



Department of Chemistry

University of Central Florida
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Why are Drugs So Expensive? Challenges in Biopharmaceutical Manufacturing



Dr. Frederick LaPlant

Product Development Manager Biopharmaceutical Purification Business Unit at 3M

Host: Prof. Matthieu Baudelet

Abstract: The use of therapeutic agents to alleviate suffering, increase vitality, and extend life, goes back well beyond written history. The development of new drugs has typically mirrored advances in technology, and as the complexity of the technology has increased, so has the complexity, specificity, and effectiveness of the therapies. As the pharmaceutical market transforms from small molecules drugs that treat symptoms, to biologicals that replicate cellular mechanisms, to modifying targeted portions of the human genetic code, the resulting cost of these drugs has increased from 10's of dollars, to thousands of dollars, to millions of dollars per dose. There are many factors associated with this increase, but a significant difference is the complexity of manufacturing these different materials. This talk will explore how these drugs are made, the opportunities for making them more available, and the challenges that remain in producing increasingly complicated drug products.

Bio: Fred LaPlant has made technical advancements across a range of different industries in his career. After studying laser spectroscopy with Dor Ben-Amotz at Purdue, he went on to develop on-line inspection devices for the auto industry, introduce new PAT tools for clinical-stage drugs at Pfizer, and manage a variety of groups in 3M Corporate Analytical. He is currently the Product Development Manager for the Biopharmaceutical Purification business unit at 3M, driving introduction of innovative products for the manufacture of vaccines, monoclonal antibodies, and cell and gene therapy. He has led the development of the 3M Life Sciences Biologics Center to enable accelerated product introductions in this critically important and rapidly growing field.

LaPlant has also been passionate about service to the scientific community. He has served in numerous positions including National President of the Society for Applied Spectroscopy and has had long association as both a leader and organizer of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) and its associated SciX conference. He proudly serves on the Purdue Chemistry Department Advisory Council and is the 3M recruiter in Chemistry. He also continues to serve as Scoutmaster to his local BSA troop, and has had the privilege of mentoring 11 Eagle Scouts, so far.