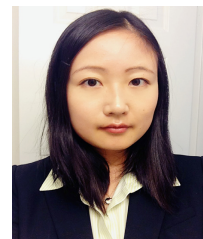


## INTERVIEW

### Interview with Di Gao PhD

Di Gao is currently a scientist in the Quality Control department of AstraZeneca. She is responsible for technology transfer, stability programs and supporting regulatory submission. She has a BSc and PhD degree in chemistry and interned with Genentech in 2012. After completing her Ph.D. from University of Michigan in June 2013, she joined the R&D department of the United States Pharmacopeia (USP) to support USP monograph modernization and since June 2014 she has been working in her current position at AstraZeneca. Recently, she won a prestigious award from Women in Bio (WIB). WIB is an organization of professionals committed to promoting careers, leadership and entrepreneurship for women in the life sciences. This interview was conducted by Roland J.W. Meesters PhD, Editor-in-Chief of Journal of Applied Bioanalysis.



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#### **Q: Please can you briefly introduce yourself?**

**A:** Raised in a doctor's family, I naturally got interested in healthcare & life science industry as a child. I always feel excited while imagining myself improving people's health. After finishing a B.S. in chemistry from one of the best universities in China, I came to US in 2008 to pursue a Ph.D. because a solid technical background can help me develop my career in the life science industry. In addition to working on my Ph.D. at the department of chemistry at the University of Michigan, I strived to expand my horizon in all related areas, including courses from the College of Pharmacy at University of Michigan and certificates from FDA. In 2012, I did a three month internship at Genentech in South San Francisco which really opened my eyes and got me more passionate about life science. I was able to develop an innovative assay and learned a lot about the biotech industry. Even more importantly, I was inspired by many smart and passionate people. Following this internship experience, I became more enthusiastic about life science industry and decided to launch my career in this field. After completing my Ph.D. in June 2013, I joined United States Pharmacopeia (USP) in their R&D department to support USP monograph modernization. There I learnt more about pharmaceutical/biotech regulations, and felt my impact as a scientist in this industry. I got more interested in good

manufacturing practice (GMP), technology transfer and monoclonal antibody, and thus decided to go back to biotech industry and have been working for AstraZeneca since June 2014. I am now a scientist in their Quality Control department at their biologics manufacturing center in Frederick, Maryland, leading technology transfer and stability programs and contributing to regulatory filings.

#### **Q: Could you explain to our readers what the WIB organization is?**

**A:** WIB, Women in Bio (<http://www.womeninbio.org>), is a national organization of professionals committed to promoting careers, leadership and entrepreneurship for women in the life sciences. We have local chapters all across the country. For instance, Washington DC, the area I am currently located, has a DC/Baltimore chapter. The organization supports members' success by organizing events, building mentor-mentee relationships and promoting communication/collaborations. Men are very welcome to join the organization too!

#### **Q: What is the function of WIB and describe its impact on science?**

**A:** WIB provides educational resources (webinar, newsletter, onsite events) and promotes collaboration among members and with other organizations. For example, the last event we had was a webinar called "Small Business Loans: What Biomedical Entrepreneurs Should Know". Two speakers from the National Institutes of Health

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(NIH) gave an overview of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR), two small business programs at the NIH and the largest sources of early-stage capital for innovative small companies in the United States. Such information is definitely useful for encouraging research & development and applying science to society.

**Q: What is exactly your achievement with WIB?**

**A:** Mostly because of my career accomplishments, engagement with WIB, and other volunteering activities. Last year, I won an AstraZeneca Appreciation Award for key contributions to a complex project. In addition, I have been serving on WIB communication committee since last February when I first heard about the organization. The mission of the organization resonates with my experiences. Today's world we can see many talented women in the life science field and we need to support each other. Therefore, I decided to volunteer for the organization to make my own contribution immediately. By working with other committee members on WIB social media presence, I read and share inspiring stories with people who share the same passions.

I'm also active in many other professional organizations, such as American Association for Pharmaceutical Scientists (AAPS) and American Society for Quality (ASQ), by attending webinars/ conferences and participating in the mentorship program. Last October, I was invited to co-moderate a section at the AAPS annual conference.

Last, but definitely not least, I am an associate editor for JAB, keeping track of latest developments of analytical science.

**Q: What you are planning to do with the scholarship?**

**A:** I plan to take Regulatory Affairs Professionals Society (RAPS) certificate program on medical device and pharmaceuticals. More knowledge about FDA law and guidance, global regulatory strategy, lifecycle of medical device & pharmaceuticals, and medical writing will be very beneficial for my future development in the life science industry.

**Q: What can scientists do to make more impact to the society?**

**A:** There are many things scientist can do to make more impact besides working in the lab and developing cool technologies, for example, participating in educational programs and improving people's interest and understanding in science, helping shape public policy, and implementing better technology to improve people's lives. Scientists should sometimes think out of the lab!

**Q: Are there any particular scientists you have worked with who have had an impact on your professional path or career?**

**A:** Yes there are many. I was very lucky to work with Professor Kristina Håkansson at University of Michigan during my Ph.D. study. She taught me not only science but also integrity, respect and collaboration. Besides, she always supported my pursuit of science and professional career, including fellowship applications outside of school, additional courses from School of Pharmacy, and my internship during my graduate study. My internship at Genentech was my very first industry experience. I learnt so much from working with many incredible scientists such as Dr. Boyan Zhang and Dr. Yi Yang. More importantly, I felt impact about working in pharmaceutical/biotech industry as a scientist and decided to work in this field after graduation. I was also impressed by the associate director of the department Ms. Patricia Rancatore. She inspired me by setting up a great example of a female leader/working parent in a large biotech company. Another female leader I always admire is Dr. Binodh Desilva. As a fabulous bioanalytical scientist herself, she is now the executive director of Bristol-Myers Squibb and holds leadership positions at the American Association of Pharmaceutical Scientists (AAPS). We got in contact through AAPS biotech mentoring program in September 2013. She never hesitates to share her experiences and insightful opinions about the industry. Last year at AAPS annual conference, we finally got to meet in person. My current position in the Quality Control department at AstraZeneca Frederick Manufacturing Center offers me more opportunities to contribute in a meaningful way and work with great scientists/industry leaders such as Mr. Adekunle Adeoye, Dr. Benhur Ogbay, Dr. Qiang Qin and Dr. Roujian Zhang (just to name a few). I am very grateful about meeting so many inspiring scientists and leaders during my journey.

**Q: What words of encouragement would you give young female scientists who might be envisioning a future career in bioanalytical science?**

**A:** Unfortunately women are still minority in STEM field. And there are some incorrect perceptions about female scientists. For instance, a recent survey in the UK shows 67% of Europeans and 93% of Chinese don't believe women have skills to be scientists. I would like to say to the young female scientists, believe in yourself! Improve your skills and demonstrate your skills. Do not be afraid to be assertive. Lean in and speak up at the table. Also, find a mentor. You would be surprised how people are willing to help if you ask.

**Q: Is there any recently published paper in the field of Bioanalysis that has caught your attention?**

**A:** There have been so many exciting discoveries in the past few years. The research article “Lattice light-sheet microscopy: Imaging molecules to embryos at high spatiotemporal resolution” published in *Science* caught my eyes. Three dimensional imaging is essential for understanding subcellular processes. In this article, the authors demonstrated a microscope with high spatiotemporal resolution and reduced phototoxicity, and provided a promising platform for future application to biological systems. This was a project collaborated by twenty-seven researchers across fifteen institutions across the globe. The paper won 2016 American Association for the Advancement of Science AAAS Newcomb Cleveland Prize. In addition to the scientific impact, this discovery also indicated the trend of global engagement in the scientific community.

**Q: In the next 5 years what area or element of bioanalysis do you see advancing or changing the most and why?**

**A:** In spite of all those exciting progress in bioanalysis, there are still a lot of challenges in the field. How to make the methods more accurate, more sensitive, more robust, with higher speed, lower method variance and lower cost are always attracting researchers’ eyes. Speaking from biopharmaceutical perspective, with the global push for more affordable healthcare and increased market of biosimilar drugs, detailed structural characterization techniques (such as mass spectrometry) and immunogenicity assay with high accuracy and precision will be in high demand, to generate reliable physiochemical and biological data and to ensure the quality of the biosimilar products.

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