific aptitude, and original thoughts. Candidates should have maturity and ability to do things independently. Also, the opinions of other lab members about potential PhD students are essential for the screening process. On the other hand, as a faculty member, the learning abilities and aptitudes of the lab members should be closely monitored. The expectations from the candidates should be made clear from the beginning.

In order to excel at academic research, it is essential to have passion and perpetual efforts. During the postdoc period, generating research questions and pursuing research activities to answer these questions, and becoming independent thinkers are critical aspects of a researcher's transition into an independent research career. Panelists also suggested meetings with potential collaborators to generate new ideas. They also strongly advised discussing research topics of interest with mentors and getting their feedback during the grant writing process. As an independent researcher, one gets to do the research of their dreams without asking for permission. Panelists also recommended taking summer students on new and risky projects rather than involving graduate students or postdoctoral students. Dr. Zaidi and Dr. Adelman both suggested applying for small seed grants for new projects.

Lastly, panelists consented on looking for institutions that could provide initially fixed salaries for tenure track positions. They all suggested negotiating for startup funds and packages. However, negotiation depends on the institute in which the faculty position is available. Keeping track of all of the funding options and opportunities, one should select the institute to apply for a faculty position.

In the end, the panelists advocated that one's success as a faculty member in science depends on personal enthusiasm, dedication, and creativity.

Snehal M Gaikwad, PhD, is a Postdoctoral Fellow in the Laboratory of Cancer Biology and Genetics in Centre for Cancer Research at the NCI working under Beverly Mock, PhD. Her research focuses on identifying molecular mechanisms responsible for the proteasome inhibitor resistance in recurred or relapsed multiple myeloma. She received her PhD from Advanced Centre of Treatment, Research and Education in Cancer, Mumbai, India, under Pritha Ray, PhD

Science Education and Outreach Careers

The speakers on the Science Education and Outreach panel conveyed their love for science through diverse jobs, from career counseling to social media production to working in museums and beyond. If you have a passion for communicating science and helping scientists of all sorts succeed, there are many career options for you in education and outreach.

All of the panelists spoke about the variety of responsibilities on their daily “To Do” lists. For those involved in multimedia pursuits, their tasks included writing and editing for print or other media, exploring new platforms, and updating websites and content. For those who interact with students, counseling, coordinating events, and reviewing applications for development programs were more common. Each job has its unique combination of responsibilities. To figure out what type of job might be a good fit, the panelists suggested looking at what you already do in your free time and figuring out how to transition that into science outreach. The people you interact with through these activities also provide an instant audience who is engaged in the same way you are.

Another similarity between the positions being discussed was the importance of good communication. The speakers emphasized that communicating science to a lay audience does not necessitate “dumbing the information down” but rather making the concepts more accessible. Think of yourself as a “master of metaphor” to translate the jargon of science in a way that lowers the intimidation factor. One panelist also noted that context matters; students of any age are far more interested in learning about something that applies to their everyday lives. It is important to consider your audience, who they are and how you want to connect with them. Find a voice that feels comfortable for the medium, whether that is your “real world” voice or an online persona. Do what scientists do best – experiment! – to find what works. This will help define your mission and identify a niche for your content.

Surprisingly, most of the speakers on this panel did not complete post-doctoral training before moving away from the bench. For those who did, the experience exposed them to different disciplines of science and all types of people from widely ranging backgrounds. This helped hone the skills that the panelists currently use to communicate science to broad audiences. The post-doc position also allowed them to undertake volunteer opportunities and figure out what type of outreach was most appealing. Whether or not to do a post-doc depends on where you want to go and what type of job you want to do. Some positions require intense scientific discussions that could benefit from additional training. Other positions may require a few years of work experience which a post-doc could fulfill. Remember, those who work in outreach have a wide variety of backgrounds. A panelist noted that “there is a huge range of paths that people take, you can’t do the same as someone else...be open minded about what might lead you to your end goal.”

Ultimately, the best way to get into doing informal education and outreach is straightforward: just do it. Volunteer at a museum, start a blog, record a video explaining the relevance of a new discovery to everyday life – actively seek out ways to engage with the wider community about

science. As one of the panelists put it, “network like crazy, be authentic, and always have the elevator pitch ready that reflects you.” Getting an initial experience will lead to other opportunities and help cultivate a network of insiders who may know of open positions. “Chance favors the prepared mind – when you fall on the lucky opportunity, you will be ready to take it!”

For the speakers’ job descriptions, as well as some of their career advice, check out the Speaker Biosketches available on the OITE website.

Sarah Deasy is a graduate student in Dr. Kent Hunter’s lab in the NCI. She is a member of the George Washington University Graduate Partnership Program. Her thesis research is focused on investigating the role of the gene Rnaseh2c in breast cancer metastasis.

Teaching-Intensive Faculty Careers

Many trainees often think of a teaching intensive faculty career as abandoning research altogether or performing average research. This presumption makes it difficult for scientists to transition from a research career into a teaching career. The panelists in this session discussed how they chose their path and made the point that teaching intensive career does not necessarily mean abandoning good research. Rather, it is possible to bridge the gap between research and teaching, “If we have a passion to teach, it is possible to transition our research into teaching” as said by Dr. Catherine Norris, an assistant professor from Swarthmore College. “Looking for an institution with a good infrastructure for research helps a lot. It is always best to ask during the interview how much help one can get in terms of resources and infrastructure to continue research. The level of research can be good and one can really produce quality research and publish in high impact journals.” The panelist said that the important thing is to find the synergy between teaching and research.

All the panelists agreed that obtaining a tenure track teaching faculty position in liberal arts colleges is highly competitive. The evaluation of tenure track faculty is very comprehensive and is typically done after completing three years in a job. It requires letters of support from the students, members of the community, and teachers from other departments. Research experience is definitely valuable and helps getting tenured. Three of the four panelists worked as postdocs in NIH at some point of their career and emphasized that having a postdoctoral experience gives an edge over other candidates. Apart from postdoctoral experience, some teaching experience is good but not mandatory. Private schools may not ask for formal training as a teacher if one has an advanced degree, but in case of public schools, a formal training is mandatory. For Dr. Felix Rivera-Mariani, the science teaching fellowship was very helpful for getting a job, whereas Dr. John Delaney started with no experience at all and learned a lot and became progressively more capable while working as a teacher. Panelists suggested that it is better to tailor one’s CV according to required qualifications while highlighting the accomplishments in a way that there is strong emphasis on the past teaching experience. The same goes for recommendation letters. Teacher training programs in different counties and the NIH itself were mentioned as good places to get teaching experience. Dr. Kimberly Jacob, who is a HHMI Laboratory Manager in Franklin and Marshall College, said that she taught an FAES class and also organized journal clubs which gave her a lot of experience in teaching and planning lectures.

Another important factor in becoming a successful teacher is “Lesson planning”. It is really critical for surviving the first year in the job and all panelists agreed that mentors met during our college and graduate school years can be very helpful for preparing lectures and a syllabus. One can also seek support from colleagues for self-development as a teacher and can even look online for lecture materials, case studies, and Google Scholar for recent information on a particular topic. Moreover, it is important to recognize that every student is different and appreciate that. An accomplished teacher should be able to determine the tone of the class as quickly as possible and develop a rapport with the students. “You have to be genuine. It is very

difficult to pretend for 8 hours” as said by Dr. John Delaney. Asking the students what they expect to learn from a course gives a better idea about the capabilities of students. While there is enough time in a class to access the abilities of students, lectures need to be planned accordingly taken time constraints into account.

When asked about the qualities that helped them in their jobs, all panelists unanimously agreed that patience was the key. “No one in the school knows who you are in the first year and if you can convince them that you can actually teach then the rest is just fine” said Dr. John Delaney.

Nivedita Sengupta is a postdoctoral fellow in NICHD working on regulation of phosphoinositide kinases. She received her PhD from the Uniformed Services University of Health Sciences in Bethesda, Maryland. Apart from research, she writes for the NIH Science Policy blog.

Applying for an Academic Position

Kaliris Salas-Ramirez is an Assistant Medical Professor from the CUNY School of Medicine. After two years as a postdoctoral fellow, she was offered her first faculty position. Her suggestion for people who are looking for an academic position was “to consider what you really want to be”. It is extremely important to consider the composition and your future responsibilities in that department before applying to a position. If you like to do research, a research intensive institution would be a great choice. Therefore, one might consider labs which are able to provide the infrastructure for the future research. If you are interested in teaching, maybe an undergraduate institution, which demands 50% teaching and 50% research responsibility, is the best fit. After all, it is about your long-term goals. Her second suggestion was about the self-assessment and salary negotiation on the job market. You could first assess your exact role, and then compare the salaries published in job announcements from different public and private institutions. Additionally, it is very helpful to discuss with people who just received offers from the job market.

Robert Johnston is an Assistant Professor from the Johns Hopkins University. His advice was that job hunting is not always a straight path since the job market is unpredictable. It is important to keep working hard and stick to it. Johnston was involved in recruiting faculty members for the university. He mentioned that, typically, at most universities, there are around 300 applications for most of the academic jobs. The critical factors considered by the recruitment committee are 1) publication record 2) funding record 3) impact of research proposal and 4) the fitness between the applicant’s research and the need of the department.

As an Assistant Professor from the Perelman School of Medicine, University of Pennsylvania, Dr Golnaz Vahedi published a few high impact scientific papers during her postdoc period. However, in the first year of looking for a job, she didn’t get too much success after sending out 10 applications. The year after, she was awarded a K99 research grant, which improved her situation immediately as she received a higher response rate from her applications. Her opinion is that finding an ideal job takes long time and there are no specific rules. You have to be patient and constantly think about how to improve your skills to achieve a position at your desired institution.

John Weldon has been working as an Assistant Professor since 2012 in the Department of Biological Sciences, Towson University. His path of getting there is fairly straightforward. After working as a postdoc for 6 years at NIH, he got his position in the Towson University. He enjoys the experience of interacting with undergraduate students and teaching small classes rather than 400 student classes, which are common at some research intensive universities. Towson University has around 22,000 students; each class is kept down to around 30 students. For his current job, 65% of his time was spent on teaching and the rest was on doing research. In this case, he still has the opportunity to maintain a research lab and also to maintain that connection with the students.

Pengfei Tian, PhD, is a Postdoctoral Fellow in the Laboratory of Chemical Physics within NIDDK. He received his PhD in Physics at the University of Copenhagen (Denmark) where he focused on the Monte Carlo algorithm design for protein folding and structures prediction. His present research focuses on mathematical modeling of protein evolution and the design of novel proteins.

Clinical Panel

Career options for Clinicians

This session provided a wide variety of career options for clinicians and clinical fellows. Dr. Darrell Abernethy's, MD/PhD, associate director for Drug Safety at the Food and Drug Administration, path was marked by a transition from academics at the NIH intramural program, where he had his own lab, to the FDA. He believes the best job is always the next one and deems a key to success is to be guided by excellent mentorship throughout your career. Dr. Catherine Bollard, MD, professor of Pediatrics and Microbiology, Immunology and Tropical Medicine at the Children's National Medical Center, finished medical school at age 22. She was also an accomplished opera singer, with her singing teacher telling her to give up medicine at one point, however she chose to stick with medicine and was a professor of Pediatrics, Medicine and Immunology at Baylor College of Medicine for almost 13 years before moving to the Children's National Medical Center. Dr. Rosandra Kaplan, MD, Tenure Track Investigator at NCI, wanted to be a surgeon but after meeting a pediatrician, who knew every one of his patients' detailed histories from his practice in Vermont and New Hampshire, she decided to take on the daunting path of becoming a pediatric hematologist oncologist, only to later add having her own lab to her list of endeavors. Dr. John Wagner, MD/PhD, Senior Vice President, Head of Translational Sciences and Early Clinical at Takeda Pharmaceutical International Co., learned about molecular diseases in the mid 90's, at the beginning of gene therapy. Translating bench to bedside is more than therapeutics; he noted it as being a whole science unto itself. Dr. Wagner also shared that he believes participating in academic and scientific societies helped him expand his career.

Things you would have wanted to know before starting where you are now.

All panelists agreed a thorough reading of the job description in the job announcement would help you decide if you would be interested in that position. Dr Abernathy said it should always be something that peaks your interest or that will drive you, and he acknowledged that the environment he is in has such a great sense of public health and that the quality of the workforce makes him feel engaged and that everyone is doing a good thing. Dr. Bollard, enjoys how collaborations were readily available, and how much you can gain from them. Dr. Kaplan suggested looking into the reality of the job, choosing it for the right reasons, easing the anxiety, and learning how to use your best resource, yourself. Dr. Wagner added that sometimes we have a conscious bias, but once you become a part of the job, it can be dissuaded.

The transition to the lab.

Dr. Kaplan expressed how it takes a conscious effort to integrate the worlds of research and medicine. She values the importance of her mentor who helped convince her to allow herself to combine both research and medicine and partnering with others who also combine the two disciplines. Dr. Wagner transitioned to industry because of his desire to learn how to integrate

teaching, being a clinician and doing research, into translational medicine. Dr. Abernathy believes in making a life decision and deciding on a path. He encourages taking time to see what successful people are doing to keep at it. He noted that you will always have an opportunity to be a part of whatever you want to be. Dr. Bollard suggested to looking at how your future job will protect your interests and how you will be able to continue your driving passion.

On the MD/ PhD track.

Dr. Abernathy believes that the MD/PhD path does not significantly influence the chances for an academic research career. The MD/PhD is seen as a discipline, which enables you to have formal training to become a better scientist. Dr. Kaplan stressed that it is a personal decision if you are really passionate about research. Dr. Wagner sees it from the hiring manager perspective, that a MD/PhD does not particularly matter, it has a slight incremental advantage, but ultimately what they look at is for the applicant's experiences and their accomplishments.

Benefit/ Risk in MD/PhD track.

The MD/PhD track teaches you how to do science, test hypotheses, and ask questions. You are allowed to change your mind midway; learning will always come in handy if you do. The caveat on balancing schedules in the future once you have the job, depends on the situation you are in, as well as the approach and personality of the company. It will rely on how motivated you will be to do something outside the company, which in turn keeps you sharper, and broadens your horizons. The research experience needed to transition into industry will depend on how much you know about the job and your connections, which might also tell you more about it, which might also let the company know how you could be of value to the project.

Your to-do List.

Dr. Bollard enjoys the variety of her work, meeting with people to pick data apart, is the most exciting part of her day. Dr. Abernathy is collaborating with doctors in other countries and enjoys the collaboration and the new challenges he faces with people who are committed to learning without many resources at hand. He is also learning about what it takes to get a journal off the ground, which has proven to be formidable. Dr. Wagner enjoys the process of interviewing and hiring people and fitting people into their roles, which is a very dynamic process and vital for making the right team. Dr. Kaplan agreed that collaborating with others and a mixture of tasks makes up her agenda, but also finds fitting everything in can be challenging, as she has an active life and enjoys spending time with her family.

Life after the Clinical Fellowship.

Dr. Abernathy believes collaborating with someone from his past pushed his career forward. Dr. Bollard saw the clinical fellowship as the launching pad for her career.

Raissa N. Canales is an MD, who currently does research with Dr. Theo Heller on a project aimed at treating Hepatitis Delta.