ACTION CM1303 "SysBiocat"

Kick-off Workshop

CSIC Headquarters, Madrid (ES)

THURSDAY, April 10, 2014

Joint COST–MECP Session

09:00–09:40	**Jian Liu** ***UNC (USA)***	*Chemo-enzymatic synthesis of low molecular weight heparins*
09:40–10:20	**Kurt Faber** ***UniGraz (AT)***	*One-pot amination of alcohols and biocatalytic asymmetric Canizzarro reaction*
10:20–10:50	**Coffee Break**	
10:50–11:10	Davide Tessaro ***Polimi (IT)***	*Systems Biocatalysis: building an artificial catalytic cycle*
11:10–11:30	John Ward ***UC London (UK)***	*Building amino-diols and amines using multienzyme systems*
11:30–11:50	Caroline E. Paul ***TU Delft (NL)***	*From styrene to enantiopure phenylethanol derivatives: a chemo-enzymatic cascade*
11:50–12:10	Per Berglund ***KTH (SE)***	*Total synthesis of capsaicin analogues from lignin-derived compounds by combined heterogeneous metal, organocatalytic and enzymatic cascades in one pot*
12:10–12:30	Wolfgang Kroutil ***UniGraz (AT)***	*From cyclohexanol to the polymer building block ω-amino caproic acid*
12:30	**Close of MECP 14**	

12:45–14:00 **Lunch Break**

COST– Workshop

14.00–14:25	**Welcome & Introduction**	**Lucia Forzi/ Dieter Schinzer/ Stefano Servi**
14.25–14.30	**Introduction WG1**	**John Ward**
14:30–14:50	Volker Sieber ***TU Munich (DE)***	*Deoxygenation reactions with(in) synthetic enzymes cascades*
14:50–15:10	Isabel Arends ***TU Delft (NL)***	*The potential of carotenoid 1,2-hydratase and oleate hydratase as novel biocatalysts*
15:10–15:30	Ryszard Ostaszewski ***Academy of Sciences (PL)***	*Studies towards multi-enzymes and multi-step enzymatic transformation in organic solvents*
15:30–15:50	Michael Widersten ***Uni Uppsala (SE)***	*Stereoselectivity in enzyme catalyzed epoxide hydrolysis*
15:50–16:10	V. de Berardinis A. Zaparucha ***Genoscope (FR)***	*Genoscope approach to Biocatalysis*
16:10–16:55	**Coffee Break & Poster Session 1**	

16.55–17.00	**Introduction WG2**	**Roland Wohlgemuth**
17:00–17:20	Roland Wohlgemuth ***Sigma-Aldrich (CH)***	*Mind the gap between metabolic systems and metabolites*
17:20–17:40	Vladimir Kren ***Academy of Sciences (CZ)***	*Multienzyme synthesis of supramolecular antioxidants and hybrid drugs*
17:40–18:00	Monica Palcic ***Uni Copenhagen (DK)***	*Glycosyl transferases in chemo-enzymatic oligo-saccharides synthesis*
18:00–18:20	Marielle Lemaire ***CNRS Aubière (FR)***	*Mining genome for new biocatalysts: aldolases for the chemist's tool-box*
18:20–18:40	Sven Panke ***ETH Zuerich (CH)***	*Large numbers and small reactors – three dimensional suspension arrays for strain engineering*

18.40-18.45	Closing remarks	**Stefano Servi**

19:00 **Dinner**

FRIDAY, April 11, 2014

COST–Workshop

08.55–09.00	**Introduction WG4**	**Uwe Bornscheuer**
09:00–09:20	Uwe Bornscheuer ***Uni Greifswald (DE)***	*Recent advances in protein engineering*
09:20–09:40	Loredano Pollegioni ***Uni Insubria Varese (IT)***	*Protein Factory: novel biosensors by engineered amine- and amino acid oxidase*
09:40–10:00	Beata Vertessy ***Academy of Sciences (HU)***	*Engineering enzymes as super sensors for modified DNA base moieties: towards deciphering the pattern and role of unusual DNA bases*
10:00–10:20	Pere Clapes ***CSIC Barcelona (ES)***	*Enzymatic carboligation studies at the IQAC-CSIC*
10:20–10:40	Miguel Alcalde ***CSIC Madric (ES)***	*Directed evolution of versatile peroxidases and unspecific peroxygenases*
10:40–11:00	**Coffee Break**	
	11:15–12.45	**MC meeting**
12:45–14:15	**Lunch**	
14.15–14.20	**Introduction WG3**	**Woody Fessner**
14:20–14:40	Woody Fessner ***TU Darmstadt (DE)***	*Broadening the pathways for enzymatic sialoconjugation: challenges from diversity and promiscuity*
14:40–15:00	Bernd Nidetzky ***TU Graz (AT)***	*Glycosyltransferase cascade reactions for flavonoid-like natural product glycosylation*
15:00–15:20	Joseph Nahalka ***Academy of Sciences (SK)***	*Three reaction modules for the formation of medicinally important oligosaccharides epitopes*
15:20–15:40	Lothar Elling ***Uni Aachen (DE)***	*Cascade reactions for the synthesis of poly -LacNac glycans*
15:40–16:00	Harry Boer ***VTT (FI)***	*Characterization of the enzymes of the Agrobacterium oxidative D-galacturonic acid pathway*
16:00–16:35	**Coffee Break & Poster Session 2**	
16.35–16.40	**Introduction WG5:**	**Laszlo Poppe**
16:40–16:55	Zoltán Boros ***TU Budapest (HU)***	*Immobilized enzymes for biotransformation in continuous flow systems*
16:55–17:10	Luis P. Fonseca ***Uni Lisboa (PT)***	*Different flow microreactor platforms for incorporating immobilized multi-enzymatic patways*
17:10–17:25	Yamini Satyawali ***VITO (BE)***	*Pervaporation as a process intensification method in transaminase based reactions*
17:25–17:40	Polona Žnidaršič Plazl ***Uni Ljubljana (SL)***	*Intensification and integration of biocatalytic processes within microfluidic devices*
17:40–17:55	Judit Hajnal Vári ***Uni Babes-Bolyai (RO)***	*Covalent immobilization of phenylalanine amonia lyase (PAL) on functionalized single walled carbon nanotubes (SWNT)*
17:55–18:10	Lucia Gardossi ***Uni Trieste (IT)***	*Computational and experimental tools for investigating enzyme microenvironment and active site physical chemical properties*
18:10–18:20	**Close of Workshop, Announcement of TS**	**Stefano Servi** **Woody Fessner**

POSTERS

1. **Ioulia SMONOU (Uni Crete, GR)**
   Exploring the potential of bioreductions for the synthesis of high-added value compounds.

2. **Michele CROTTI (ICRM CNR Milano IT)**
   Multi-enzyme stereoselective procedures for fragrance chemistry

3. **Francesco GATTI (Polimi Milamo, IT)**
   Synthesis of robalzotan, ebalzotan, and rotigotine precursors via the stereoselective multienzymatic cascade reduction of α,β-unsaturated aldehydes

4. **Joerg SCHRITTWIESER (Uni Graz, AT)**
   Transformation of rac-benzylisoquinolines into (S)-berbines by concurrent biocatalytic kinetic resolution and stereoinversion

5. **Laurence HECQUET (CNRS Aubière,FR)**
   New advances to improve TK-catalyzed reactions

6. **Evangelos TOPAKAS (TU Athens, GR)**
   Hemicellulose-acting esterases as biosynthetic tools

7. **Tom DESMET (Uni Ghent, BE)**
   Sucrose synthase as effective mediator of glycosylation

8. **Martina SUDAR (Uni Zagreb, HR)**
   Multi-enzyme reactions for the production of aldol adducts/precursors of chiral iminosugars

9. **Ida STEEN (Uni Bergen, NO)**
   In situ chambers for targeted metagenomics for accessing the thermophilic microbial communities in the vent

10. **Francesca PARADISI (UC Dublin, IE)**
    Halophilic enzymes. A real possibility for application in synthetic processes

11. **Piotr KIEŁBASIŃSKI (Academy of Science, PL)**
    Hydrolytic enzyme-based syntheses of enantiopure heteroatom derivatives as precursors to chiral catalysts

12. **Josefa M. CLEMENTE-JIMENEZ (Uni Almeria, ES)**
    Immobilization of an enzymatic cascade for the production β-amino acids

13. **Ana VIANA (Uni Lisboa, PT)**
    Stable immobilization of biomolecules on conductive surfaces

14. **Andrea VARGA (Uni Babes-Bolyai, RO)**
    PAL-PAM tandem for the biocatalytic synthesis of both (S)- and (R)-β-arylalanines

15. **Madalina TUDORACHE (Uni Bucharest, RO)**
    Biocatalytic system for the conversion of renewable glycerol to value-added products

16. **Maja LEITGEB (Uni Maribor, HR)**
Non-conventional solvents in biocatalysis and enzyme immobilization

17. **Anita ŠALIĆ (Uni Zagreb, HR)**
Fully integrated hexanal production process in microreactors (two-enzyme system)

18. **Rebros MARTIN (Slovak TU, SK)**
Biocatalysis with immobilized systems

19. **Christine HELAINE (CNRS Aubière, FR)**
Efficient enzymatic cascade reactions for the synthesis of terminally phosphorylated sugars and γ-hydroxy-α-amino acids

20. **Márk Oláh (TU Budapest, HU)**
Novel immobilized lipases by covalent binding on surface-modified macroporous silica gels with bis-epoxides

21. **Sandi Orlic (R Boskovic Inst. HR)**
Metagenomic approach in alkB identification

22. **Veronique Alphand (CNRS Marseilles FR)**
Broadening the scope of Baeyer-Villiger monooxygenase activities towards α,β-unsaturated ketones

23. **Jasmina Nikodinovic-Runic (IMG Uni Beograd)**
Towards quaternary carbon-containing γ-Nitroaldehydes using 4-oxalocrotonate tautomerase whole-cell biocatalyst