

Introduction to Downstream Bioprocessing

Course Lead:

Kelly Stewart & Jamilla Miles - Senior Downstream processing Scientists – at FlexBio

Overview:

The course is aimed at early career professionals and anyone who wants to develop an understanding of downstream biomanufacturing.

The 1-day course consists of 2 lectures, enhanced with practical demo's using a disc stack centrifuge for cell clarification, Tangential flow filtration (TFF), homogenisation for cell breakage, chromatography using AKTA Avant and freeze-drying overview. The course will be hosted by Industrial Biotechnology Innovation Centre (IBioIC) and the trainees will be presented a Certificate of 'Introduction to Downstream Processing' at the completion of the training issued by IBioIC.

Date, Location and Cost:

Wednesday 30th March at FlexBio (Heriot-Watt University, Edinburgh)

£600+VAT per attendee (academic rate available)

Learning outcomes:

- Obtain an up-date overview of downstream processing techniques related to microbial and human/animal cell cultures.
- Be aware of the importance of preparation, cleaning, monitoring and quality control of downstream process
- Develop hands-on downstream processing skills through practical experience of pilot disc stack centrifuge, TFF rig, homogeniser and chromatography systems.
- Learn and see about a process extracting “foaming proteins from yeast fermentation”, simulated to mimic many types of processes used in other downstream processing across the sectors.

Who will benefit:

- Operatives, scientists, engineers, graduates, suppliers, managers, especially those that are in their early career or new to the fermentation/downstream processing field
- Anyone who would like to gain an understanding of theoretical knowledge and practice insight applied into biomanufacturing

Please contact neil.renault@ibioic.com for further details and sign-up

Course schedule:

Day 1	
AM	<p><u>Lecture 1:</u> Overview of downstream processing (Ian Archer, Technical Director of IBioIC)</p> <p><u>Lecture 2:</u> Introduction to downstream processing and unit operations from simple to extremely complex biomanufacturing processes including open discussion. (Ian Archer, Technical Director of IBioIC)</p> <p><u>Practical 1:</u> Introduction to disc stack centrifugation using GEA pilot system (Harvesting, start-up of system, running, supernatant clarification, solids ejection and cleaning) – Neil Renault – IBioIC Facilities manager</p>
PM	<p><u>Practical 2:</u> Introduction to homogenisation & hollow fibre using Avestin C3 (overview of system, priming, sample processing, blockages, cleaning. Theoretical run through a hollow fibre to clarify lysed cell material)</p> <p><u>Practical 3:</u> Introduction to Tangential flow filtration (TFF) using Sartorius Sartoflow (Set-up, overview and theory of pressure/flux/membranes, process operation, collection of permeate, cleaning)</p> <p><u>Practical 4:</u> Introduction to Chromatography using AKTA Avant (Overview & theory, types of columns, sample preparation, full sample process, elution, and overview of analytical support)</p> <p>This session concludes with an overview of freeze drying and summary of the day</p>