

Course: Applied Enzymology 2022

21-25 February – Campus Wageningen University

Graduate School VLAG - Wageningen University and Research, The Netherlands; research institutes ENTEG & GBB– Groningen University, The Netherlands

Course Coordinators: Prof. Marco Fraaije, Dr Maurice Franssen, Prof. Marc van der Maarel, Prof. Willem van Berkel, Dr Mirjam Kabel

Monday, 21 February 2022

Forum, room B0314

BASIC PRINCIPLES OF BIOCATALYSIS & ENZYME ENGINEERING

09:30	Registration & coffee	
10:00-10:10	Welcome, short introduction to the program	Dr Mirjam Kabel (WUR)
10:10-11:00	Basic principles of enzymology	Prof. Willem van Berkel (WUR)
11:00-11:50	What enzymes can be used as biocatalysts?	Prof. Marco Fraaije (RUG)
11:50-12:15	<i>Group Photo</i>	
12:15-13:15	<i>Lunch (in Impulse)</i>	
13:15-14:15	Biocatalysis: Enantioselectivity & promiscuity	Prof. Gerrit Poelarends (RUG)
14:15-15:00	Cofactor use and enantioselectivity of oxidoreductases	Dr Caroline Paul (TUD)
15:00-15:30	<i>Break</i>	
15:30-16:20	Developments in enzyme engineering for biocatalysis	Prof. Marco Fraaije (RUG)
16:20-17:20	Enzyme engineering @ Codexis	Dr Stefan Lutz (Codexis, USA)

Tuesday, 22 February 2022

Forum, room B0314

ENZYME IMMOBILISATION & COMPUTATIONAL APPROACHES

09:00-09:45	Enzyme immobilisation	Dr Maurice Franssen (WUR)
09:45-10:30	Designer enzymes	Dr Ivana Drienovská (VU – Amsterdam)
10:30-10:50	<i>Break</i>	
10:50-11:40	In Silico Enzyme (R)evolution	Dr Maria Fatima Lucas (Zymvol, Spain)
11:40-12:30	Computational approaches	Dr Hein Wijma (RUG)
12:30-13:30	<i>Lunch (in Impulse)</i>	
13:30-14:20	Industrial application of computation and in silico engineering	Dr René de Jong (DSM)
14:20-17:30	POSTER SESSION in Forum, room B0504/B0508	

Wednesday, 23 February 2022

Orion, room B3034 (morning), room B4044/B4045 (afternoon)

BIOMASS-VALORIZING ENZYMES

09:00-09:45	Glycoside hydrolases: structure, function, and CAZY classification	Prof. Marco Moracci (University of Naples 'Federico II', Italy)
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10:30-10:50	<i>Break</i>	
10:50-11:40	Diversity of plant biomass degrading enzymes in fungi	Prof. Ronald de Vries (UU /CBS-KNAW)
11:40-12:30	Mining Polysaccharide Utilization Loci (PULs) for enzyme discovery	Dr Edita Jurak (RUG)
12:30-13:30	<i>Lunch (in Impulse)</i>	
13:30-14:30	Pitches - posters	participants
14:30-15:20	Pectinases for analysis, food & health	Prof. Henk Schols (WUR)

15:20-15:40	<i>Break</i>	
15:40-16:30	Enzymatic (Laccase) bioconversion of lignin Blue enzymes for the green economy	Dr Jane Wittrup Agger (DTU, Denmark)
16:30-17:20	Novel insights in LPMOs	Prof. Vincent Eijsink (NMBU, Norway)

Thursday, 24 February 2022

Orion, room B3034

ENZYMES & INDUSTRY

09:00-09:45	Introduction to intellectual properties	Prof. Marc van der Maarel (RUG)
09:45-10:30	Challenges and possibilities in upscaling enzyme-based applications	Prof. Selin Kara (Aarhus University, Denmark)
10:30-10:50	<i>Break</i>	
10:50-11:40	Downstream processing	Prof. Michel Eppink (WUR)
11:40-12:30	How to become successful in scaling fermentation & downstream processing from lab to industrial scale	Peter Flippo (Bioprocess Pilot Facility B.V.)
12:30-13:30	<i>Lunch (in Impulse)</i>	
13:30-14:15	Enzymatic reduction of cystine to cysteine	Dr Marco van den Berg (DSM)
14:15-15:20	Pitches - posters	Participants
15:20-15:40	<i>Break</i>	
15:40-16:30	Enzymes and process conditions for cellulosic ethanol	Dr Loes Bevers (DSM)
16:30-17:30	Pitches - posters	Participants
18:00-21:00	<i>Course dinner in Wageningen, Restaurant H41</i>	

Friday, 25 February 2022

Forum, room B0621

ENZYMES IN THE FOOD INDUSTRY

09:00-09:45	Fungal oxidoreductases for food production and analysis (biosensors)	Dr Roland Ludwig (BOKU, Austria)
09:45-10:30	Proteases in Biotechnology	Dr Ana Toplak (Fresenius Kabi I&D Center EnzyPep B.V.)
10:30-10:50	<i>Break</i>	
10:50-11:50	Food and non-food applications of lipases and of cold-active glycosidases	Prof. Marina Lotti (University of Milano-Bicocca, Italy)
11:50-12:30	Enzymes in malting and brewing	Dr August Bekkers (Heineken)
12:30-12:40	Closing remarks and certificates	
12:40	<i>Farewell Lunch (in Impulse)</i>	