
MBI TRAINING PROGRAMME_Draft

Vaccine Bioprocess Development and Commercialisation 18 - 20 June 2024

Welcome to the UCL Vaccine Bioprocess Development and Commercialisation module.

This module is an end-to-end course that seeks to instruct in the various stages of vaccine development and commercialisation. As many vaccines are administered to healthy individuals the regulatory requirements shape development unlike any other biopharmaceutical.

Further information:

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If you have any queries or require assistance on any aspect of the programme please contact the MBI Programme Manager Ki On Chan on 020 7679 9613 or the Module Lead Stefanie Frank on 020 7679 9567.

Module Leaders

Stefanie Frank, UCL
Stacy Springs, MIT
Barry Buckland, BiologicB

Expert Speakers (confirmed)

Martina Micheletti, UCL
Sarah Gilbert, Jenner Institute, Oxford University
Hao Chen, Merck
Barry Buckland, BiologicB
Stacy Springs, MIT
Lee Smith, GreyRigge Associates
Hao Chen, Merck
Ingrid Kroman CEPI
Derek O'Hagan, GSK



MBI TRAINING AGENDA

Tuesday, 18 June 2024

9.15am

Registration

4.15pm Break

4.35pm

tbc

9.45am

Introduction to UCL and the MBI Training Programme

Stefanie Frank and Ki On Chan, UCL

5.35pm

Close

10.00am

Introduction to Vaccine Development with Case Studies on Rotavirus, HPV, Influenza and COVID-19

Barry Buckland, BiologicB

An overview will be presented of the various technical challenges for developing and manufacturing vaccines. This will be followed by a more detailed discussion around a Rotavirus vaccine, a HPV vaccine, an Influenza vaccine and COVID-19.

11.00am

The Vaccines Manufacturing Hub overview

Martina Micheletti, UCL

12.00pm Break

12.20pm

Lessons from the MIT Consortium on Adventitious Agent Contamination in Biomanufacturing

Stacy Springs, MIT

1.20pm Lunch

2.15pm

tbc

3.15pm

Vaccine Release Testing and Analytics

Merck BioReliance



MBI TRAINING AGENDA

Wednesday, 19 June 2024

10.00am

tbc

11.00am

**Challenges in the development of the Oxford
AstraZeneca Covid vaccine**

Sarah Gilbert, Jenner Institute, The University of Oxford

12.00pm

Break

12.20pm

QbD in Vaccine Development

Lee Smith, GreyRigge Associates

1.20pm Lunch

2.15pm

**Workshop: Strategies for commercial
specifications for vaccines - product quality
requirements and process analytics**

Stefanie Frank, UCL and colleagues - tbc

4.15pm

Break

4.35pm

tbc

5.35pm Close

6.30pm

Dinner



MBI TRAINING AGENDA

Thursday, 20 June 2024

9.30am

Vaccine Technology - Current Issues and Future Challenges

Hao Chen, Merck

10.30am

tbc

11.30am

Break

11.50am

Regulatory Perspectives and Future Directions Panel Discussion

Ingrid Kroman, CEPI, other panel members tbc

1.20pm

Lunch and Research Showcase

2.15pm

Emerging Concepts in the Science of Vaccine Adjuvants

Derek O'Hagan, GSK

Adjuvants are vaccine components that enhance the magnitude, breadth, and durability of the immune response. Since its introduction in the 1920s, insoluble Alum remained the only adjuvant licensed for human use for the next 70 years. However, since the 1990s, a further five adjuvants have been included in licensed vaccines. Yet, the molecular mechanisms by which adjuvants work remains only partially understood. A revolution in our understanding of the molecular pathways of activation of the innate immune system through pattern recognition receptors (PRRs) has allowed a mechanistic understanding of adjuvants, and resulted in the development of adjuvants containing TLR ligands. We have witnessed many conceptual advances, including the notion that tissue damage, different forms of cell death, and metabolic regulators and nutrient sensors, can all profoundly activate the innate immune system and adaptive immunity. Also, recent advances in the use of systems biology to probe the molecular networks driving immune response to vaccines in humans is revealing new mechanistic insights and providing a new paradigm for the vaccine discovery-development process. I will review the

emerging concepts in adjuvant science, and highlight how our expanding knowledge about innate immunity and systems immunology are revitalizing the science and development of adjuvants.

3.15pm

tbc

4.15pm

Module Close

