

Careers Interview: Dr. Longen Zhou, PhD

Tina Zhou

Dr. Longen Zhou is the director of Translational Cancer Research at Johnson & Johnson's Shanghai headquarters. He has had extensive experience in the area of cancer drug development and working in the industrial sector. Dr. Zhou is very knowledgeable about various topics in health science and medicine. His work involves drugs targeting a variety of different cancers, including but not limited to lung cancer, stomach cancer, and leukemia. He has shared with JYI his insights about working in the field of drug development.

JYI: Describe your educational background.

In 1989 I got my Bachelor's Degree in Pharmaceutical Sciences at the Second Military Medical University in Shanghai. Afterwards, I worked in Beijing General Hospital as a pharmacist. I went to graduate school in 1994 at Peking Medical Union College for an M.S. in Immunopharmacology and a Ph.D. in Oncology-Pharmacology.

JYI: What is the difference between working in the industry and working in academia? Can you do both?

Being a Ph.D. in industry and being a Ph.D. in academia both share the common struggle of finding sufficient funding for research. Ph.D.'s in academia are exclusively found in educational settings like universities and research hospitals. I'm a Ph.D. working exclusively in industry, as my job allows for little free time for me to also work in academia as a professor or teacher. Working in industry has its own challenges and benefits. There is potentially higher pay, but less room for creativity and freedom to pursue projects of personal desire. Those that work in academia are obligated to teach at their host academic institution alongside pursuing their research in the name of their institution. Those that are PIs (Principal Investigators) of labs usually take on Ph.D. candidates as mentees for their studies and research.

JYI: Describe your field to someone who knows nothing about science.

Translational research brings bench science, or laboratory science, to the hospital bedside, where patients receive treatment and therapy for their conditions. Our work is to discover the best medicine and therapies for cancer patients and treat patients individually based on each patient's unique genetic makeup and tumor pathology (nature of their disease).

JYI: What do you enjoy the most about being a scientist in the pharmaceutical field? Why did you choose this field?

What I enjoy the most about this line of work is bringing bench



science to bedside medicine in order to save patients' lives. I realize the significant impact of my research work on civilians' health and wellbeing. Being in this line of work you can make an impact on an international scale, benefitting healthcare and human quality of life worldwide. I work hard to bring effective medication to patients and apply cutting-edge technology to drug innovation in the laboratories. We are revolutionizing healthcare by easing the transition from generalized therapy to personalized and interventional medicine for each individual cancer patient. This individualized, personalized therapy is what we can call the future of medicine.

JYI: What are the difficulties of being a scientist?

The greatest difficulty in scientific research is finding sufficient funding. Balancing freedom of thinking with realistic goals is also difficult. When there isn't enough funding for your desired research projects, your projected goals and methods of investigation, freedom of creativity is limited. Because of this lack of funding, it is extremely challenging to turn scientific ideas and aspirations into therapies to cure the diseases.

JYI: What does your typical workday look like?

My typical day consists of meeting with cross-functional units for early drug discovery. A few of the teams that I meet with work specifically on projects including target identification, validation, and high throughput screening, assay development, heat identification, heat to lead optimization, structure and activity relationship studies until new chemical entity NME nomination. These are all various steps in discovering viable drugs for therapy, but I also interact with teams closer to the clinical trial side of the drug development spectrum. My administrative work includes budget

management, research proposals, collaborations, and managing ongoing projects, writing project proposals, prepare meeting presentations, overseeing project progress.

JYI: What are the most important skills to have as a scientist in your field?

Having extensive knowledge in biology-related fields is important; education in cancer biology, molecular and cell biology, biochemistry, and epidemiology can make an individual a respected authority in my workplace. On top of book knowledge, you would need interpersonal skills, managerial skills, communication skills since you will constantly interact with different teams of scientists, analysts, and doctors.

JYI: How do you see your field growing in the next decade?

The field is growing at an amazing pace; we will definitely see great growth involving multiple fields in health science. The intersection and collaboration of these different fields are crucial in developing effective therapies. Research nowadays blurs the lines between epidemiology, cancer biology, systems biology, and biotechnology, applying knowledge from different areas of study for use in a streamlined, structured process of drug development. All these disciplines, along with the rapid development of new technological tools and systems, will help with the discovery and development of interventional and preventative therapy for cancer patients.