University of Applied Sciences and Arts Northwestern Switzerland

Short course on

Continuous Chromatography for mAbs / Oligonucleotides and Peptides

12th – 14th September 2023

Aim

The aim of this course is to provide an introduction to continuous chromatography with hands-on practice with capture and polishing processes for biomolecules. These processes lead to improvements in productivity and manufacturing costs while reducing environmental footprint. Attendees will acquire the basic tools to design, run and evaluate multicolumn processes and to quantify these improvements, serving as basis for an economic evaluation. As the least complex of all multicolumn processes, the workshop is focused on twin column chromatography.

Scope

- Introduction to continuous chromatography for biomolecules
- Theory of multi-column chromatography
- Design of multi-column chromatography processes
- Hands-on training on twin column equipment for capture and polishing applications
- Process performance evaluation and scale-up
- Introduction to process modelling

This workshop does not cover 4-zone SMB, chiral and small molecule separations.

Who should attend

This course is aimed at industry and academic separation scientists and process development engineers who already have some familiarity with single column chromatography and who want to broaden their understanding of chromatographic processes and look at new and more efficient ways to separate and polish biomolecules.

"The continuous chromatography course had an excellent balance of theoretical content and laboratory based exercises. It was great to explore the significant gains observed in productivity, buffer consumption and resin utilization over batch chromatography."

PhD. Theresa Ahern, Eli Lilly (IE)

University of Applied Sciences and Arts Northwestern Switzerland

Format
The course comprises presentations and interactive workshops using laboratory-scale Contichrom CUBE twin column separation & purification systems. Subject matter experts and graduate assistants will support the participants during the interactive workshops and data analysis sessions. While the full course covers both capture (track 1) and polishing applications (track 2), an abbreviated course may be attended focusing just on polishing applications (track 2).

Course leaders

Massimo Morbidelli, *Ph.D., Professor of Chemical Reaction and Separation Technologies in the Department of Chemistry, Politecnico di Milano.*
A pioneer in preparative continuous chromatography and in particular in the application of multicolumn technologies for protein purification in the pharma industry, Prof. Morbidelli has co-authored over 500 research articles and four books. He serves as associate editor for the Industrial & Engineering Chemical Research journal of the ACS and is the recipient of the 2005 RH Wilhelm award from the AIChE and of the 2014 Gerhard Damkoehler medal of DECHEMA. He is a co-founder of ChromaCon AG in Zurich.

Thomas Müller-Späth, *Ph.D., CEO at ChromaCon AG in Zurich.*
After an assignment at Bayer Healthcare, Thomas completed his doctoral work on continuous chromatography of biomolecules in the group of Prof. Morbidelli, and co-founded ChromaCon AG to bring the technology to the market. He has been working on research projects with industrial partners, development of chromatography processes and equipment, and IP management. He has presented on numerous workshops and conferences on continuous chromatography and has co-authored over 20 publications and patents.

Supervisors and tutors
Sebastian Vogg, Richard Weldon, Lars Aumann

Venue
The course will be held at the University of Applied Sciences and Arts Northwestern Switzerland (FHNW) at the new campus in Muttenz (Basel). The FHNW Muttenz Campus is well served by public transport (see https://www.fhnw.ch/en/about-fhnw/locations/muttenz). International flight connections are available from Basel and Zurich International Airports.

Note: As the workshops will take place in a laboratory environment we ask that participants dress appropriately. Safety glasses and lab coats will be provided.

Course program

It is possible to attend the full course (Tracks 1&2) or Track 2 alone. Dates of full course 12.09.-14.09. (3 days). Dates of MCSGP-focused course 13.09.-14.09. (2 days)

Track 1: Continuous Capture (CaptureSMB)	Track 2: Continuous Polishing (MCSGP)
Day 1: 12.09.	
Production of Biotherapeutics	
Fundamentals of Large-molecule chromatography	
Intro to Continuous Chromatography (CaptureSMB)	
Lab workshop: CaptureSMB	
Modelling and Simulation	
Digitalization	
Evening program / Dinner	
Day 2: 13.09.	Day 2: 13.09.
Flowthrough and Frontal Chromatography	Production of Large-Molecule-Modalities
Integrated Chromatography	Fundamentals of Large-molecule chromatography
Continuous Chromatography: MCSGP	
Lab workshop: MCSGP	
Performance Evaluation	
Lab workshop: CaptureSMB Evaluation	Modelling and Simulation
N-Rich	
Evening program / Dinner	
Day 3: 14.09.	
Modelling Workshop	
Lab workshop: MCSGP Evaluation	
Scale-up (MCSGP)	
Wrap-up	

This program might be subject to minor changes

Course fees
The course fee is CHF 3'000 for the full course (CHF 2'500 for MCSGP part alone). This includes lecture summaries in paper and electronic formats, materials used during the workshop, internet access (Wifi), lunch and coffee breaks as well as participation in the evening program/dinner. It does not include accommodation, travel costs or catering other than indicated above.

Terms and conditions

Confirmation: A confirmation of participation will be provided to each participant after completing the course.
Number of participants: A minimum of 8 and a maximum of 12 participants will be accepted in the course.
Cancellation policy: Cancellation of registration must be made in writing or by email. A cancellation fee of CHF 250 will be charged, and a cancellation after August 15, 2023 will incur a fee of 50% of the total course cost. A colleague or associate may be substituted without penalty. Full refunds will be made in the case that the course is cancelled due to insufficient enrolment.

Accommodation

Travel and accommodation are not included in the course fee. Hotel recommendations include:

Hotel Baslertor*** (www.hotel-baslertor-muttenz.ch)

Hotel b_motel*** (www.b-smarts.net/basel)

Movenpick Basel**** (www.movenpick.com/basel)

Disclaiming statements

FHNW and the course organisers will not assume responsibility for medical expenses of participants or damage caused by participants.
All participants are urged to ensure that they are covered by their own travel, health and liability insurance policies while traveling to and from and while attending the course.
FHNW and the course organisers are not responsible for private possessions lost or stolen at a course.

Registration

Please use the following link for registration:

www.fhnw.ch/ccb

Registration is only complete after payment.

Registration is binding unless the minimum of participants cannot be reached.
Only participants with industry and academic affiliation can be accepted, no vendors.
Registration deadline is July 31st, 2023.
To register past the deadline, please write to the course officer at **info.lifesciences@fhnw.ch** to check if places are still available.

Covid-19 precautions

The organizers will take the necessary measures to comply with Coronavirus safety requirements. This may include wearing of nose/mouth protection, use of disinfectant, safety distances and other measures.

Event sponsor

YMC ChromaCon

Registration Website:

School of Life Sciences FHNW
Institute for Pharma Technology
Hofackerstrasse 30
CH-4132 Muttenz

Prof. Dr. Thomas Villiger, course director
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www.fhnw.ch/bpt