



WELCOME to the P4FIFTY Newsletter

P4FIFTY is an FP7 funded European Marie Curie Initial Training Network of academic and industrial researchers looking to develop enzymatic methods for green oxidation chemistry through the isolation, redesign and application of cytochrome P450 enzymes. P4FIFTY started on 1 January 2012 and is a four year project (more information is available on the P4FIFTY website at: www.p4fifty.eu).

Cytochromes P450 (P450s or CYPs) are heme-containing oxygenase enzymes that catalyse crucial reactions in physiology, biosynthesis and biodegradation. The power of P450s can be recruited for the clean, green chemical synthesis of important intermediates in the bulk chemical, pharmaceutical and agrochemical Industries. However, their application is frustrated by natural limitations such as low activity, insoluble gene expression and the dependence on auxiliary electron transport proteins for full activity, each of which militate against the scale-up of P450-catalysed reactions.

As part of the P4FIFTY network, research groups at ten European institutions will collaborate on trying to address some of these limitations, including the following areas: Gene discovery for new P450 activity from microbes and plants; Enabling P450 application through fusion protein technology; Protein engineering using strategies informed by X-ray structure and bioinformatics; Process technology for the scale-up of P450-catalysed reactions.

P4FIFTY Members

Partner No. Partners

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|----------------|--|
| P1 coordinator | Prof Neil Bruce/Dr Gideon Grogan, University of York, UK |
| P2 | Prof Nick Turner/Dr Sabine Flitsch, University of Manchester, UK |
| P3 | Prof Bernhard Hauer/Prof Jürgen Pleiss, University of Stuttgart, Germany |
| P4 | Prof Dick Janssen/Prof Andy-Mark Thunnissen, University of Groningen, Netherlands |
| P5 | Dr Danièle Werck/Dr Nicolas Navrot, Centre National de la Recherche Scientifique, Strasbourg, France |
| P6 | Prof Birger Lindberg Møller/Professor Søren Bak, University of Copenhagen, Denmark |
| P7 | Prof John Woodley, Technical University of Denmark |
| P8 | Prof Rita Bernhardt, University of Saarlandes, Germany |
| P9 | Dr Antonio Osorio-Lozarda, Lonza AG |
| P10 | Dr Martin Hayes, AstraZeneca AB |



Experienced and Early Stage Researchers

The ERs and ESRs recruited in the course of the year enjoyed meeting with each other and their PIs at the Kick-Off Meeting.

Maria Magdalena Razalan (York), Claudia Spandolf (York), Slavomira Husarova, ER, (Manchester), Anja Eichler (Manchester), Sandra Notonier (Stuttgart), Lukasz Gricman (Stuttgart), Nina Beyer (Groningen), Ilona Jóźwik (Groningen), Tina Ilc (CNRS), Martina Picmanova (Copenhagen), Krutika Bavishi (Copenhagen), Marie Andersson (DTU), Flora Marta Kiss (Saarland) and Michael Ringle, ER (Lonza).

P4FIFTY Meetings

The Kick-Off Meeting was held in the Department of Biology, University of York on 12/13 September 2012 and included a P4FIFTY Mini-Symposium: P450s - Discovery, Structure, Mechanism and Application and Management Meeting. At the Symposium, which was an open meeting, the Partners' presentations provided the background to and update of current research in the subject. In the evening a trip to the York National Railway Museum was greatly appreciated by the group.

Next meeting is to be held on 12-16 May 2013 at DTU, Denmark, and will include an Industrial Visit to Novozymes, Kalundborg and training in bioprocess engineering.

The third meeting will be held in Groningen, Netherlands and will include the Mid-term Review Meeting.

Conferences

Marie Andersson, DTU, Denmark, presented a poster entitled 'Identification of bottlenecks for P450 biotransformation processes' at Biocat2012, 6th International Congress on Biocatalysis, Hamburg, 2-6 September 2012.

Forthcoming Conferences

BIOTRANS2013 International Conference, Manchester, 21-25 July 2013.

18th International Conference on Cytochrome P450, Seattle, Washington, 18-22 June 2013.

17th Euroanalysis 2013 - the European Conference on Analytical Chemistry, Warsaw, Poland, 25-29 August 2013.

Collaborations/Exchanges

Marie Andersson of DTU has established a collaboration with University of Stuttgart, including a stay in May 2012 (one week) when MA learnt important techniques for P450 reactions in the lab of USTUTT.

Lukasz Gricman visited CNRS, Strasbourg on 24 January 2013 aim is to discuss possible joint projects.

Contact

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