

Department of Chemistry
2019 Convocation Remarks
Dr. Ving J. Lee

Thank you, Professor Hergenrother, for the kind introduction. Thank you Professor Gruebele, Dean Hu and the Faculty of Chemistry for the invitation to address the Graduating Class of 2019.

Congratulations to the new degree recipients. Also congratulations to the parents, grandparents, and all that have supported you through this phase in your journey. After a long academic journey, today you are embarking on new phases in your lives. Some of you will join the work force for a few years, while others will continue to professional schools.

A chemistry degree from Illinois is a powerful lever for career opportunities ranging from research and development, technical sales to corporate management. It is one of the few sciences that is pivotal to rigorously solve many interdisciplinary research and development programs. How does one leverage this degree in a 30 to 40-year period, where one will change jobs 5 to 6 times? While each job will have different expectations and functions, the common denominator is the need for continuous learning (formal or on the job). There is no prescriptive way for career advancement, as my career progression illustrates.

As child in Columbus, Ohio, I had the visions to go into medicine or architecture. However, a high school science internship taught chemistry is a powerful path to create novel molecules to solve novel problems. On graduation from Ohio State University with BA, my mentor had instilled a high level of scientific inquisitiveness and creative problem-solving. The next education phase was the University of Illinois, with Professor Rinehart, whose pioneering research encompassed bioorganic processes with natural products. I learned the importance of structural diversity of natural products and novel antibacterial agents. As the Rinehart research group was very large, we learned to take initiative to solve individual research problems. Through discussions with coworkers, we also learned the duality of designing studies that will provide the best research data vs.

effort. Similarly, a two-year NIH postdoctoral with Professor Woodward at Harvard further whetted my medicinal chemistry desires to use chemical syntheses to solve anti-infective problems.

My post-academic science career at Lederle Labs (Cyanamid, formerly Wyeth, and now Pfizer) were research programs in oncology and antibacterials. Several major products arose from these serendipitous discoveries – Tygacil, Tazocin, and Mitoxantrone. We learned perseverance to validate exceptions to scientific dogma. While my intentions were to rise through technical management with a few more technical successes, fortuitously a mentor suggested I consider technical operations and senior corporate management. In this career phase, I also learned “sustainability” from the perspectives of technology and personal effort investment.

After 14 year in Big Pharma environment, my career shifted to senior technical leader, technology advisor and co-founder for four biotech companies in California. While each company had different research and career challenges, they all leverage my previous experiences. For example, Microcide and Anacor pioneered in novel approaches to solving unmet antibacterial needs, built on my expertise in antibiotics chemistry and research strategies. Both started as virtual biotechs within 8-year window, however the route to research and funding sustainability were totally different. Anacor was started in response to 9/11, with novel DARPA non-dilutive grant allocation. This occurred at a period of low venture capital and private equity activity for start-ups. Thus agility or flexibility in strategy is demonstrated.

The last entrepreneurial endeavor was in the research services industry (CRO), at a private Delaware firm, which I was a technical consultant and later CEO-CSO. This necessitated flexibility from a med chem research-development mindset to a more commercial mindset. We expanded the business through several anticipatory strategies – new enabling research and development technologies, new strategies to mitigate the rush by many life science organizations to perform work in cheaper Asian vendors, and prudent infra-structural commitments. These decisions were made as the US economy was under significant pressures 2007-2011, and became the technical basis to the acquisition of Adesis Inc by Universal Display Corporation (UDC) in June 2016. Those Iphone X or Samsung 9 cellphone, with the battery sparing option, have OLED screens.

The IP for those screens is owned by UDC, and the emitter and phosphor molecules passed through Adesis labs.

It has been a satisfying career to have evolved from an individual contributor to senior technical management to entrepreneur. On the technical front designed and developed new antibiotics and oncolytics, implemented new discovery and development strategies, to developing new OLED technologies. These products touch millions of people. The ability to leverage previous experiences and learnings to implement strategies for unmet opportunities and progress on lesser traveled roads is invigorating.

Career development in chemistry is not a prescriptive process, but differs for each individual. I would recommend reading "Entrepreneurial You" by Dorie Clark where we are all entrepreneurs of our careers and dreams. Embrace some aspects of entrepreneurialism - anticipation, inquisitiveness, initiative, passion, perseverance, serendipity, and sustainability for career enhancements.

In closing, the art of chemistry is unique. It is pivotal to solving many interdisciplinary Big problems. It is better to be part of the solution vs. being a passive observer. This includes non-traditional career opportunities. Thank you