



Hands-on Training- Downstream Processing for Biopharmaceuticals

Description: Bio-therapeutics forms an important part of modern medicines. The complexity of bio-therapeutics molecules necessitates elaborate purification processes involving a number of unit operations like chromatography, refolding, precipitation, filtration to target process and product-related impurities. The selection of such unit operations depends on the molecule's expression system and specific purification requirements. For example-refolding is required for proteins expressed as inclusion bodies, whereas precipitation for the removal of process-related impurities like host cell proteins and DNA. Each unit operation demands a large number of parameters to be fine-tuned. This has led to the widespread adoption of high-throughput screening (HTS) technologies, which are characterized by miniaturization, automation and parallelization. This two-day course organized by DBT Center for Biopharmaceutical Technology and National Biopharma Mission at IIT Delhi will broadly cover important bio-pharma topics, including high-throughput techniques, chromatography, and filtration and refolding for purification of therapeutic proteins and will also include hands-on training.

Outline:

Day 1 (22-06-2022)		
Session 1		
Timing	Lectures	Teaching Faculty
08:30 - 09:00	Breakfast	
09:00 - 10:00	Lecture 1: Introduction to downstream process development for biopharmaceuticals	Sartorius
10:00 - 10:30	Lecture 2: Refolding and precipitation of biotherapeutics	Ravi Mishra, CSIR-IMTECH
10:30 - 11:00	Lecture 3: Applications of tangential flow filtration in the purification of biotherapeutics	Kali Kishore Reddy, VIT, Vellore
11:00 - 11:15	Tea Break	
11:15 - 11:45	Lecture 4: Continuous chromatography for purification of biotherapeutics	Sartorius
11:45 - 12:45	Lecture 5: Continuous manufacturing of biotherapeutics: Case study	Rahul Bhambure, NCL Pune
12:45 - 13:00	Instructions for hands-on training	CBT, IIT Delhi
13:00 - 14:00	Lunch	
Session 2		
14:00 - 18:00	Hands-on Training (5 members in each group)	
	Group 1: Refolding and precipitation	CBT (IIT Delhi)
	Group 2: Batch chromatography using monoliths and continuous chromatography	CBT & Sartorius
	Group 3: Tangential flow filtration- Sartoflow Smart	CBT & Sartorius
18:00 - 19:30	Dinner	

Day 2 (23-06-2022)		
Session 1		
08:30 - 09:00	Breakfast	
09:00 - 09:30	Lecture 6: Application of chromatography in biopharmaceuticals	Sartorius
09:30 - 13:00	Hands-on Training (5 members in each group)	
	Group 1: Tangential flow filtration	CBT & Sartorius
	Group 2: Refolding and precipitation	CBT (IIT Delhi)
	Group 3: Batch chromatography using monoliths and continuous chromatography	CBT & Sartorius
13:00 - 14:00	Lunch	
Session 2		
14:00 - 17:30	Hands-on Training (5 members in each group)	
	Group 1: Batch chromatography using monoliths and continuous chromatography	CBT & Sartorius
	Group 2: Tangential flow filtration	CBT & Sartorius
	Group 3: Refolding and precipitation	CBT (IIT Delhi)
17:30 - 18:00	Discussion and wrap-up	