



GRADUATE CERTIFICATE IN HEALTH PRODUCTS REGULATION GMS5011: CHEMISTRY, MANUFACTURING AND CONTROLS

22 – 26 March 2021

Venue: Zoom

WORKSHOP PROGRAMME

Overall objectives of the workshop

- Build and enhance capability in the regulatory science of Chemistry, Manufacturing and Controls (CMC) to promote and facilitate the accessibility of medical products, through quality submissions and effective regulatory assessment.
- Promote regulatory convergence and cooperation/reliance on globally recognized CMC regulations.

Learning outcomes

- Explain the CMC requirements at different stages of a medical product lifecycle, i.e. pre-market regulatory submission/review, commercialization and post-approval changes.
- Demonstrate how CMC requirements are interlinked with safety, commercial manufacturing and quality aspects
- Understand the harmonized CMC-related guidelines. To enable practical and appropriate implementation of these guidelines in regulatory submission or review, with the aim of facilitating registration of medical products of the required quality standards and their post-marketing quality control.
- Identify the regional CMC requirements according to the ASEAN regulatory frameworks and the opportunities for regulatory convergence.
- Review the upcoming trends in CMC regulatory landscapes and the impact to the strategic planning and development of new medical products.

Graduate Certificate in Health Products Regulation

GMS5012: Chemistry, Manufacturing and Controls

22 – 26 March 2021

Day 1 – 22 March, Mon

Topic	Speaker/ Organisation
8.30am Zoom Briefing	Mr Osman Bin Mohamad Senior Associate Centre of Regulatory Excellence (CoRE) Duke-NUS Medical School
9.00am Workshop Briefing / Ice-breaker / Goalsetting	Dr How Yew Meng Senior Associate CoRE, Duke-NUS Medical School
9.20am Welcome Graduate Certificate Students	Prof John Lim Executive Director Centre of Regulatory Excellence (CoRE) Duke-NUS Medical School
9.30am Overview of CMC for pharmaceutical products <ul style="list-style-type: none"> • Scope of coverage • Product lifecycle management • ICH guidelines on CMC • Format of regulatory submission for pre-market approval: <ul style="list-style-type: none"> ○ ICH Common Technical Dossier (CTD) module 3 and ASEAN CTD (ACTD) part II ○ Drug Master File (DMF) ○ Certificate of Suitability (CEP) 	Dr How Yew Meng CoRE
10.30am Refreshment Break	
Session 1: CMC Requirements for Pre-market Regulatory Controls – Part I	
10.15am Quality control for small molecule pharmaceutical: Impurities in drug substance (DS) and drug product (DP) <ul style="list-style-type: none"> • Concerns during manufacturing, batch release and/or stability testing <ul style="list-style-type: none"> ○ Degradation products ○ Process-related impurities ○ Residual solvents ○ Mutagenic impurities 	Dr Gaelle Richer Adjunct Lecturer National University of Singapore
12.00pm Lunch	
1.00pm Quality control for biotherapeutic: ICH Q5A viral safety <ul style="list-style-type: none"> • Analysis of expression construct and cell bank system • Viral safety evaluation 	Dr Rachel Specht Scientist Genentech, a member of the Roche Group
2.00pm Practicum I: Group discussion <ul style="list-style-type: none"> • Identify the impurities to be monitored in a DS and their acceptable limits. • Identify the potential gaps where additional data may be required 	Dr Rachel Specht Roche

3.00pm	Refreshment Break	
3.30pm	<u>Practicum I: Group discussion (continuation)</u>	Dr Rachel Specht Roche
5.00pm	End	

Day 2 – 23 March, Tue

	Topic	Speaker/ Organisation
8.30am	Individual and Group assessment I	
Session 2: CMC Requirements for Pre-market Regulatory Controls – Part II		
9.30am	Quality control for biotherapeutic: Specifications for DS and DP <ul style="list-style-type: none"> Requirements according to ICH Q6B Analytical consideration 	Dr Wassim Nashabeh Vice President Global Head Policy and International Operations Roche
10.30am	Refreshment Break	
11.00am	<u>Practicum II: Group discussion</u> <ul style="list-style-type: none"> Identify the critical specifications to be controlled in a DP Determine the robustness of the scientific rationale for the proposed specification limits. 	Dr Wassim Nashabeh Roche
1.00pm	Lunch	
2.00pm	ICH Q3D elemental impurities <ul style="list-style-type: none"> Elements to be considered in a risk assessment of small molecule and biologic products Determination of PDE for the common administration routes, including administration routes not established in ICH Q3D 	Dr Bruno Rubrecht Head Product Quality Strategy & Lifecycle - Incoming Materials/Secondary GSK Vaccines
3.00pm	Refreshment Break	
4.00pm	<u>Case discussion</u> <ul style="list-style-type: none"> Identify the elemental impurities that should be considered in the risk assessment of a pharmaceutical product Understand the different options for converting PDEs to concentration limits 	Dr Bruno Rubrecht GSK Vaccines
4.30pm	Quality control for small molecule pharmaceutical: Specifications for DS and DP <ul style="list-style-type: none"> General requirements Dosage form or administration route specific requirements The appropriate specifications limits Role of Pharmacopoeias, as appropriate 	Ms Pakhi Rusia Head of Regulatory Affairs, APAC Glenmark Pharmaceutical Private Limited, Singapore
5.30pm	End	

Day 3 – 24 March, Wed

	Topic	Speaker/ Organisation
8.30am	Individual and Group assessment II	
Session 3: CMC Requirements for Pre-market Regulatory Controls – Part III		
9.30am	Stability requirements for DS and DP <ul style="list-style-type: none"> • Minimum data requirements at regulatory submission and post-approval commitments • Bracketing and matricing • Extrapolation to extend retest period or shelf life • Zone IVb stability data for ASEAN regulatory submission, if applicable 	Ms Chuah Su Yin Florence Senior Principal Assistant Director New Drug Section, Centre for Product and Cosmetic Evaluation National Pharmaceutical Regulatory Division (NPRA) Ministry of Health, Malaysia
10.30am	Refreshment Break	
11.00am	Case discussion Country specific requirements on DP stability data when there are multiple DS and DP manufacturing sites.	Ms Chuah Su Yin Florence NPRA
12.00pm	Manufacturing process validation of DP <ul style="list-style-type: none"> • Compliance to cGMP requirement • Traditional versus continuous process validation • Continued process verification 	
1.00pm	Lunch	
2.00pm	Understanding European Pharmacopoeia and the Certification of suitability (CEP) procedures <ul style="list-style-type: none"> • Assessment of the drug substance part of submissions for substances covered by the pharmacopoeia • Related risk-based inspections. 	Mr Cristian Sampaolesi Head of the New Dossier Evaluation Section EDQM Certification of Substances Department
3.00pm	Refreshment Break	
3.30pm	Practicum III: Group discussion <ul style="list-style-type: none"> • Identify the critical manufacturing process parameters where process validation should be performed • Addressing the common deficiencies in a process validation report 	
5.30pm	End	

Day 4 – 25 March, Thurs

	Topic	Speaker/ Organisation
8.30am	Individual and Group Assessment III	
Session 4: CMC Requirements for Post-market Quality Controls		
10.00am	Post-approval CMC controls on marketed products <ul style="list-style-type: none"> • Current <i>versus</i> ICH Q12 approaches • Key aspects of ICH Q12 and current progress • Identification of established conditions (ECs) and categorization of post-approval CMC changes • Management of post-approval changes associated with product or process CMC deviations. 	Ms Saroj Ramdas Director Biopharm CMC Strategy Policy and Advocacy GSK Fellow
11.00am	Refreshment Break	
11.00am	Case discussion Identify CMC changes that require prior approval, notification or no reporting is required	Ms Saroj Ramdas Director Biopharm CMC Strategy Policy and Advocacy GSK Fellow
12.30pm	Lunch	
1.00pm	Development of global regulatory submission strategies (focusing on emerging markets) for new drug products: CMC-related considerations. <ul style="list-style-type: none"> • Common areas of CMC concerns • CMC Regulatory trends – Emerging Markets 	Mr Arun Mishra Head Global Nutrition Regulatory Affairs and Global Health and Wellness Regulatory Affairs Unilever
3.00pm	Refreshment Break	
3.30pm	Networking	Mr Osman Bin Mohamad CoRE
4.15pm	Panel Discussion Preparation	Dr How Yew Meng CoRE
5.00pm	End	

Day 5 – 26 March, Fri

	Topic	Speaker/ Organisation
9.00am	End-of-Module (EOM) Assessment	
10.00am	Break	
10.15am	EOM Review	
Session 5: Trends in Health Product Development and Regulations		
11.15am	Pharmaceutical quality supported by concepts developed in ICH <ul style="list-style-type: none"> Background and scientific basis Linkage between the guidelines 	Dr.-Ing. Stephan Roenninger Director Quality External Affairs – Group lead Amgen
12.15am	Understanding quality risk management as a behaviour <ul style="list-style-type: none"> Principles of quality risk management in ICH Q9 Risk management tools Potential applications 	Dr.-Ing. Stephan Roenninger Amgen
1.00pm	Lunch	
2.00pm	Implementation of a pharmaceutical quality system <ul style="list-style-type: none"> Principles and key aspects of ICH Q10 Potential applications Differences between a pharmaceutical quality system and a quality (management) system 	Dr Roger Nosal Vice President Global Head CMC Pfizer
2.45pm	Development and manufacture (DS/DP) via the QbD approach <ul style="list-style-type: none"> Principles and key aspects of ICH Q8 (annex) Traditional <i>versus</i> enhanced approach in DS/DP development Real time release testing Role of multivariate models in regulatory submissions Principles and key aspects of ICH Q11 	Dr Sarah Pope Miksinski Senior Director Global Regulatory Affairs AstraZeneca
3.30pm	Break	
4.00pm	Panel Session	Moderator: Dr.-Ing. Stephan Roenninger Amgen Panelist: Dr Roger Nosal Vice President Global Head CMC Pfizer Dr Sarah Pope Miksinski AstraZeneca Dr Wassim Nashabeh Roche

5.15pm Graduate Certificate Workshop Conclusion

Prof John Lim
Executive Director
Centre of Regulatory Excellence (CoRE)
Duke-NUS Medical School

5.30 pm End