

## The Northeastern Student Chapter of ISPE

### Crash Course to Biopharmaceuticals

In March 2021, the Northeastern Student Chapter of ISPE worked diligently to run a month long “Crash-Course for Biopharmaceutical Engineers”. These events were designed for small groups to allow members a more personal experience and plenty of opportunities to ask questions. With presentations on topics including biopharmaceutical processes and technologies to industry professionals’ experiences, vaccines, and Q&As on career searching, this series provided a great opportunity for students.

The series started March 4th with an introductory presentation on bioprocessing, presented by the upperclassmen of the Northeastern University’s chapter. This presentation provided a succinct explanation of the entire process from culturing the cells upstream to separating and purifying downstream. Different reactors were systemically explained throughout the process. In addition, some up-and-coming technologies such as single use manufacturing and continuous manufacturing were discussed. Holistically, this event was the perfect opportunity for individuals new to industry to become acclimated to the entire process.

The next week on March 11th, Allen Horton Head of Downstream Production at Takeda Pharmaceuticals in Lexington, MA gave an insightful presentation about his experience working in Takeda. Tailoring his advice to support students, Horton gave practical tips when applying to internships, CO-OP, or student’s first job in industry. In addition, he provided his own resume not only as a talking point to his background, but also as an example of what students can expect as they progress in their career. Transitioning into the day-to-day of downstream development, a break-down of the chain line of command was explained to provide insight about how the workplace functions and the individual roles of everyone involved. Concluding, a discussion about employability was provided to jumpstart the attendee’s job search.

The following week on March 18th, another guest speaker Dr. Ivan Manzano, a Process Development Scientist at Moderna spoke about his Ph.D. in Nucleic Acid Separations at the Pennsylvania State University. His presentation discussed different types of vaccines, focusing on mRNA and the challenges that are associated with the manufacturing process. Discussing techniques such as working with spermine, RNA Ultrafiltration, and ribonucleoprotein purification, he provided a streamlined explanation of the vaccines are produced. The concluding sentiment for his presentation was discussing his graduate student experience as a whole, advising students to balance a social life with study and making sure they are enjoying what they do.

The final event on March 25th was a networking event and collaboration with Emerging Leaders from ISPE. Guest Speakers included:

- Michael DeGirolamo, a validation supervisor focusing on project management from Moderna
- Christopher Ciampa- a C & Q Validation engineer from CAI Pharmaceuticals
- Travis Maser, an upstream process engineer from Bristol Myers Squibb
- Madison Benson, a downstream process engineer from Takeda

This event is an exciting networking event that will be run in breakout rooms. Members will have the opportunity to speak personally with professionals and gain a better understanding of the day-to-day of each position while simultaneously expanding their networks.

For more information about each of the events, slides, and recordings please visit the Northeastern University Chapter of ISPE Website. <https://ispe.sites.northeastern.edu/events/>

Flyers:



The Northeastern University Student Chapter  
of ISPE Presents:

## CRASH COURSE BIOPHARMACEUTICAL ENGINEERING

### Introduction to Bioprocessing

- Learn about the basics of bioprocessing
- Covers basics of chromatography, bioreactors and more!
- **March 4, 7:00 PM**



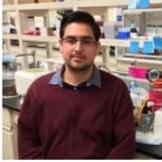
### Pharmaceuticals: An Industry Perspective

- Allen Horton
- Takeda Pharmaceuticals
- Associate Director of Downstream Operations
- **March 11, 7:00 PM**



### Process Development Discussion

- Ivan Manzano, Ph. D
- Moderna
- Scientist, Nucleic Acid Process Development
- **March 18, 7:00 PM**



### Emerging Leaders: Meet and Greet

- Meet 4 young professionals in the pharmaceutical industry
- Small groups for Q & A and networking
- **March 25, 7:00 PM**



<https://northeastern.zoom.us/j/96869299356?pwd=aXpxTSStGc3RqMFlwN0tmNWd3azlwUT09>

**Come Join Us!**

## NETWORKING WITH EMERGING LEADERS MARCH 25TH, 7:00 PM

### Madison Benson

- Downstream Process Engineer
- Takeda Pharmaceuticals
- BS from University of Oklahoma



### Christopher Ciampa

- C & Q Validation Engineer
- CAI Pharmaceuticals
- MBA from Bentley
- BS from UNH



### Travis Maser

- Upsteam Process Engineer
- Bristol Myers Squibb
- Formerly: Manufacturing Support Engineer



### Michael DeGirolamo

- Validation Supervisor
- Moderna
- BS from UNH

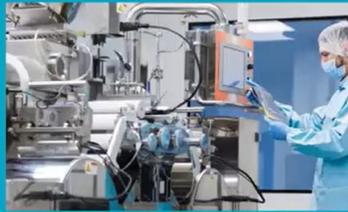


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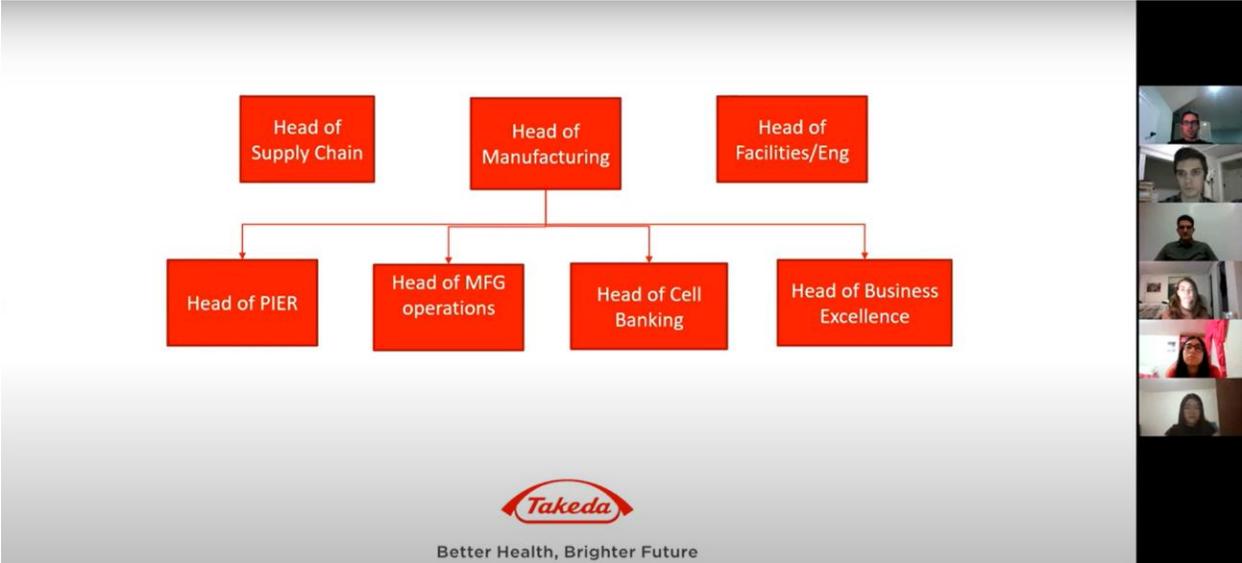
**Come Join Us!**

March 4<sup>th</sup>: Introduction

# Any Questions?



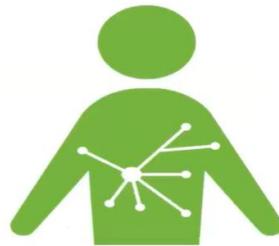
March 11<sup>th</sup>: Allen Horton Head of Downstream Production at Takeda Pharmaceuticals



March 18<sup>th</sup>: Dr. Ivan Manzano



moderna®



## Ultrafiltration for therapeutic grade Nucleic Acids purification

Ivan Manzano, Ph.D.  
Scientist, Nucleic Acids Process Development.  
March, 18<sup>th</sup>, 2021  
Boston, Ma

