



# **BIOTRANS 2019**

July 7 - 11, 2019

Groningen, The Netherlands


Organized by



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groningen

# Conference Program

**Sunday, July 7, 2019**

14:00– 16:00	<b>Registration</b>		
16:45	<b>Marco Fraaije</b> <b>Gerrit Poelarends</b>	(chairs)	Welcome and introduction
16:55	<b>René Paas</b> <i>King's Commissioner in the province of Groningen</i> <i>Intermezzo</i> <b>Donald Hilvert</b> <i>ETH Zurich</i>		Welcome address
17:30 KL 1	<b>Frances Arnold</b> <i>California Institute of Technology</i>		Innovation by evolution: bringing new chemistry to life
18:30	 <p><b>Welcome reception/walking dinner</b></p> <p>The reception will be offered to you by the University of Groningen, the Municipality of Groningen and the Province of Groningen</p>		



# Monday, July 8, 2019

<b>Session 1: New enzymes New reactions</b> <i>Chair: Frank Hollmann (Technical University Delft)</i>		
09:00 KL 2	<b>Wolfgang Kroutil</b> <i>University of Graz</i>	Extending the reaction toolbox for C-C, C- O and C-N bond formation
09:45 IL 1	<b>Todd Hyster</b> <i>Princeton University</i>	Radical biocatalysis – using light to reveal new enzyme functions
10:15	<b>Coffee break</b>	
<i>Chair: Woody Fessner (TU Darmstadt)</i>		
10:45 L 1	<b>Tristan de Rond</b> <i>University of California</i>	Discovery of oxazolone biosynthetic enzymes through genome mining
11:05 L 2	<b>Xiaoguang Lei</b> <i>Peking University</i>	Discovery of the first intermolecular [4+2] cyclase in natural product biosynthesis
11:25 L 3	<b>Hannah Brass</b> <i>Heinrich Heine University Düsseldorf</i>	Ligases in natural product synthesis. A bridge between chemistry and biology
11:45 L4	<b>Benoit Desguin</b> <i>Université Catholique de Leuven</i>	Biosynthesis and function of the nickel-pincer cofactor of lactate racemase
12:05	<b>Poster Pitch Presentations</b>	
12:30	<b>Lunch break</b>	
14:00	<b>Poster Session I (odd numbers!)</b>	
<i>Chair: Maurice Franssen (Wageningen University &amp; Research)</i>		
16:00 IL 2	<b>Alison Narayan</b> <i>University of Michigan</i>	Biocatalysis and complex molecule synthesis
16:30 L 5	<b>David Berkowitz</b> <i>University of Nebraska</i>	Catalytic promiscuity vs. stereochemical fidelity in dynamic reductive kinetic resolution (DYRKR) - catalytic and structural biology insights
16:50 L 6	<b>Jan Vilím</b> <i>University of Amsterdam</i>	First enzymatic synthesis of nitriles solely from alcohols, ammonia and air
17:10 L 7	<b>Lu Shin Wong</b> <i>University of Manchester</i>	Silicateins as biocatalysts in organosiloxane chemistry
17:30 L 8	<b>Roser Marin-Valls</b> <i>Consejo Superior de Investigaciones Cientificas</i>	3-Methyl-2-oxobutanoate hydroxymethyl-transferase (KPHMT) catalyzed synthesis of 2-ketopantoate and homologues aldol addition
17:50 IL3	<b>Tom Desmet</b> <i>Gent University</i>	Exploration, engineering and application of sucrose transglycosidases

## Tuesday, July 9, 2019

<b>Session 2: Cascade reactions</b> <i>Chair: Ulf Hanefeld (Technical University Delft)</i>		
09:00 KL 3	<b>Helen Hailes</b> <i>University College London</i>	Biocatalytic single-step reactions and enzyme cascades
09:45 IL 4	<b>Anna Fryszkowska</b> <i>Merck &amp; Co, Inc</i>	Rivaling nature: constructing a biocatalytic manufacturing route to an unnatural nucleoside
10:15	<b>Coffee break</b>	
<i>Chair: Laurence Hecquet (University Clermont Auvergne)</i>		
10:45 L 9	<b>Jan Deska</b> <i>Aalto University</i>	Fully enzymatic total synthesis of angiopterlactone B exploiting non-natural biocatalysis tools in a complex cascade design
11:05 L 10	<b>Mattia Lazzarotto</b> <i>University of Graz</i>	Chemoenzymatic total synthesis of deoxy-, epi- and podophyllotoxin via a biocatalytic C-H activation by 2-oxoglutarate dependent dioxygenase
11:25 L 11	<b>Margit Winkler</b> <i>The Austrian Center of Industrial Biotechnology</i>	In vivo - in - vitro in sequence: aldehyde formation by CARs
11:45 L 12	<b>James Galman</b> <i>Manchester Institute of Biotechnology</i>	Biocatalytic cascade synthesis of unnatural amino acids and other valuable building blocks from electron-rich biomass-derived substrates
12:05	<b>Poster Pitch Presentations</b>	
12:30	<b>Lunch break</b>	
14:00	<b>Poster Session II (even numbers!)</b>	
<i>Chair: Willem van Berkel (Wageningen University &amp; Research)</i>		
16:00 IL 5	<b>Pimchai Chaiyen</b> <i>Vidyasirimedhi Institute of Science and Technology</i>	Enzymatic cascades for biocatalysis, biodetection and biofuel
16:30 L 13	<b>Ammar Al-Shameri</b> <i>Technische Universität Berlin</i>	Biosynthesis of methylated N-heterocycles from diamines at the expense of H <sub>2</sub> and O <sub>2</sub>
16:50 L 14	<b>Florian Seebeck</b> <i>University of Basel</i>	S-adenosylhomocysteine as a methyl transfer catalyst in biocatalytic methylation reactions
17:10 L 15	<b>Jennifer Andexer</b> <i>University of Freiburg</i>	Polyphosphate-driven cofactor regeneration
17:30 L 16	<b>Nico Bruns</b> <i>University of Strathclyde</i>	Repurposing metalloenzymes to control radical polymerizations
17:50 IL 6	<b>Jason Micklefield</b> <i>University of Manchester</i>	Discovery, characterisation and engineering synthetic pathways towards bioactive molecules

## Wednesday, July 10, 2019

<b>Session 3: Metabolic engineering</b> <i>Chair: Francesco Mutti (University of Amsterdam)</i>		
09:00 KL 4	<b>Claudia Schmidt-Dannert</b> <i>University of Minnesota</i>	From biosynthesis to functional biomaterials
09:45 IL 7	<b>Huimin Zhao</b> <i>University of Illinois</i>	Directed evolution of pathways and genomes
10:15	<b>Coffee break</b>	
<i>Chair: Vladimir Kren (Czech Academy of Sciences)</i>		
10:45 L 17	<b>Bruno Bühler</b> <i>Helmholtz Centre for Environmental Research UFZ</i>	Biocatalytic oxygenation driven by photosynthesis
11:05 L 18	<b>Markus Buchhaupt</b> <i>DECHEMA Research Institute</i>	Expanding the isoprenoid building block repertoire with an IPP methyltransferase from <i>Streptomyces monomycinii</i>
11:25 L 19	<b>Vanessa Hubracht</b> <i>Ruhr-Universität Bochum</i>	An enzymatic total synthesis of terpenes
11:45 L 20	<b>Alessa Hinzmann</b> <i>Bielefeld University</i>	Biocatalytic synthesis of aliphatic nitriles at a substrate loading of up to 1.4 kg/L: a record achieved with a heme protein
12:05 IL 8	<b>Rodrigo de Souza</b> <i>Federal University of Rio de Janeiro</i>	Continuous-flow strategies on chemo and enzymatic reactions towards API synthesis
12:35	<b>Lunch break</b>	
14:00	<b>Excursions</b>	
19:00	<b>Conference Dinner at Ni Hao (Stadspark), Paviljoenlaan 3, Groningen</b>	



## Thursday, July 11, 2019

<b>Session 4: Enzyme Engineering</b> <i>Chair: Gerard Roelfes (University of Groningen)</i>		
09:00 KL 5	<b>Don Hilvert</b> <i>ETH Zurich</i>	Design and evolution of artificial metalloenzymes
09:45 IL 9	<b>Elizabeth Gillam</b> <i>University of Queensland</i>	Looking to the past to evolve enzymes for the future: thermostable cytochrome P450 enzymes for biocatalysis
10:15	<b>Coffee break</b>	
<i>Chair: Sergio Riva (University of Milan)</i>		
10:45 L 21	<b>Markus Dick</b> <i>California Institute of Technology</i>	Towards a general biocatalyst for noncanonical amino acids synthesis: directed evolution of TrpB
11:05 L 22	<b>Cathleen Zeymer</b> <i>ETH Zurich</i>	Engineering artificial metalloenzymes based on de novo metal-protein complexes
11:25 L 23	<b>Joyce Liu</b> <i>Codexis</i>	Engineering enzymes for cascade synthesis of a steviol glycoside using CodeEvolver® protein engineering technology
11:45 L 24	<b>Jonathan Latham</b> <i>GSK</i>	Industrial application of a redox-neutral oxidation/reductive amination cascade
12:05 IL 10	<b>Marco van den Berg</b> <i>DSM Delft</i>	Enzymatic reduction of cystine to cysteine
12:35	<b>Lunch break</b>	
<i>Chair: Kurt Faber (University of Graz)</i>		
14:00 IL 11	<b>Roland Ludwig</b> <i>University of Vienna</i>	Depolymerizing cascade reactions of the fungal secretome
14:30 IL 12	<b>Bernard Hauer</b> <i>University of Stuttgart</i>	Completing the circle: investigations on key mechanistic steps unveil the full potential of squalene-hopene cyclase
15:00	<b>Coffee break</b>	
<b>BIOTRANS AWARDS &amp; LECTURES</b>		
15:30	<b><i>Biotrans Junior Award Lecture</i></b> <b>Dörte Rother</b> <i>Research Center Jülich</i>	Synthetic enzyme cascades – from scratch to process intensification
16:00	<b><i>Biotrans Senior Award Lecture</i></b> <b>Dick Janssen</b> <i>University of Groningen</i>	Engineered enzymes by computational design and screening of mutant enzyme libraries
16:45	<b>Poster Prizes &amp; Closing</b>	

