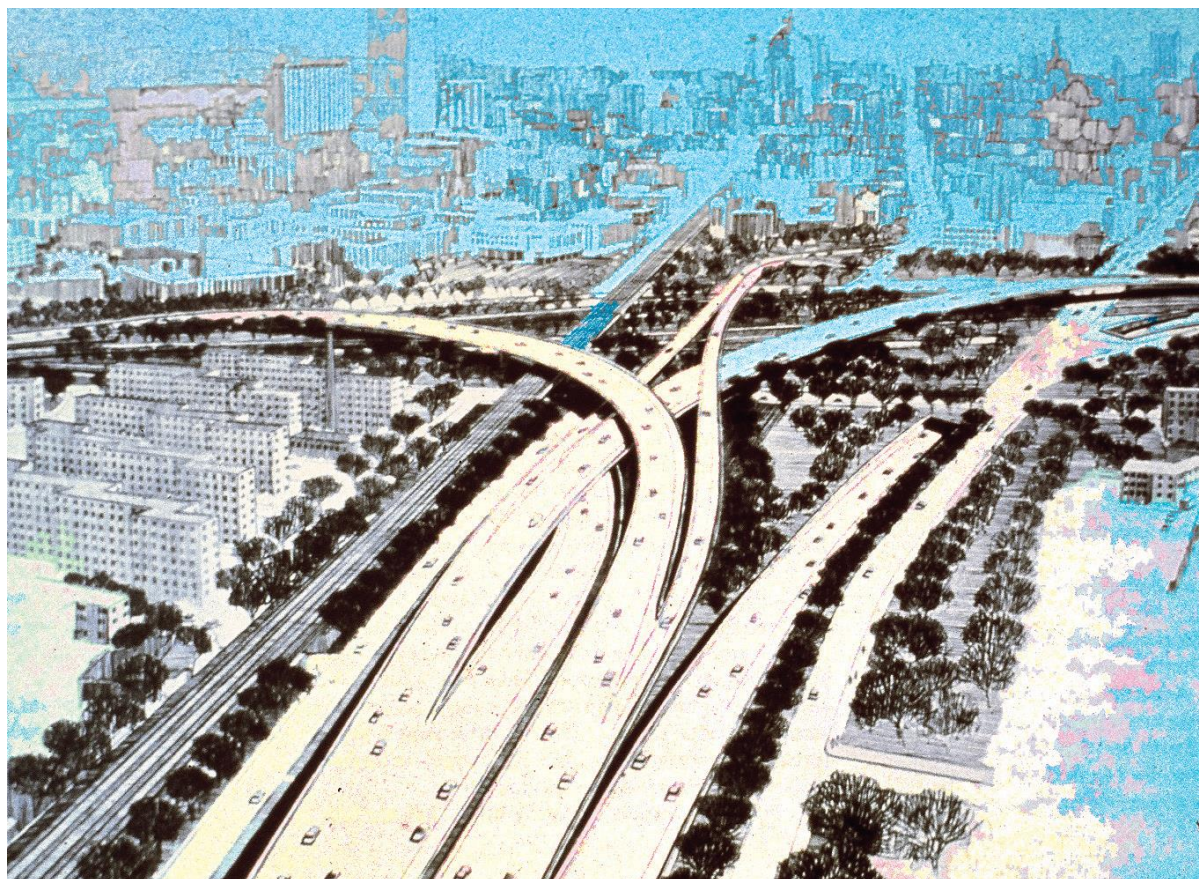


Conference Proceedings  
for the  
**STEM Career Symposium**  
held on March 21, 2015



Organized by the  
UC San Diego Postdoctoral Association

## **Table of Contents**

Acknowledgments.....	3
Panel 1: A Day in Research and Development.....	4
Panel 2: Business Careers.....	5
Panel 3: Clinical & Regulatory Affairs.....	6
Panel 4: Scientific Writing & Journalism.....	8
Panel 5: Teaching.....	12
Panel 6: Intellectual Property Law.....	14
Panel 7: Entrepreneurship.....	15
Panel 8: Science Policy & Technology Transfer.....	16

## Acknowledgments

On behalf of the UC San Diego Postdoctoral Association (PDA), we would like to thank all of the attendees, panelists and sponsors for their support of the 2<sup>nd</sup> Annual “What Can You Be with a PhD?” STEM Career Symposium! The growing difficulties to secure funding and the increased scarcity of tenure track faculty positions have made it imperative to explore other career options. There are multiple career paths outside of academia, some of which many postdocs may not be aware of. This was the impetus behind the creation of this Symposium, to enable interaction with experienced professionals to help inform and guide future career decisions.

The inaugural event in 2014 was a resounding success, and this year we were able to build on that solid foundation by adding additional sessions on Entrepreneurship, Science Policy, as well as a session devoted to Teaching-intensive positions. We hope that by attending the Symposium postdocs and grad students are able to discover many new possibilities for a bright future.

The PDA would especially like to thank all of the speakers for generously volunteering to share their stories and wisdom. We also extend our deepest thanks to our sponsors who helped make this Symposium such a success. We are grateful for your support in our postdoc career development efforts. Lastly, we also thank all of the PDA members who volunteered their time and participated in creating these conference proceedings.

Sincerely,

Joshua Wollam, PhD

Xiong Zhang, PhD

Co-Organizers, STEM Career Symposium

UC San Diego Postdoctoral Association

## **Panel 1**

### **A Day in Research & Development**

**Moderator: Joana Galvao**

Sara Becker-Catalina, PhD	Senior Manager, Affymetrix/eBioscience
Wolfgang Glaesner, PhD	Chief Scientific Officer at Applied Molecular Evolution, Eli Lilly & Company
Stephanie Greene, PhD	Assay Development, Epic Sciences
Amy Yang, PhD	Senior Principal Scientist, Pfizer

1. The panelists had different experiences transitioning from academia to industry. Two of the panelists completed a postdoc in industry and expressed a more smooth transition into a professional environment. The other two panelists had a longer experience in academia before transitioning. In general, the most challenging aspect consistently reported was the need to accommodate additional team and management meetings while still being expected to produce good quality science.
2. All of the panelists mentioned that their work day varies greatly. Some panelists specifically mentioned that they are continuously incorporating many meetings into their schedule. Others panelists consider themselves to be engaged in a myriad of responsibilities. One panelist in particular noted that they visit the laboratory regularly and assist as needed.
3. Depending on their specific area of expertise, each panelist had their own path and experience. The panelists collectively place great emphasis on networking in order to find the job you are most interested in. The panelists stressed the importance of having a broad mindset when searching different job and professional network websites. In addition, they emphasized utilization of multiple resources. For example, some positions may only be advertised on LinkedIn whereas others are posted on job websites.

## **Panel 2**

### **Business Careers**

#### **Moderator: Jie Jiang**

Joanna Asprer, PhD, PPM,	Corporate Postdoctoral Residency Program, Thermo Fisher Scientific
Jeanne Bristow, PhD	Technical Applications Scientist, Illumina
Jay Bryant, MBA	Director, Graduate Recruiting and Admissions, UC San Diego Rady School of Management
Michael F. Haller, PhD	Chief Operating Officer and Board Director, Denovo Biomarkers
Christopher Noakes, PhD	Sales Associate, VWR International

1. Networking, networking and more networking!
2. Change your mindset – An academic track is only one of many potential career paths you can pursue with a PhD.
3. Spend some time learning about different aspects of business careers in the biotech and biopharm industry. This will help you determine which position best fits your skills and personality.
4. Do not be afraid - You have to try a job before you know for sure whether you like it or not. It is common for people employed in industry to switch from one position to another.
5. In general, an MBA (or higher business related degree) is very helpful in business career development. The Rady School of Management at UC San Diego has various courses and program options for postdocs interested in pursuing a business career.
6. Speak with to the Rady School to determine what program would fit your needs best.

### Panel 3

#### Clinical and Regulatory Affairs

**Moderator: Joanne McNelis**

Lynne Eddy, PhD	Instructor, UC San Diego Extension
Xindao "Ginny" Hu, PhD	Regulatory Affairs Coordinator, Volcano Corporation
Patricia Ryan, PhD	Regulatory Affairs, CMC, Halozyme Therapeutics
Laurie Strawn, PhD	Global Regulatory Leader, Pfizer

1. Networking is vitally important to the job search process. Local chapters of national organizations have monthly/bimonthly meetings and are a great way to network and learn more about these fields. San Diego Regulatory Affairs Network (SDRAN, <http://www.sdran.org/>), San Diego Clinical Research Network (SDCRN, <http://sdcrn.net/>), American Medical Writers Association – Pacific Southwest Chapter (AMWA-PACSW, <http://www.amwa-pacsw.org/>), Association of Women in Science San Diego (AWISSD, <http://www.awissd.org/>).
2. Several certificates/modules are offered locally and online, which are great ways to learn more about the field and demonstrate to perspective employers you have made a serious commitment to this career path. UCSD extension (<http://extension.ucsd.edu/>), San Diego State University (SDSU, <https://www.sdsu.edu/>), Regulatory Affairs Professionals Society (RAPS, <http://www.raps.org/>).
3. Individuals working in regulatory affairs work alongside colleagues from several different disciplines including scientists, marketing, manufacturing, quality assurance, FDA, MDs.
4. Being organized, detail-oriented and an effective communicator are the most desirable skills for individuals working in these fields.
5. Therefore, scientific writing experience, strong analytical skills, and effective communicating/negotiating skills gained during a PhD/post-doc are most transferrable and should be highlighted on your resume when applying for clinical or regulatory related careers.

6. The knowledge that you are contributing to improved patient care and quality of life provides the most job satisfaction for many of the panelists.
7. Being involved in projects that are dropped (for example, due to lack of efficacy in clinical trials) and having to rely on other members of the project team (scientists, marketing etc.) were examples of the major challenges noted for these professions.
8. It is common to enter these fields from other departments within industry – most often within the same company. It may be possible to work closely or even work in Regulatory or Clinical groups while working in R&D for example.
9. Although more difficult, it is possible to enter these fields directly from a postdoc (two of the panelists did). In this case, networking and taking educational courses are particularly important.
10. The title of entry-level positions varies from company to company. Jobs to look out for include Regulatory Coordinator, Regulatory Associate, Clinical Research Associate, and Clinical Research Manager. You may also consider closely related roles such as Scientific Writer, Document Control or Submissions Associate/Specialist.

## Panel 4

### Science Writing and Communication

**Moderator: Gizelle Anzures**

Heather Buschman, PhD	Senior Manager, Communications and Media Relations UC San Diego Health Sciences
Amy Cullinan, PhD	Social Media Manager, Illumina
Jessica Yingling, PhD	Founder and President, Little Dog Communications

1. You can build upon your science writing and communication experiences in the following ways:
  - Volunteer to blog or tweet for different companies/organizations
  - Work as a contract editor for English-as-a-second-language (ESL) researchers (e.g., via American Journal Experts)
  - Sign up for biotech industry e-newsletters to learn about current issues in healthcare and industry
  - Apply for a communications internship
  - Take writing classes
2. Attend networking events to seek out and speak with professionals who are already established in the area(s) you're interested in. Talk to them about what they do and how you can get involved.
3. Attending informal social networking events (e.g., happy hours) are especially important because they expand your professional network. Most of the panelists advanced in their careers because of referrals from their professional contacts with whom they initially had a more social rather than strict professional rapport.

Below are the responses to the moderator's questions provided by Dr. Yingling. These responses can also be found by visiting Little Dog Communications <http://www.litldog.com/woof/woof/>.

1. What is your background and career path and how did you get to where you are now?

I earned my Ph.D. in biomedical sciences from UC San Diego. My dissertation was focused on using a mouse model to dissect the cellular defect and the molecular mechanisms of a neurodevelopmental disorder, called lissencephaly.



I enjoyed working at the bench but found that I liked learning and talking about the science more than doing it. (When I miss bench work, I cook!) I also found that I really enjoying figuring out how to translate and explain science.

In my last year of graduate school, I did a lot of exploration and networking. I taught biology at a local community college, but I found it did not keep me engaged. What I loved about doing research was being on the front edge of new innovation.

My whole career path, and if you take just one thing from what I say, was entirely created by networking.

A fellow graduate student who completed her doctorate the year before me had taken a position at a PR/IR agency that only did public and investor relations for biotech and life science companies. As I was finishing up my doctorate, she reached out because she was going on maternity leave, and the agency was looking for someone to fill in for her.

She and I used to talk on the shuttle ride to UCSD about our confusion about what we would do after our Ph.D., since we both were unlikely to continue in research. This was before everyone had cell phones and their faces in them!

I went on to work in the development office at The Scripps Research Institute, and eventually took a position as director of corporate communications at Fate Therapeutics.

Just over four years ago, I started Little Dog Communications, to work with the small biotechs – the ones on the front edge of innovation.

What we do for our clients is to help communicate their story to all their different audiences, whether that be externally to investors, reporters, partners, patients, advocacy groups or more internally to employees, board members, collaborators – it all depends on what are the goals and needs of the company at that time.

Then we determine what is the vehicle for those communications – is it a press release, newsletter, social media, video, presentation, interview or meeting – and then we help them prepare and execute on those tactics. We also listen to the client's audiences and communities. The overall goal is to find the best way to tell a client's stories either themselves or through a third party or champion.

2. What motivated you to transition into a career in science communications, and what were the most challenging aspects of your transition?

To add to what I said above, it's more than talking about the science. It's getting others excited about the science and finding ways to tell a company's story.

The most challenging part was learning the business and industry. When you are pitching a new innovation, say to improve drug discovery, it is really important to understand all of the things that came before to improve drug discovery.

Another challenging part was transitioning from a small research team with individual projects to working as a team and managing multiple clients. Now it is one of my favorite parts of what I do.

3. What are the most rewarding and least rewarding aspects of your job?

The least rewarding aspect can be when a client does not realize the length of time or amount of effort it may take to get to a success. PR requires a lot of strategy and research to execute well.

The most rewarding aspect of my job is taking our clients to the next level – a new website or having a positive article in Technology Review or Wall Street Journal. Sometimes it's the small things like having a client send you news for Twitter, after they had initially said it was pointless.

4. What is a typical work day like for you? With whom do you work closely?

A typical day starts early. I was not always an early bird, but now I really enjoy it. 4:30 am in this order: email, coffee, email, news, social media, more email, calendar

5:00 am check on any press releases that might have gone out; check in with the team, respond to any emails, move projects forward

5:30 am – 7 am varies from working out to working

7 am check my calendar again, to-do list – what do I need to get done today

8 am – 10 pm calls, team, write, email, research, (walk dogs, surf, eat) email, write

...but more specifically...

– Research and write: talking points, press releases, pitches, award nominations, social posts, emails, etc.

– Stay up-to-the-minute on news during the day, look at who is writing what and what is the relevant news to our clients to use in our pitches

– Client calls or meetings to discuss strategy, exchange updates

– Follow up with everyone who owes edits, feedback, and approval

– Communicate and coordinate with clients and team on where things are (because they may have changed from an hour ago or we need something in an hour because a reporter is on a deadline)

– Develop storytelling and engage design for PPTs, videos, graphics, etc.

– Think! Strategy, next steps, opportunities, what's changing, what's new – not only for our clients but in PR and social media!

5. What recommendations do you have for postdocs who are trying to prepare themselves for a career in science communications? What are some of the resources that may be helpful?

You have to know the industry, the players, the issues, how things work. I suggest two things:

ONE: Read the industry – there are a lot of free industry news sources – sign up for their e-newsletters:

Bio Smart Brief <http://www.smartbrief.com/>, MedCity News <http://medcitynews.com/>, Xconomy <http://www.xconomy.com/>

TWO: Go to networking events – most have student/postdoc rates or volunteer:

JLABS, SDVG, BIOCOM, CONNECT <http://connect.org/>,

Even if you do not want to be employed in industry and you think you are more interested in working for a research institute – do both.

We are all part of this ecosystem and part of getting a new drug, diagnostic or device to a patient, and it is irresponsible to not know how the other half lives. It will only serve you well if you understand and respect everyone's role and reach out to the others in the industry.

6. What is the job market in science communications currently like, and what do you think it will be in the next five years?

The job market today is good. The IPO window has stayed open, allowing biotechs to access more capital to move development programs forward. Looking out five years, I would love to say it will be the same or better. However, biotech like many innovation industries is susceptible to market dynamics, so it is about planning for the ups and downs and being flexible and adaptive in your skill set.

## Panel 5

### Teaching

#### Moderators: Jamie Joseph & Asma Khan

Rae Anderson, PhD	Assistant Professor and Chair, University of San Diego
Lakshmi Chilukuri, PhD	Teaching Professor, Division of Biological Sciences, UC San Diego
Ella Tour, PhD	Assistant Teaching Professor, Division of Biological Sciences, UC San Diego
Steve Weinert, MA	Professor, Department of Psychology, Cuyamaca College
Katrina Yamazaki, PhD	Assistant Professor, Department of Biological Sciences, Cal State Los Angeles

1. Offering to be a guest lecturer or teaching a short summer session is a great way for busy postdocs and grad students to obtain or improve their teaching skills.
2. Non-traditional volunteer opportunities such as coaching or tutoring young children are another great way to hone your teaching skills.
3. Get to know your students. The diversity of the students you teach and their needs vary greatly from institution to institution.
4. Apply for faculty positions as early as possible. It is not uncommon for the application and hiring process to take up to a year.
5. Finding good mentorship is very helpful for improving your teaching skills. The San Diego/Imperial County Community College Association (SDICCCA) Faculty Internship Program is a great, formal, approach. For more information, please visit <http://interwork.sdsu.edu/main/sdiccca/application>.
6. Develop a rapport with the Chair of the different departments you would potentially like to apply to. At most institutions, the Chair is usually responsible for hiring new faculty members. The Chair can inform you when a new position may be available within their department. This is

especially important because some years positions are plentiful and some years they are far and few between.

7. Finding happiness in your personal life is key to having a positive experience as a faculty member.
8. Engaging in educational research can be helpful for improving instructional methods and is something many hiring committees are now looking for applicants to demonstrate.
9. Encouraging active learning in your classroom – this will reflect your knowledge and understanding of evidence-based approaches in the classroom. The strategies you employ can range from modern tools such as clickers or providing opportunities for students to engage in group work. However, these activities should be well planned and used judiciously; a group project or clicker quiz gone wrong can quickly derail you from the learning outcomes you hope to achieve.
10. The tomorrow professor's listserv is a great resource for advice on various aspects of education and teaching in a college or university environment. To sign up, please visit <https://mailman.stanford.edu/mailman/listinfo/tomorrows-professor>.
11. The faculty course loads and responsibilities have increased dramatically at many institutions. Therefore, time management is critical for lecture preparation. There is always some aspect of the lesson that you can strive to improve – don't obsess with the details.
12. The Center for Teaching Development <https://ctd.ucsd.edu/> is a great resource for improving your repertoire of teaching strategies that promote active learning. Even if you are not currently teaching, finding time to prepare a sample lecture using these strategies can result in a wonderful addition to your teaching portfolio.

## Panel 6

### Intellectual Patent Law

**Moderator: Amanda Moore**

Bu Yin, PhD Patent Agent, Morrison & Foerster

Lisa Silverman, PhD, JD Associate, Morrison & Foerster

Desmond O'Sullivan, MSE, JD Associate, Morrison & Foerster

Tamera Weisser, PhD, JD Partner, Jones Day

1. The distinction between the different roles of each panelist was covered. In general, scientists begin their law associated careers with the role of patent agent. If a patent agent finds a good fit within a law firm, they usually have the option of pursuing law school while concurrently working at the firm. In these scenarios, it is common for the law firm to cover school expenses. Although this period can be stressful due to the amount of responsibility, the experience and lack of student debt is well worth it. With a law degree in hand, patent agents can be then hired as associates. After a long period of work experience at the firm, becoming partner is possible.
2. Each panelist stressed that there is not a typical workday and they tend to work closely with a team to prioritize the daily, weekly, and monthly assignments in order to keep on top of things. Everyone agreed that this is one of the aspects of their job they really enjoy as it keeps things interesting.
3. There is the option of becoming a patent lawyer “in house” in the industry setting – this typically means you are hired by a particular biopharmaceutical company to cover their specific needs. Since all of our panelists are employed in independent law firms; they were unable to attest to the major similarities or differences of their position vs. the “in house” positions. However, they expressed their preference of working at a law firm over an industry setting based on the increased diversity of projects and improved job security.
4. A deep passion for science motivated all of the panelists to become patent lawyers. Specifically, they were inspired by the unique scientific ideas behind the patents they were filing and how these fit into the current landscape of what is already protected. One panelist drew parallels to the job roles of consultants and expressed that her science background is utilized more frequently than consultants due to the nature of her work. Whereas consultants are often placed on projects that have little to no relation to science (with the exception of some boutique consulting firms), the majority of patent law work still draws on a thorough understanding of science.

## **Panel 7**

### **Entrepreneurship**

**Moderator: Xiong Zhang**

Ewa Lis, PhD            Founder and CTO, Koliber Biosciences

Soyeon Park, PhD    Co-founder, Whova Inc.

Mark D. Rosen, PhD   Chief Executive Officer, Aetheria

Bryan Jones, PhD    Vice President Operations, Sorrento Therapeutics

1. For scientists who want to start their own business using technology and IP strategy (patents), the most important thing to have is stable funds. The primary reason most startups fail is because they run out of cash.
2. Distinguish between “good money” and “bad money.” Try your best to develop your technology/product as far as you can with non-dilutive funding.
3. Because funding and the economic climate fluctuate rapidly, there is a lot of uncertainty in business. Keep in mind that “Entrepreneur” is a fancy title, it doesn’t mean that entrepreneurs are wealthy. In fact, most entrepreneurs are not paid well during the early stages of their career.
4. Should I work for a small startup or a big company? It depends. Some panelists suggested starting your career in a big company, where you can learn the different aspects and standard practice of the business from a team of diverse background in a systematic manner. You can then use the knowledge you have acquired to start your own business. While small startups can offer opportunities for you to wear multiple hats, job security is more uncertain in this environment.
5. Rapid change is the norm in biotech, with mergers and acquisitions happening very often. Whether you are working for a big company or a small startup, there’s no job security. The key is to keep looking and networking. The day you start a position at one company, is the day you should start looking for your next job.

## Panel 8

### Science Policy & Technology Transfer Panel

**Moderator: Joshua Wollam**

Seth Cohen, PhD	Professor and Chair, Department of Chemistry and Biochemistry, UC San Diego
Christine Hochmuth, PhD	Science and Technology Policy Fellow, California Council on Science and Technology
Amber Mace, PhD	Deputy Director, California Council on Science and Technology
Jane Moores, PhD	Assistant Vice Chancellor, Technology Transfer, UC San Diego

1. For those who are unsure about what career path to take, it is important to conduct self-exploration and determine what you want out of life. Dr. Mace strongly recommended reading “What Color is Your Parachute?: A Manual for Job-Hunters and Career-Changers”, a self-help job-search book that she found very useful.
2. Science and Technology Policy Fellowship information, as discussed, can be found by visiting the American Association for the Advancement of Science: <http://www.aaas.org/page/overview> or California Council on Science and Technology: <http://fellows.ccst.us/>
3. How does one obtain experience to become an attractive candidate for a policy fellowship? Panelists recommended volunteering at non-profit organizations as one way to make your application more appealing.
4. Citizenship Status for Fellowships: AAAS Fellowships require U.S. Citizenship (or dual citizenship). For CCST Science & Technology Fellowships, some visas may be considered under certain conditions (including H1B, J1 and J2 visas). Please contact CCST for additional information.
5. May one return to academia after conducting a policy fellowship? Dr. Cohen’s experience demonstrates that it is possible to pursue a successful academic career after a period away from academia. Dr. Cohen emphasized that his experience as an AAAS Fellow actually garnered attention within the University administration and provided him with many additional opportunities.



6. In Technology Transfer, Dr. Moores described personal experiences, beginning as a postdoc, transitioning into R&D and eventually Tech Transfer. Although the UC San Diego Technology Transfer Office does not offer a formal internship program, volunteer work may be available for motivated individuals. Contact the UC San Diego Technology Transfer Office for additional information: <http://invent.ucsd.edu/invent/>
7. The panelists stressed the need to expand your personal network through social and professional events. Policy-related events are occasionally organized by the UCSD Postdoctoral Association (PDA) and Office of Postdoctoral and Visiting Scholar Affairs (OPVSA), and CCST periodically holds information sessions on campus. Check out the PDA and OPVSA websites for upcoming events: <http://pda.ucsd.edu/> and <http://postdoc.ucsd.edu/education/index.html>
8. The panelists highly recommend conducting informational interviews with experts in the field either in person, on the phone or by Skype. Informational interviews are valuable for learning more about potential career paths and obtaining recommendations for how to make a career transition.