



FP7 PEOPLE P4FIFTY ITN (Initial Training Network) Conference

Towards P450 Applications

Industry and biotechnology perspective

Venue:

Le Bischenberg, 17 rue Raiffeisen, 67870 Bischoffsheim, France

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Organizers:

**Rita Bernhardt
and
Danièle Werck-Reichhart**

June 24-26, 2015

Summary of Information

Programme

Invited Industrial Speakers

Venue, Accommodation and Travel

Contact Information

Closed Meeting Schedule

Programme

Tuesday, 23 June 2014 – Arrival for P4FIFTY Group Only

20.00 hours – Dinner

Wednesday, 24 June 2015

*09.00 – 16.00 P4FIFTY Group Presentations – closed meeting**

Wednesday, June 24, 2015

Wine tasting and dinner in Eguisheim, one of the most beautiful medieval villages in France – (Open to all)

16.00 – meet at Reception

Thursday, June 25, 2015

09.15 Registration

09:30 Introduction – Danièle Werck-Reichhart/Rita Bernhardt

Session Chair: Danièle Werck-Reichhart

09.40 Neil Bruce, University of York

XpIA/B - a unique explosive degrading P450 system

10.05 Bernhard Hauer, University of Stuttgart

Chemical building blocks based on enzymatic monohydroxylation

10.30 Coffee

10.50 Industry Speaker: Simon Charnock, Prozomix

Scalable Discovery of Novel P450s – an Update

11.15 Steve Kelly, University of Swansea

New Insights into CYP51 inhibitors

11.40 Dick B Janssen, University of Groningen

Computational library design in directed enzyme evolution

12.05 Industry Speaker: Claus Lattemann, Sanofi

Two molecules of pharmaceutical interest produced in yeast

12.30 Lunch

Session Chair: Rita Bernhardt

13.30 Ralf Reski, University of Freiburg

Moss-made pharmaceuticals: from bench to bedside

13.55 Birger Lindberg Møller, University of Copenhagen

P450s in hydroxynitrile glucoside and diterpenoid formation. The importance of unique properties

14:20 Industry Speaker: Liam Evans, Hypha Discovery Ltd

Complex human metabolite synthesis and biological C-H bond activation - microbial solutions for DMPK scientists and medicinal chemists

14.45 John M Woodley, Technical University of Denmark

Evaluation of P450 systems for industrial biocatalysis

15.10 Coffee

15.30 Gianfranco Gilardi, University of Torino

Newly-discovered and old-engineered P450s for interesting applications with a sprinkle of bioelectrochemistry

15.55 Jürgen Pleiss, University of Stuttgart

Molecular simulation of enzymes under realistic reaction conditions

16.20 Posters

19.30 Dinner

Friday, June 26, 2015

Session Chair: Neil Bruce

09.30 Rita Bernhardt, Saarland University

Application of bacterial cytochromes P450 for the biosynthesis of terpenoids

09.55 Industry Speaker: Monika Müller, DSM

Application of P450 enzymes for in vitro synthesis of relevant industrial intermediates

10.20 Coffee

10.40 Jürgen Riegler, Lonza AG, Visp

Assess P450 processes to be implemented into an industrial/commercial environment – a challenging part in process engineering.

11.05 Martin Hayes, AstraZeneca

Biotransformation in the pharmaceutical industry

11.30 Danièle Werck-Reichhart, CNRS, University of Strasbourg

P450-catalyzed monoterpene oxidations: from plant-insect interaction to the synthesis of aroma and drugs

11.55 Lunch

13.00 Depart

Invited industrial speakers:

Dr Simon Charnock – Prozomix Limited

Simon is the Managing Director and Technical Director of Prozomix Limited, a privately owned research intensive UK biotechnology company (SME) founded in 2008 that discovers, develops, produces and supplies a diverse and rapidly expanding range of biocatalysis enzymes, and offers advanced biocatalyst discovery services. Prozomix has developed proprietary high-throughput *in silico* / *in vitro* cloning technology, termed GRASP™, that it uses to both rapidly effect its enzyme services, and also populate its novel biocatalyst panels, that are provided *free-of-charge* via an innovative *Biocatalysis Enzyme Toolkit* concept. Prozomix is also an enzyme producer, and is currently developing advanced continuous-flow fermentation technology towards becoming a ton-scale supplier (crude CFE powder basis) of recombinant enzymes for biocatalysis and any other application.

Simon completed his PhD in 1998 in molecular biology and enzymology at the University of Newcastle upon Tyne in the UK. He then followed an interest in macromolecular structural biology as postdoc at YSBL, the University of York, until becoming a Senior Lecturer in Biotechnology at the University of Northumbria. With a growing interest in commercialisation, Simon left the UK and founded / headed-up the very successful Molecular Biology Division at Megazyme International in the Republic of Ireland. Following an exit from Megazyme, Simon returned to the UK to cofound Prozomix with a small number of like-minded colleagues.

Experience: molecular biology, enzymology, macromolecular structural biology, biochemistry, analytical biochemistry, enzyme discovery, advanced recombinant enzyme technology, biocatalysis, biocatalyst development, commercialisation.

Dr Liam Evans, Hypha Discovery Ltd

Liam Evans is the Chief Executive Officer and co-founder of Hypha, a microbial technologies company that provides discovery and development solutions to pharmaceutical and agrochemical R&D. He has over 25 years' experience of natural products discovery, including industrial agrochemical and pharmaceutical discovery with Syngenta and Xenova.

Dr Claus Lattemann, Sanofi

Claus Lattemann studied Biology at the University of Tübingen (Germany). He was a PhD fellow at Max-Planck Institute for Biology in Tübingen in the group of Prof. T.F Meyer and obtained his PhD in Microbiology in 1999 from the University of Tübingen. Claus Lattemann spent three years in a Biotech start-up prior to joining Aventis in Frankfurt-Höchst, a predecessor company of Sanofi. Within Aventis and Sanofi he held several positions within Process Development Biotechnology. Today Claus Lattemann is based in Paris and is Director Development Biochemistry within Chemistry & Biotechnology Development at Sanofi Chimie leading the process development activities for the manufacturing of active pharmaceutical ingredients obtained by large volume fermentation.

Dr Monika Müller, DSM

Monika Müller studied Biology at the University of Hohenheim (Germany). After short excursion to Tumor Virology within her Diploma thesis at the German Cancer Research Center in Heidelberg (Germany), she became PhD fellow at the Institute of Technical Biochemistry, University of Stuttgart (Germany) in the group of Prof. Rolf Schmid. In 2004 she received her doctor's degree on Biocatalysis and Molecular Biology. After one year of Postdoc in the same group, Monika Müller joined DSM Innovative Synthesis in Geleen (Netherlands) 2006 as a Scientist in Biocatalysis. Main aspects of her work are i) Identification of biocatalyst for a reaction of interest ii) Production of biocatalyst (molecular biology, small scale protein expression, fermentation) iii) Application of biocatalyst in synthetic reactions in the frame work of multi-step chemical processes.

Venue, Accommodation and Travel

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The conference will be held at the Bischenberg, Bischoffsheim near Strasbourg, France. Bischenberg offers quality services in the heart of nature! Overlooking the charming village of Bischoffsheim, Le Bischenberg's exceptional setting offers a unique venue in Alsace.

Accommodation is provided at the venue and included in registration. The rooms overlook the valley or forest and are equipped with television, telephone, desk with very high speed internet and Wi-Fi. All rooms have a comfortable bed and a private bathroom.

GETTING HERE

Near Strasbourg, with its international airport and new TGV station, Le Bischenberg Training and Seminar Centre is ideally located in the heart of Europe.

[Map](#)

By plane

Strasbourg-Entzheim Airport is close to the venue (25 km) and is connected to the French rail system with direct connections to Bischoffsheim (15-20 minutes). You may prefer to take a taxi directly from Strasbourg airport. The ride lasts about 20 minutes and is affordable, especially if you are 2 or 3.

By train

Bischoffsheim has direct connections (every 30 minutes during the day) to/from Strasbourg main station. From Bischoffsheim station take a taxi to the conference centre.

By car

From the North:
Autoroute A35, then A352 towards Molsheim/Saint Dié.
Exit 11b, follow signs for Bischoffsheim.

From the South:
Autoroute A35 towards Molsheim.
Exit 11.1 for the RD500
or
Exit for the D 207, follow signs for Bischoffsheim.

In Bischoffsheim

Follow signs marked "Centre ville" and turn left at the fountain. Our establishment sits atop Bischenberg Hill.

From the village of Bischoffsheim, follow the arrows marked "Centre de formation".

Contact Us

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*** Details for Closed Meeting**

Wednesday, 24 June 2015
09.00 – 16.00 P4FIFTY Presentations

09:00 Introduction – Neil Bruce/Danièle Werck-Reichhart/Rita Bernhardt

- 09.10 Mining plant genomes for P450 biocatalysts
ESR 1, Maria Magdalena Razalan, University of York, CNAP
- 09.30 Enabling the P450 complement of *Beauveria bassiana* for biocatalysis
ESR 2, Claudia Spandolf, University of York, YSBL
- 09.50 The self-sufficient cytochrome P450cam-RhFRed biocatalyst:
Investigations into screening of P450 expression in *E. coli*
Whole cells & stereoselective benzylic oxidation of ethylbenzenes
ESR 3, Anja Eichler, University of Manchester
- 10.10 Development of highly efficient whole cell biotransformation systems of novel P450
monooxygenases
ESR 4, Sandra Notonier, University of Stuttgart

10.30 Coffee break

- 10.50 Modelling of cytochrome P450 monooxygenases
ESR 5, Lukasz Gricman, University of Stuttgart
- 11.10 Discovery and engineering of bacterial and mammalian P450s
ESR 6, Nina Beyer, University of Groningen
- 11.30 Crystallography of bacterial P450s
ESR 7, Ilona Jóźwik, University of Groningen
- 11.50 Cytochromes P450 and grapevine aroma
ESR 8, Tina Ilc, CNRS, University of Strasbourg

12.10 Lunch

- 13.10 Endogenous turnover of cyanogenic glucosides in plants
ESR 9, Martina Picmanova, University of Copenhagen
- 13.30 Exploring the Dhurrin Metabolon in Sorghum
ESR10, Krutika Bavishi, University of Copenhagen
- 13.50 Steroid conversions by the CYP106A subfamily
ESR 12, Flóra Marta Kiss, Saarland University
- 14.10 Cytochrome P450 enzymes as biocatalysts for C-H bond functionalisation
ER 3, Justyna Kulig, AstraZeneca AB

14.30 Feedback/Discussions

15.00 Coffee and Close

16.00 hours – meet at Reception for

Wine tasting at a local vineyard in a scenic Alsatian village and dinner