



# Session Summary

<b>Keynote Address</b>	<b>1</b>
<b>Navigating the Process: Academia Panel</b>	<b>2</b>
<b>Navigating the Process: Government Panel</b>	<b>3</b>
<b>Navigating the Process: Industry and Biotech Panel</b>	<b>4</b>
<b>Navigating the Process: Finding and Applying for Fellowship Panel</b>	<b>7</b>
<b>The Job Search, Cover Letters, CVs, and Resumes Workshop</b>	<b>8</b>
<b>Entrepreneur and Business Short Session</b>	<b>10</b>
<b>Technology Transfer Short Session</b>	<b>11</b>
<b>Finance and Venture Capital Short Session</b>	<b>13</b>
<b>Consulting and Business Short Session</b>	<b>15</b>
<b>Non-Profit Organization Short Session</b>	<b>16</b>
<b>Patents and Law Short Session</b>	<b>18</b>
<b>Grant Management Short Session</b>	<b>19</b>
<b>Program Management Short Session</b>	<b>20</b>
<b>Science Policy Short Session</b>	<b>21</b>
<b>Media and Communication Short Session</b>	<b>22</b>
<b>Science Outreach Short Session</b>	<b>23</b>
<b>Clinical Research Short Session</b>	<b>24</b>

## Keynote Address

By Jana E. Stone, Ph.D.

Richard Weibl delivered his keynote address titled “The Postdoctoral Experience: Preparing to Lead.” He is the director at the Center for Careers in Science and Technology, American Association for the Advancement of Science (AAAS).

In his talk, Weibl emphasized that leadership tomorrow begins today. “With the training and skill set of a scientist, you can do anything,” he said, “but you will need to prepare yourself well to reach your goals.” This is especially true in the current job market.

Weibl advised trainees to spend at least one day a week concentrating on preparing themselves to succeed. First, you will need to assess yourself. Start by asking yourself what your strengths are, what you do and don’t like or want to do and then figure out why. While this process is not always easy, it is essential to understanding what type of career path will fit your needs. Weibl explained that he took time off to volunteer in the Peace Corps so that he could step back and evaluate his own goals. To help guide yourself through the self-assessment process, take advantage of resources like those available online through the AAAS career center or the career development office on your campus.

It is worth the time to write an individual career development plan. Pay attention to what’s happening in the marketplace so that you will know what skills are necessary to be competitive. Websites can be useful, but “information interviews are an even better way”, added Weibl, “to get inside information.” Once you have written your plan, ask your mentors and the people that know you best for feedback. When it’s time to implement your plan, be sure to set a timeline identifying both short-term and long term goals.

“Communication is one of the keys to success in any career,” stressed Weibl. Find opportunities to present to as many different types of audiences as possible, both inside and outside of your field. When you talk about your research, explain how it relates to a new discovery to demonstrate that you are thinking of the broader implications. Informal settings can also be used to open up connections and possibilities. Introducing yourself to the stranger sitting beside you at a seminar is a great way to start. It may be uncomfortable at first, but think of it as a way practice for interviews in a low-risk situation. This will also help you build your network, an essential part of any job search. As Weibl reminded the audience, “Shaping a career in science has never been a solitary experience”.

The academia panel had four professors from a variety of schools. Bill Barnes, Ph.D., has been a professor at Clarion University for many years and was able to provide insight into teaching 12 hours a semester while also conducting undergraduate research. Brandt Eichman, Ph.D., is a recently tenured associate professor at Vanderbilt University and was very helpful in explaining how he balances maintaining a laboratory with graduate students while also teaching a few credits a semester. Thomas Kash, Ph.D., is an assistant professor at University of North Carolina at Chapel Hill, and he offered advice on obtaining a primarily research-focused position with minimal teaching requirements. Jerry Stumpf, Ph.D., is a professor at Marian University. At this small liberal arts college, he teaches many upper level classes each semester.

This panel was very informative because it was filled with professors from very different types of universities, and from different stages of their careers. There were many questions each with a different answer depending on the panelist. Here is a summary of some advice from all of the panelists:

- Having good letters of recommendation is essential.
- When you get an interview, call ahead to determine exactly what will be required.
- Once you are running your own laboratory, do not be in a hurry to hire a laboratory manager, take the time to find one that is very good and it will save time later in your career.
- Teaching experience, even at a mainly teaching school, is good but not required.
- Advising students is an important part of the job.

The take home message from this panel was that we, as future applicants, need to first decide the balance of research and teaching that we would like in our career. Then we should apply to colleges or universities with openings that match our preferences, since positions at each college or university will require different percentage of research versus teaching.

## Navigating the Process: Government Panel

By Tina Stevens, Ph.D.

Interested in a career working for the federal government? Our five panelists, all successful government employees, came together for the career fair to answer questions and concerns about jobs in the government.

The panelist consisted of five members:

John Vandenberg, Ph.D., director for the RTP division of National Center for Environmental Assessment, has been with the EPA since 1984. He has led a highly successful career at the EPA. His advice to the young members of audience: Be honest, but put your best foot forward. He also mentioned many different routes for entering the government including fellowships and post-doc positions.

Robert Ahern, Ph.D., an entomologist for the USDA, has been with government for about 2 years. He enjoys the teamwork environment of the government. His advice: there is no harm in applying for positions; you may learn something about yourself.

Angela Davis, Human Resources Specialist at NIEHS, has been in advisory services for 10 years. She said a hiring reform has made the job application process faster and easier for government jobs.

Scott Williams, Ph.D., is a principal investigator in the Genome Stability Structural Biology Group at NIEHS. He said, "a government job gives you the flexibility to conduct cutting edge science."

Humphrey Hung-Chang Yao, Ph.D., Principal Investigator in the Organogenesis of Reproductive Organs Laboratory at NIEHS, joined the government in August 2010. He left a tenure position at the University of Illinois and doesn't regret it. He stressed the importance of networking.

All the panelists rated their career satisfaction high. They agreed their job was intellectually stimulating and provided a lot of flexibility. Since they didn't need to worry about grant funding, many of them said they had more time to focus on science. Vandenberg's position also allows him to be an adjunct professor at Duke.

The take home message from the panelists: stay hopeful, network, and put your best foot forward.

The Industry and Biotech Panel had four panelists representing a variety of careers. Shawn Hayes, Ph.D., is a Clinical Science Manager from Abbot Laboratories in Northern California. Kay A. Lawton, Ph.D., is the Director of Research and Intellectual Property at Metabolon, Inc. in Durham, NC. Christine Kerlin is a Scientific Recruiter with Experis, a global recruiting company. Derek Schorzman, Ph.D., is a Principal Process Engineer for Liquidia Technologies in Morrisville, NC.

Starting off the Q&A section of the panel after brief introductions, a question was asked about what is the most likely source of successful job applicants. Specifically, do they usually come from a job/resume site such as Monster.com or other similar sites, or do they primarily come from networking? The answers varied with the type of company that was looking to fill a position. The general consensus was that the majority of jobs filled at smaller companies tended to come from networking contacts, whereas larger companies tended to use the job sites and other services with a higher frequency, although networking was still the major source for successful job applicants.

Another question asked was what are three skills you might need to apply for industry jobs that might not be as important for academia jobs. The panelists all agreed that networking and building relationships with people was probably the most important skill – not that it isn't important in academia job searches, but that it is so important for industry job searches that they felt the need to emphasize this skill over everything else. Some differences in an industry job search vs. academia were that there is a vastly different timeline involved. Academia tends to be a long, drawn-out process, but industry job searches are much faster. Also, research in industry positions is more goal and product oriented than is typical in academia, and the job search reflects this. The ability to work across multiple disciplines is highly valued in industry.

A question about publications led to the advice that for industry job searches, the people hiring typically care that you have done something, but not necessarily what it is that you've done. In other words, publications are important to show that you can push a project to completion, and also to highlight the specific research areas you are familiar with. It was also suggested that if you can show a breadth of experience, such as writing for general audiences, this can be very helpful in your job search. If you can show that you can push a project to completion – even if it did not result in a publication – this is also valuable. Despite the lesser importance of publications in industry job searches relative to that of academic job searches, it is still necessary to have publications. If you do not, then you will have to be able to explain that to an interviewer's satisfaction.

Job security in an industry job is not necessarily as good as that of academic or government positions, but the panelists pointed out that job security in academic positions is not as good as it used to be, either. Someone did mention that laid-off scientists tend to find a new job very quickly – almost always well before their severance pay runs out.

Steps to take for starting a job search involve informing your network that you are starting a job search. One piece of advice was that whenever you talk to people in your network about a new job search or a career change, you should be asking them for thoughts, ideas, advice, etc, not for jobs. One way to inform your network can be changing your status on LinkedIn. This was suggested as a very good way to reach everyone in your network, even the people that you may not have frequent contact with. Indeed.com was suggested as a useful website to search for job postings. You also need to identify companies that you think you'd like to work for. See if you know anyone that works for these companies, or if anyone in your network does. If you can get into contact with someone from these companies through a mutual acquaintance, that can be a useful source of information about the company and a possible "in" for getting noticed. Contacting recruiters was suggested as well. Recruiters do not charge to put job candidates on their list. Companies pay recruiters to find appropriate job candidates, not the other way around. Headhunters can be hired to represent a specific job seeker, but that is typically done when one is further along in one's career. It was highly recommended to talk to multiple recruiters, since different recruiters work for different companies. That way your resume should get broader exposure.

With the conversation turning to LinkedIn, someone brought up a concern that they felt like they were stalking people when trying to connect with someone that they had only briefly met. The panelists responded that they usually did not feel stalked, but that they frequently did not respond to invitations to connect unless the person sending the invitation took the time to write a note mentioning how they knew the panelist, or where/when they had met. The general consensus was that if you could not take a minute of your time to write a quick note on your LinkedIn invitation, then it suggested that you were simply digging for contacts among people that you did not know at all, or that you simply did not care. As for using LinkedIn as a job search tool, it was strongly recommended that you complete your LinkedIn profile, including three recommendations and a resume (with emphasis on skills and accomplishments).

A strong suggestion was that when applying for a job, you need to customize your resume for each job to which you are applying. It is important that you research the company and the specific job opening. The BIO conference was suggested as a good place to learn about a huge variety of biotechnology companies. The NC Biotechnology center also is a good place to learn about different companies. In addition, Biospace.org is a good resource for company information, conferences and searching for job postings. If you have a specific place to which you want to relocate, communicate this in a cover letter to express your willingness to move to the location of the job to which you are applying. Companies often offer at least some level of relocation assistance. It was emphasized that it is worthwhile to know where you want to be, you will be happier in your job.

Someone asked about staying in the RTP area and confining their job search. The response was that, obviously, the number of available jobs would be more limited than that of a more nationwide

search, but that staying in RTP is not a bad thing. You are more likely to have luck finding job openings through your network rather than a recruiter, though.

There always seem to be a number of masters-level positions available at companies, but not enough for Ph.D.s. The question was asked whether or not a Ph.D. should apply for these positions. For small companies, the panelists suggested that this was not really a problem, and that you should go ahead and apply. The potential for promotion to a “higher” position is pretty good. On the other hand, the panelists suggested that a larger company might not really consider the “overqualified” Ph.D.s for a Masters-level position. Speaking to the advancement potential in these jobs, the panelists emphasized in any job, if you want to advance, you need to let your supervisor know that you are willing to take on more/new responsibilities. It’s best to let your supervisor know that you like your job, but that you think you can do more for the company. It is good to promote yourself (within limits).

The talk then turned to interviewing. The STAR method of interviewing (behavioral interviewing) is commonly used at biotech/industry companies, and it is good to familiarize yourself with this before going on interviews. You should write down “what I want this company to know about me” before you go on an interview to help you prepare. Press releases about the company with which you are interviewing are a good source of current information and are a good source of material you can ask questions about. It shows that you have researched the company and are interested in it. Other example questions are “what does your pipeline look like,” and “what’s the most exciting product in your pipeline?” Genuine, spontaneous curiosity is always good. If you’ve had good conversations at an interview and all of your questions have already been answered, it is okay to answer the “do you have any questions for us?” question with a response like “All of my questions have been answered already, but if I think of some, can I give you a call?” This is a good opening for continuing contact with your interviewer(s).

There were a last few bits of information in the session as things were wrapping up. One was that most companies decrease hiring in the 4<sup>th</sup> quarter. Another bit of information was that if there are two jobs at the same company that you are interested in and you are qualified for both, go ahead and apply for both. You should customize your resume and cover letter for each one, if possible. Also, someone asked if a job has been posted for a while, is there a time when it’s not worth it to apply? The answer was no, go ahead and apply, although it is a good idea to check the company’s website rather than a job board. If the job is still posted on the company’s website it should still be open and you should go ahead and apply.

That was the end of a rather lively discussion between the panelists and the attendees. Many thanks to the panelists for their time and insights, and thanks to the attendees for their excellent questions and discussion.

## Navigating the Process: Finding and Applying for Fellowship Panel

By Patricia Gillespie, Ph.D.

In this session participants discussed fellowship opportunities in the biomedical sciences with a panel of directors and senior scientists who either currently manages a fellowship program or was a past recipient of a fellowship. The panelists included Benjamin Corb, the director of public affairs at the American Society for Biochemistry and Molecular Biology (ASBMB) who manages the ASBMB science policy fellowship program; Kacee Deener, MPH, a 2005 recipient of a Brookings Institution Congressional LEGIS Fellowship who is currently the program and regulatory support lead in the U.S. EPA, National Center for Environmental Assessment; Shobha Parthasarathi, Ph.D., the technology development director at the North Carolina Biotechnology Center manages the industrial fellowship program; and Cynthia Robinson, the director of the science and technology policy fellowships with the American Association for the Advancement of Science.

Key questions and relevant responses from this session included:

- Given the competitive nature of landing a fellowship, what can an individual do to set him or herself apart from other applicants?
  - The panelists encouraged participants to know their “personal brand”. A personal brand consists of characteristics, hobbies, achievements, and personality traits that make an individual unique.
- What are some searching techniques for finding fellowships?
  - Several large fellowship databases were provided to the participants as a mechanism for searching for fellowship opportunities. The databases include: [www.fellowships.aaas.org](http://www.fellowships.aaas.org) and [www.ncbiotech.org/fellowship](http://www.ncbiotech.org/fellowship).
- The panelists stressed the importance of excellent communication skills, so participants wanted to know some ways to improve this skill set.
  - Participants were encouraged to look into joining their local chapter of Toast Masters and to engage in activities that allow one to practice writing and speaking science often.

For additional information, panelist can be contacted by email.

Benjamin Corb ([bcorb@asbmb.org](mailto:bcorb@asbmb.org))

Kacee Deener, MPH ([deener.kathleen@epa.gov](mailto:deener.kathleen@epa.gov))

Shobha Parthasarathi, Ph.D. ([shobha\\_parthasarathi@ncbiotech.org](mailto:shobha_parthasarathi@ncbiotech.org))

Cynthia Robinson ([crobinson@aaas.org](mailto:crobinson@aaas.org))

## The Job Search, Cover Letters, CVs, and Resumes

By Sindura Ganapathi, DVM, MBA, Ph.D.

Do you feel that there aren't many job opportunities for biomedical graduates? Or that it's hard to prepare an effective job application packet? Or that you aren't getting enough responses after applying for the few jobs that do trickle in? If so, the 'Job search/CVs/Resume/Cover letter' workshop would have been the place for you to be during the 14<sup>th</sup> Annual NIEHS Career Fair. Lori Conlan, PhD, from the NIH Office of Intramural Training and Education (OITE) presented the workshop filled with valuable information for job seekers and convinced the audience that there is light at the end of the job search tunnel.

Conlan emphasized on a very important aspect of job search, the pre-job search home work that precedes writing a good CV/Resume. It involves a thorough introspection regarding the career aspirations based on strengths, weaknesses, practical realities (such as family situations, geographical restrictions etc) and interest in certain types of jobs. This should lead to more clear ideas on the field that can be targeted for job search. Having a clearer idea about what types of jobs you are looking for can make a world of difference, Conlan mentioned.

Given the mix of audience interested in both industry and academic jobs, Conlan compared and contrasted the nature of both types of job markets and approaches for both throughout the workshop. Academic jobs are usually advertised during August – October, with calls for interviews coming usually during January – April. Second interview, offers and negotiations happen during March – June. This time line also shows the length of the application process for academic jobs and the need to start the process at least a year before a candidate wishes to start working in the job. On the other hand, this whole process is reduced to typically two months (from applying to a job to starting the job) in industry. "Understanding these timelines helps in planning for the transition", Conlan noted.

The workshop was notable in its informal nature and the active participation by the audience. Dr. Conlan described in depth the differences between a CV and a Resume, by going over examples for each, the sections that find place in a CV but not in a resume and vice versa. She urged the audience to make use of the wealth of information available on the OITE website (<https://www.training.nih.gov/>) on these aspects. Although there was considerable interest among the audience to hear Conlan talk about writing the cover letters, time constraint forced her to keep the topic short. Even with the limited time that was available, she went over an actual cover letter she wrote during her own job search, highlighting the dos and don'ts. She stressed the importance of customizing the cover letter to fit the job description (such as doing research to find out a name to which the letter could be addressed, highlighting skills that actually match the words used in the job descriptions, avoiding cliché's that make the cover letter look like a template, etc.). Finally, she drew approving laughter from the audience with her suggestion to use 'word search' to find and

replace names of previous companies when re-using cover letters, emphasizing the importance of cover letters tailored for specific jobs.

Imagine that you have invented a high-throughput proteome screen meant to accelerate target identification and flag negative side effects of potential therapeutic agents early in the process. You decide to enter a brave new world and launch a start-up biotech company based on the invention. Timothy Haystead, Ph.D., an Associate professor at Duke, did just that.

In 2001, Haystead founded Serenex which he based out of a garage in Durham, while working at Duke. He shared his experience with and tips for starting, running, and selling a start-up company. Haystead felt he could take a risk with a start-up company because he had a tenure track position and Duke allowed him one day a week to be away from the University. He strongly cautioned against working on anything from your company in your academic lab. A severe conflict of interest can arise, so be sure to separate the two.

An important key to a successful start-up company is to surround yourself with individuals that share your passion and are experts in their area. Haystead encouraged getting to know the people you're going to work with. Take them out golfing, out to lunch, get to know them as a person because ultimately you're entrusting your business in their hands. Many of the people making the business decisions for the company are going to be more interested in the money than the science, so Haystead advised that you ensure that you have the final say in important decisions.

Serenex was acquired by Pfizer in 2008 and subsequently dismantled. Haystead is looking forward to future start-up company opportunities and from his experiences with Serenex will have a better grasp on start-up companies. From Haystead's experience it is apparent that the journey through a start-up company is filled with excitement but also many learning experiences.

## Technology Transfer Short Session

By Yixing (Emily) Zhou, Ph.D.

Kelly Sexton, Ph.D., from the Office of Technology Transfer (OTT) at NCSU started her career as a postdoctoral fellow, like many of us, at the California Breast Cancer Research Foundation after obtaining her Ph.D. Realizing that although immensely interested in science she wanted to pursue a career away from the bench, she diligently conducted informational interviews with her colleagues and friends twice a week, taking them out for coffee or lunch. After some time of hard work, she has compiled a database of contacts in a wide range of alternative careers. After aligning her interest and abilities with different career options, she found her passion in technology transfer. She did an internship at the Stanford Office of Technology Licensing. She networked with specialists in this field and through words of mouth, she got her job at NCSU. Again, she advised that networking in the field of your interest is crucial to land a job.

Tools needed for technology transfer include a technical background, some understanding of the patent process, basic business knowledge, and rudimentary contract law principles.

The daily life of Sexton's work includes reviewing various inventions, conversing with inventors, lawyers and biotech executives, licensing technologies, and communicating back and forth among different players.

For those who are interested in this career path, she advises doing an internship in technology transfer. Opportunities can be found at local universities, such as UNC Chapel Hill, Duke, NCSU, or NCBC, or NIH. Although this field has seen its peak and is currently quite saturated, however, keep networking and put your name out there will very likely be the "red Joker" you will need.

For further career development, technology transfer professionals often move among different OTTs up the rank, or become a patent attorney, or move to management in business development.

The work-life balance is very good though. "It's an 8 to 5 job," Sexton said, "I'm very busy at work, but I leave the work when I'm done at the end of day."

Technology transfer is the process of transferring new technological or scientific developments from research institutions to a wide range of users who can then further exploit the technology to develop new products, materials, services, or applications. It came into being after the Bayh-Dole Act of 1980 that allows universities, small businesses, and government research agencies to control their intellectual property resulted from government funded researches. This legislation enables research institutions to have the ownership of their inventions and share profits.

Technology transfer specialists are found at different sectors throughout the spectrum of knowledge transferring from research institutions where technology is first discovered to companies where new technology is examined for further commercialization.

## Finance and Venture Capital Short Session

By Sindura Ganapathi, DVM, MBA, Ph.D.

### What is venture capital?

When starting a new business, an initial money investment is needed to get the business going. The money can come from 1) personal savings 2) starting with a small fund and using the profits to fund the business as it moves forward (bootstrapping) 3) taking a loan. However, if a large initial investment is needed, then it may need another alternative, that is 'venture capital (VC)'. Venture Capital is a pool of money or a fund, which is managed by a group of people who invest in the start up businesses with a hope that in a short period of time (typically 2-7 years) they will be able to make more money than they invested. The profit can come either by the new business going public (with stocks being sold) or by another bigger company acquiring it.

Typically venture capital companies invest in certain types of businesses. They usually go through a large number of business proposals submitted by aspiring startups and choose the ones that are most likely to make a bigger return than their investment.

### Mike Dial, PhD, shares his experience in VC

Dial presented the short session on finance and venture capital. He currently works as an analyst at Hatteras Venture Partners. Hatteras Venture Partners is a venture capital firm based in Research Triangle Park, NC, with a focus on biopharmaceuticals, medical devices, diagnostics, and related opportunities in human medicine.

Dial talked about his transition from PhD into the investment world. Prior to working at Hatteras, he worked for SVB Financial Group. Initially he approached the SVB Financial Group, and talked to the people at the company and convinced them how useful it would be for an institution that is invested in life sciences to have someone like him, a PhD in Biochemistry and Biophysics. Experience from working at SVB, Dial said was very valuable in obtaining more contacts in the field and getting his next job at Hatteras. He encouraged people interested in making the transition to explore ways to get a foot in the door, such as approaching the companies in the area and offering to work part time or asking them for short internship positions.

In response to a question from the audience, he agreed that a degree such as MBA can be useful, only as long as the degree is from a good school. Answering questions about his daily routines, he mentioned the hundreds of business plans they have to go through, learning different aspects of a business (like accounting, patents, scientific merit of the company's product etc.), keeping an eye on the market trends, juggling different topics on a daily basis, reading scientific articles on potential new discoveries that have business prospects, not uncommon 70-90 hr work weeks and

the handsome returns venture capitalists get when they choose the right mix of companies to invest in.

It might be of interest to note that Dial worked at NIEHS as a research chemist during 2000-01.

Robert Lindberg, Ph.D., R.A.C., is the Senior Director of the BATON (Business Acceleration and Technology Out-licensing Network) program at the North Carolina Biotechnology Center (NCBC). After graduate school at the University of Louisville, Lindberg did two post-doctoral fellowships before joining the NCBC. He then earned a Regulatory Affairs Certification and worked at VWR Biosciences as the Technical Sales Director before returning to the NCBC.

Lindberg discussed the state of the biotechnology sector in North Carolina and how it can be very difficult to transition into industry from academic training because you are “too junior to be a senior scientist” and “over-qualified for a lab tech position.” One solution to this problem is being directly addressed by the NCBC Industry Fellowship Program. This competitive fellowship program provides transitional training for academic scientists seeking careers in industry.

There are many types of consulting careers available to scientists, but it is not usually an option for postdoctoral fellows. The possible sectors where this career path is a possibility are in venture capital or scientific writing. The more traditional scientific consulting career is usually a mid- to late-stage career option. Some possibilities to help steer a career path towards consulting are: getting a professional certification, like an R.A.C.; working with large groups of people on a common project; or working with government organizations like the FDA.

Important factors for someone looking to work in Consulting and Business are demonstrating that you are a team player, know how to work under deadlines, and have knowledge or training in formal documentation (e.g. GLP, cGMP, etc.).

## **Non-Profit Organization Short Session**

**By Cynthia Holley, Ph.D.**

Naina Bhasin, Ph.D., is the Vice President of Business Development and Operations at the Hamner Institutes for Health Sciences. Her career path to this position started out as a familiar path taken by many scientists. After obtaining her B.S. in Cell and Structural Biology at the University of Illinois at Urbana-Champaign, she began her Ph.D. studies in Cell and Developmental Biology at UNC-Chapel Hill with the intent of gaining a tenure-track academic position. As is increasingly common with science Ph.D. candidates, her desire to continue on this career track shifted to alternative careers.

As she was writing her dissertation, Bhasin took the opportunity to work with a just-emerging startup company working with hepatic cells. She took the job because the nature of the samples required late night work, and complemented her own preferences for working later in the evening. She was able to write during the day and work for the startup company at night. She emphasized the importance of taking advantage of opportunities – whatever career path you might be on – because you never know where they might lead you, or what help they may provide in the future. In Bhasin's case, she continued to work with the startup company after obtaining her Ph.D., serving as the Director of the Hepatic Research Registry for CellzDirect, Inc.

Bhasin said that the training that scientists receive as a Ph.D. student provide them with critical thinking and analytical skills that can be transferred to a variety of different professions, and are highly valued. Her position at CellzDirect gave Bhasin the opportunity to hone networking skills, interpersonal communication skills, and the ability to be flexible since she had a wide variety of different responsibilities.

After several years with CellzDirect, Bhasin decided to go back to academia for a while, completing postdoctoral training at Vanderbilt University and then working as an Assistant Research Scientist at the University of Iowa. Before long, the value of networking was clear to Bhasin as she was offered a position through contacts that she had made and continued to communicate with that was practically tailored for her experience at the Hamner Institutes.

Particular skills that Bhasin emphasized are the ability to communicate with all kinds of people, and to be able to talk to them "cold turkey." She said that especially with scientists, if you can read their research and are comfortably familiar with it before introducing yourself to them at a conference, then you have a much better chance of making a valuable contact. If you just introduce yourself and don't have anything to talk about with a person, then you will likely be forgotten soon after the conversation. If you are able to carry on a conversation with the person that is meaningful and of interest to them, that is a very valuable skill.

As to the details of working for a non-profit organization, Bhasin stated that there are an incredible variety of non-profits, of which the Hamner Institutes is only one type. Specifically, the Hamner Institutes focus on "being a global leader in translational life science research innovation and

training by fostering strategic partnerships with academia, industry and government.” Bhasin said that the primary difference between non-profit organizations and industry is that there are no shareholders at a non-profit. Any money that the organization makes beyond its costs goes back into the company and towards the company’s goals (funding grants, providing resources, etc.).

Holding a scientific position at the Hamner Institutes is not quite like a tenured or tenure-track position in academia. Publications are still important, and scientists will go through performance reviews. Funding for the Hamner, specifically, was once provided by a consortium of chemical companies and scientists did not have to apply for grant money. Due to the ever-changing economy, funding is now more dependent on grants and contracts, even though money is still provided by the chemical companies to some extent. Generally, for non-profit companies, funding is less dependent on grants than that of an academic setting. The Hamner also has an in-between type of position that is like something between a postdoctoral fellow and a assistant professor position in academia which can provide an additional avenue for job growth.

Bhasin emphasized several times that the best way to find a position at a non-profit organization – or any type of job, for that matter – is to utilize your network of contacts. She said that depending on a CV or resume to get noticed is much less reliable than talking to people, and getting introduced to people who might be able to help.

Have you ever thought about a career away from the bench? One where your skills and knowledge as a scientist are highly valued by both large and small biotech companies? If so, then this short session was a good place to learn about careers in patents and law. The speaker was Jason Seifert, J.D., Ph.D., who is a Senior Associate at Life Sciences Law in Chapel Hill. Prior to attending law school, Seifert received his Ph.D. in pharmacology from the University of North Carolina. After graduating Magna Cum Laude from the University of Minnesota Law School, he has worked closely with entrepreneurs and various businesses through his current position at Life Sciences Law, providing a diverse array of legal services to clients in this area. Those services include risk mitigation, helping start-up biotech companies, material transfer agreements and other types of confidentiality agreements as well as handling clinical trial agreements.

In order to excel in this type of career you need to be able to “read very carefully and understand the meaning of every word.” According to Seifert, “legal writing is very different than science writing and it takes time to get used to it and to be good at writing the least amount of words that convey the most meaning.” The ability to communicate very clearly and make other people understand exactly what you are trying to say is also a very important skill for this type of career. As Seifert put it, “when you have to go back and tell your client that their patent did not pass and it needs to be redone which will take more time and more money, your ability to communicate clearly becomes very important!”

One of the first questions asked was “can someone get a patent law job without getting a law degree?” The answer to that is yes, you can become a patent agent by passing the patent bar, which can only be taken by those with a science or engineering degree. The drawback according to Seifert is that “patent agents do all the same work as a patent lawyer, but with less pay”. The best advice for transitioning to this job from the bench is to start by networking with other patent agents or patent lawyers in your area. This can also help you to decide if this is the type of career you would be interested in. In many cases it is not necessary for you to pass the patent bar in order to get a job as a patent agent. In fact, many companies and law firms would prefer to hire you straight out of your post-doc and then will give you the experience and training you need to successfully pass the patent bar, which has a passage rate of about 50% for first time takers.

If however you do decide that law school is for you, then Seifert advised “choose the best law school in the area you want to live, not the best law school you can get into. At the end of the day, you will ultimately learn what you need to know from whatever law firm you end up joining.” Seifert’s advice for going into law school after getting a Ph.D. was to “be sure this is what you want to do.” He added, “law school is hard and is very demanding both time wise and financially.” But he stressed, “the reward can be a very exciting and high paying job.”

## Grant Management Short Session

By Andrew Seipel, Ph.D.

Even before completing her degree in computer science, Lisa Edwards, MBA, realized that she wanted something different from her future career than her training would offer. She loved math, but didn't want the life of an engineer or academic. Instead, Edwards found a great career in grant management at NIEHS. As a grant management specialist, she reviews the budgets of grant applications after completion of the scientific review to ensure compliance with NIEHS/NIH guidelines.

Entry level positions do not require an advanced degree and are found throughout government and other grant-awarding institutions. The position requires a love of math, and the ability to work within a team since grant managers must work together with other grant managers as well as with program officers and principal investigators. Good communication skills are also required as grant managers are responsible for interpreting policy guidelines and explaining compliance issues with applicants.

Every day provides a new set of challenges for grant managers, as each application is unique. Managers typically specialize in a few types of grants and work with a team to analyze applications for their specific grants. Once approved, individual grants may be followed for years by the same manager. The position allows for some flexibility with work hour scheduling and will require occasional field visits.

Advancement in the field, according to Edwards, requires the motivation to work hard and also to diversify by learning different grants. Each type of grant carries a new set of guidelines to learn and presents a host of new challenges for the grant manager, but the extra effort will be noticed.

## Program Management Short Session

By Andrew Seipel, Ph.D.

Though the sums of money major organizations, such as the NIH, give out annually to fund science may seem enormous, the money is far too little to fund all the good science at our nation's research institutions. Institutions that award grants therefore have difficult choices to make about what types of research will best advance their specific aims and invest in those projects. This requires knowing where research in a given field is currently at, and pushing the field to where the institution wants research to go in the future. This is the responsibility of Program Managers, such as Michael Humble, Ph.D., from NIEHS.

Humble specializes in two broad areas, skin diseases and immunology. He attends meetings and keeps in contact with numerous members of the research community to stay abreast of new discoveries and techniques within those fields. Humble then helps decide what the focus of future grant awards in the fields should be.

"Communication skills are at a premium for program managers," said Humble, "as they must interact with scientists to keep up with new discoveries, inform them of what successful future grant applications should possess and explain why a "perfect" application was not funded." The position also has a substantial public outreach element, as managers are viewed as experts and asked to speak with journalists and before congress.

One of the most difficult adjustments from life as a bench scientist was "learning the new language required in the grant field, such as all the government institutes and grant types", added Humble. Another significant change was learning to view the big picture of scientific field, and not the highly specific view of a bench scientist.

Large institutions such as the NIH employ hundreds of program managers, each with a specific scientific area of expertise. In the government, entry level positions are at the GS12 level and are listed as Health Science Administrators. The career path for program managers can branch out to different positions, such as scientific advisors and policy staff.

## Science Policy Short Session

By John Jack, Ph.D.

John Vandenberg, Ph.D., has built a career in science policy. As the Director for the RTP division of the National Center for Environmental Assessment, he fills a large role in the regulatory framework of the Environmental Protection Agency. Vandenberg interacts with scientists, risk assessors, and policy makers to understand and interpret the science necessary to protect human health from adverse impacts of air pollutants.

Vandenberg maintains that in order for a scientist to build a career geared towards policy, one must continue to publish and establish a reputation in the scientific community. Be a scientist, while engaging the policy community. There is no “science policy” job to apply for per se in order to get started in the direction of science policy. A Ph.D. interested in this career path would still apply for jobs in their realm of expertise. When asked what communities one could seek out to begin building a network in the realm of science policy, Vandenberg suggested the Society for Risk Analysis (SRA). Communication skills are critical, since science policy is determined from the outcomes of a wide variety of experiments. Learn to communicate with people from diverse scientific backgrounds.

The concept of a career in media and communication is not the standard when one considers a Ph.D. However, the communication of science is a crucial component for public awareness and comprehension. Banalata (Bono) Sen, Ph.D., understands the difficulties and rewards of communicating science to wider audiences. In fact, before she arrived to speak at the career fair, she was helping a group of third graders at one of the local schools.

A molecular biologist by training, Sen now works for the Environmental Health Perspectives journal, where she is the Program Manager for Science Education and Outreach. During her session, Sen stressed the importance of building a portfolio of writing samples – one which extends beyond academic journals. Communicating your ideas to people with similar background and training – i.e., writing a manuscript for an academic journal – is important for any scientist. However, to establish a presence in the fields of media and communication, one must be capable of expressing complicated ideas in simple, terse language to audiences with little to no background knowledge. Practice the “elevator pitches”: short summations to define the science and its value. Sen also encouraged the audience to write blogs, sing songs, or use whatever creative skills they have to get the science across.

## Science Outreach Short session

By Patricia Gillespie, Ph.D.

This session provided participants with an opportunity to discuss available career paths in science outreach. The speaker of this session was Neasha Graves, MPA, who is the manager of the Community Outreach and Engagement Core of the Center for Environmental Health and Susceptibility at the University of North-Chapel Hill. In this current position, she coordinates environmental health outreach initiative for various audiences throughout the state of North Carolina. Graves earned her Bachelor of Arts degree in History from Meredith College in Raleigh, NC and her Master of Public Administration from North Carolina Central University in Durham, NC. Key questions and relevant responses covered in this session included the following:

- What skills and characteristics are needed for employment in science outreach?
  - The speaker informed participants that employers seek individuals who possess excellent oral and written communication skills; have the ability to take complex science concepts and distill them into easily understandable terms; and are energetic, hardworking, and result oriented.
- What is a typical day like for a science outreach practitioner?
  - According to Graves, "there is no typical day in this field." As a practitioner of science outreach, you could spend the day writing science curriculum; traveling to give a presentation; planning upcoming seminars, workshops, or events; or completing administrative tasks, such as managing budgets.
- What can an individual do now to increase their chances of employment?
  - If you are interested in this field, volunteer and network. Graves informed participants that the typical job search process rarely produces results. She found her job by networking and encourages others to do the same.

For more information, Graves can be contacted at [neasha\\_graves@unc.edu](mailto:neasha_graves@unc.edu).

Aiming to translate basic discoveries into treatments for human diseases, clinical research brings the latest therapies and pharmaceuticals from the laboratory bench to the bedsides of real patients. In recent years, more and more PhDs are leading multidisciplinary clinical research teams, alongside physicians and MD/Ph.D.s, but how to be qualified to be a clinical research scientist?

In this session, Maria Schroeder, Ph.D., shared her own story of and experience with entering into a career path in the clinical research field after she finished her postdoctoral fellowship in the area of molecular biology from the University of North Carolina at Chapel Hill. She started as a clinical data manager with PAREXEL International Corporation in 1997. Schroeder quickly moved up to be responsible for quality assurance and regulatory affairs, and became director of regulatory affairs at 2002. In 2006, she joined Quintiles, a leading global contract research organization (CRO) offering pharmaceutical services and clinical solutions, as a project manager.

From her own experience, strong motivation, enthusiasm in work is the most important factor for her to start with PAREXEL. "Willingness to work, and showing what you can bring to the company," she emphasized is the key to successfully secure a job. Other important components for being a successful project manager in clinical research is leadership skills, an ability to motivate others, as well as the ability to communicate with people, to work well in teams, and to think globally and understand multi-cultural issues.

When asked how to make the transition from basic research to clinical research field, Schroeder suggested to creatively explore how our current skills, experience and research expertise can be translated to other arenas. She pointed out that although the settings are different between basic and clinical research areas, there are lots of common qualities required for success in both fields. For example, the strategic planning, analytic skills, protocol writing, setting up collaborations and result summarization that a postdoc will do in managing his or her own research projects everyday are necessary skills required for carrying out a clinical study.

Schroeder also commented that compared to obtaining a clinical certification or diploma, experience is much more preferred for being recruited by a CRO company. Thus for the most fresh graduates or postdocs who lack experience in clinical research field, it is very likely that they will have to start by getting an entry-level job. However, "starting from scratch doesn't mean that you will stay there forever," she heartens the audience with warm encouragement. Schroeder strongly advised young scientists to have a big vision and long-term career goals. Doing so, "you can reassure yourself that you would not stay too long at an entry-level job" when shifting to a totally new area. Also she motivated youngsters to stay confident and "once you have experience in the new field, you can move up rapidly with those abilities and skill sets obtained from our Ph.D. and/or postdoctoral trainings."