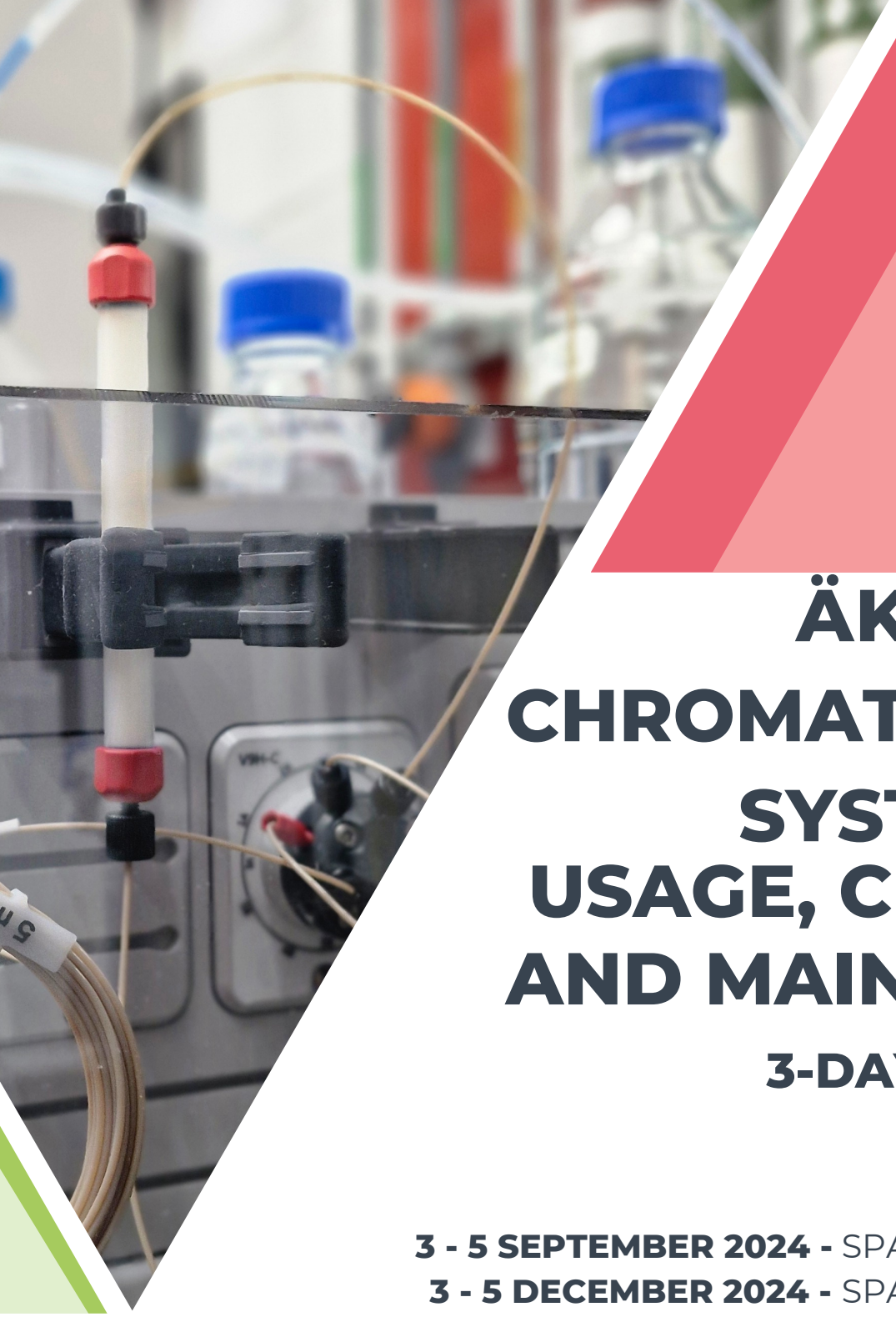

ÄKTA CHROMATOGRAPHY SYSTEM: USAGE, CLEANING AND MAINTENANCE

3-DAY DSP COURSE

3 - 5 SEPTEMBER 2024 - SPACES AVAILABLE
3 - 5 DECEMBER 2024 - SPACES AVAILABLE

LOCATION: FLEXBIO (HERIOT-WATT UNIVERSITY, EDINBURGH)

Price: **£2100** per attendee (academic rate available)*

The number of attendees per course is limited to secure hands-on opportunities for each person. Lunch and refreshments will be provided. Please contact **scaleup@ibioic.com** for further details and sign-up. For more information about other IBioIC Skills and Training programmes, scan the QR code or click on the link below

IBioIC Skills and Training

* Terms and Conditions apply

HERIOT WATT UNIVERSITY

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About this course

This course is aimed at anyone who wants to develop an understanding of theory and techniques in protein purification using fast protein liquid chromatography (FPLC) on an ÄKTA chromatography system. The course, while specifically designed around the ÄKTA Avant system, provides comprehensive insights and practical knowledge that will be beneficial to all ÄKTA users, regardless of the specific model they are using. This training course will also focus on ÄKTA maintenance and cleaning and the applications of using FPLC.

The 3-day course consists of lectures, practical demos and hands-on exercises, hosted by the Industrial Biotechnology Innovation Centre (IBioIC). On completion of the course, the attendees will be presented with a certificate of course completion by IBioIC.

Learning outcomes

- Learn the basic principles and applications of different chromatography techniques, such as affinity, ion exchange, hydrophobic interaction and size exclusion
- Learn how an ÄKTA chromatography system works, how to prepare for a chromatography run, and importantly, how to ensure your ÄKTA chromatography system remains clean
- Purify green fluorescent protein (GFP) using hydrophobic interaction chromatography (HIC) and Ion exchange chromatography (IEX). Qualitative and quantitative analysis of purified protein using SDS-PAGE and UV-Vis spectroscopy
- Learn how to pack chromatography columns like a pro through a live demonstration and discover why it matters for your chromatography results

Who will benefit?

- Scientists, engineers, graduates, technical managers and operators, especially those in their early careers in downstream bioprocessing
- Anyone who would like to start using ÄKTA chromatography systems or wants to gain an understanding of the theory behind chromatography techniques

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COURSE SCHEDULE

AM

Lecture 1: (9:15-10:00)

Introduction to protein purification
Prayag Poreri, Senior Downstream Processing Scientist, IBioIC

Practical 1: (10:15-12:00)

Introduction to ÄKTA Avant chromatography system: Familiarising with system pumps, system and sample inlets, sample pump, mixer, UV, pH, conductivity monitor flow restrictor and fraction collector

AM

Invited Lecture 2: (9:15-10:00)

Antibody purification using FPLC *(TBD)*

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Lecture 3: (10:15-11:00)

Protein characterisation tools
Prayag Poreri, Senior Downstream Processing Scientist, IBioIC

Practical 3: (11:15-12:00)

Packing and equilibration of a chromatography column: initial manual packing, connecting the column to ÄKTA Avant and final system-assisted packing. Equilibration of the packed column

AM

Invited Lecture 4: (9:15-10:00)

Choosing the right resin and Scaling up *(TBD)*

Lecture 5: (10:15-11:00)

Case study: Whisky waste valorisation using protein purification
Kelly Stewart, Senior Downstream Processing Scientist, IBioIC

Practical 6: (11:15-12:00)

Final polishing: further purification of the HIC-purified sample using an IEX chromatography method run. Evaluation and peak integration, Column maintenance and storage

LUNCH BREAK

PM

Practical 2: (13:00-16:00)

Introduction to UNICORN™ software:
Familiarising with Administration, System control, Method Editor and Evaluation tabs
Manual operation of ÄKTA Avant,
Method creation (basic and advanced)

PM

Practical 4: (13:00-14:30)

Protein capture: HIC Purification of green fluorescent protein (GFP) using a manual run. Evaluation and peak analysis, Column maintenance and storage

Practical 5: (14:45-16:00)

SDS-PAGE analysis of HIC-purified fractions, fraction pooling and storage

PM

Practical 7: (13:00-14:30)

SDS-PAGE analysis of IEX-purified fractions, fraction pooling, UV-Vis spectroscopy analysis and storage

Practical 8: (14:45-16:00)

Maintenance of ÄKTA Avant: pH calibration, system and pre-column pressure calibration, changing pump rinsing solution and mixer filter, final CIP and storage of ÄKTA Avant

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