



RESEARCH CONFERENCES

ESF-EMBO Symposium

Synthetic Biology of Antibiotic Production

Hotel Eden Roc, Sant Feliu de Guixols (Costa Brava) • Spain
2-7 October 2011

Chair: Eriko Takano, *Microbial Physiology, University of Groningen, NL*

Co-Chairs: Roel Bovenberg, *DSM Biotechnology Center, Delft, NL and Centre for Synthetic Biology, University of Groningen, NL*; Rainer Breitling, *Groningen Bioinformatics Centre, University of Groningen, NL and Institute of Molecular, Cell & Systems Biology, University of Glasgow, UK*

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i Recerca**

**DSM – the Life Sciences and
Materials Sciences Company**



Final Programme

Sunday 2 October

Late afternoon /
early evening

19.00

20.00

Registration at the ESF-RC desk

Welcome Drink

Supper

Monday 3 October

08.45-09.00

Conference Opening

Session 1: General Synthetic Biology 1

Chair: Name, Affiliation – to be confirmed

09.00-09.30

Roy Kishony

Harvard University, US

The ecology of antibiotics

09.30-10.00

Christina Smolke

Stanford, US

Molecular controllers and their application in advancing metabolic pathway design in yeast

10.00-10.10

Tobias Bollenbach

IST, Austria

Resolution of gene regulatory conflicts caused by combinations of antibiotics

10.10-10.40

Coffee break

10.40-11.10

Markus Schmidt

IDC, AT

Biosafety and Public Dialogue in Synthetic Biology

11.10-11.20

Barry Canton

Ginkgo BioWorks, US

A pipeline for organism engineering at Ginkgo BioWorks

11.25-11.35

Rebecca Jane Miriam Goss

University of East Anglia, UK

Elucidating and Exploiting Biosynthesis: Synthetic Biology Approaches to Access Novel Uridyl Peptide Antibiotics

11.40-11.50

Alfonso Jaramillo

Institute of Systems and Synthetic Biology, FR

Engineering and characterization of novel regulatory elements to control gene expression in E. coli

12.30

Lunch

Session 2: General Synthetic Biology 2

Chair: Name, Affiliation – to be confirmed

15:00-15:30

Luis Serrano

CRG, ES

A quantitative systems biology study on a model bacterium

15.30-15.40

Nili Ostrov

Columbia University, US

Cell Engineering via Reiterative Recombination in Yeast

15.45-15.55

Todd Peterson

Life Technologies Corp, US

Design, synthesis, assembly technologies for synthetic biology engineering

15.55-16.25

Coffee break

16.25-16.55

Jörg Stelling

ETH, CH

Computational design of synthetic gene circuits

16.55-17.05

Eric Tippmann

Cardiff University, UK

New approaches for the optimization of translational and post-translational modification of proteins

17:10-17:40

1 min. Poster presentations (Poster 1-16)

17.40-21.00

Poster session

19.00

Dinner

Tuesday 4 October

Session 3: Filamentous Fungal Systems 1

Chair: Name, Affiliation – to be confirmed

09.00-09.30

Nancy Keller

University of Wisconsin-Madison, US

Unlocking the fungal treasure chest

09.30-09.40

Sabine Albermann

Westfaelische Wilhelms-Universitaet, DE

Approaches for directed strain improvement targeting enhanced biosynthesis of gibberellic acid in Fusarium fujikuroi

09.45-09.55

Russell Cox

University of Bristol, UK

Reprogramming Fungal Polyketide Synthases

09.55-10.25

Coffee break

10.25-10.55

Axel Brakhage

HKI, DE

Activation of fungal silent gene clusters

10.55-11.05

Jan A.K.W. Kiel

University of Groningen, NL

Secondary metabolism in filamentous fungi: there is more to it than just the cytosol

11.10-11.20

Vera Meyer

Berlin University of Technology, DE

Fungal survival strategies against antibiotics

11.25-11.35

Stefan Olsson

University of Copenhagen, DK

Exploring fungal-bacterial interactions for discovering new bioactive substances and their mechanisms of action

12.30

Lunch

Session 4: Filamentous Fungal Systems 2

Chair: Name, Affiliation – to be confirmed

15.00-15.30

Jens Nielsen

Chalmers University of Technology, SE

Synthetic Biology Tools for Improving Fungal Production of Antibiotics

15.30-15.40

Arthur Ram

Leiden University, NL

*Secondary metabolite production in *Aspergillus niger* at near zero specific growth rates*

15.45-15.55

Daniel Scharf

Leibniz Institute for Natural Product Research and Infection Biology e.V., DE

Gliotoxin pathway reconstruction as a prerequisite for pathway engineering

15.55-16.25

Coffee break

16.25-16.35

Tom Simpson

University of Bristol, UK

Biosynthesis and Mutasynthesis of Trans-AT Polyketides: Mupirocin and Thiomarinol

16.40-16.50

Joseph Strauss

BOKU University and Austrian Institute of Technology, AT

Histone H3 de-methylases are involved in regulating primary and secondary metabolism

17.00-17.30

1 min. poster presentation (Posters 17-32)

18.00-21.00

Poster session

19.00

Dinner

Wednesday 5 October

Session 5: Actinomyces Systems 1

Chair: Name, Affiliation – to be confirmed

09.00-09.30

Mohamed Marahiel

University of Marburg, DE

Structural insights into the NRPS assembly machinery

09.30-09.40

Christopher Corre

University of Warwick, UK

New chemical keys to unlock the production of novel microbial antibiotics

09.45-09.55

Anna Eliasson Lantz

Technical University of Denmark, DK

Application of Synthetic Promoter Library for modulation of actinorhodin production in Streptomyces coelicolor

09.55-10.25

Coffee break

10.25-10.55

Rolf Mueller

Saarland University, DE

Title to be confirmed

10.55-11.05

Juan Pablo Gomez-Escribano

John Innes Centre, UK

Engineering Streptomyces coelicolor for the expression of heterologous gene clusters

11.10-11.20

Luciana Gonzaga De Oliveira

University of Campinas, BR

Molecular fingerprint in actinomycetes

11.25-11.35

Paula Yagüe Menendez

Universidad de Oviedo, ES

Mycelium differentiation and antibiotic production in liquid cultures of Streptomyces: Biotechnological applications

11.40-11.50

Justin Nodwell

McMaster University, CA

Remodeling secondary metabolism with synthetic chemical signals

12.30

Lunch

Session 6: Actinomyces Systems 2

Chair: Name, Affiliation – to be confirmed

15.00-15.30

Peter Leadlay

Cambridge University, UK

Defining modularity in polyketide synthase-containing pathways

15.30-16.00

Hiroyasu Onaka

Toyama Prefectural University, JP

Biosynthesis and genetic engineering of goadsporin, one of thiazole and oxazole containing peptides (TOPs) produced by Streptomyces sp. TP-A0584

16:00-16:30

Coffee break

16:30-17:00

Wolfgang Wohlleben

Tübingen University, DE

Supply of building blocks for antibiotic biosynthesis

17:00-17:10	Bohdan Ostash Ivan Franko National University of Lviv, UA <i>Exploring and exploiting moenomycin biosynthesis to develop new class of antibiotics: contributions of genomics</i>
17:15-17:25	Hrvoje Petkovic Acies Bio, Ltd., SI <i>New insights into substrate supply and regulation of FK506 biosynthesis and their implications for bioprocess development and drug discovery</i>
17.30-17.40	Sergey Zotchev Norwegian University of Science and Technology, NO <i>Genome mining of marine actinobacteria for secondary metabolite biosynthesis gene clusters: tools and applications</i>
17.40-18.10	1 min. poster presentations (Posters 33-48)
18:10-21.00	Poster session
19.00	Dinner

Thursday 6 October

Session 7: Tools and Host Structures 1

Chair: Name, Affiliation – to be confirmed

09.00-09.30	Arnold Driessen University of Groningen, NL <i>Secondary metabolite formation by <i>Penicillium chrysogenum</i></i>
09.30-10.00	Haruo Ikeda Kitasato University, JP <i>Engineered streptomyces host for heterologous expression of secondary metabolism</i>
10.00-10.10	Julia Bandow Ruhr-Universität Bochum, DE <i>Beyond Identification of Antimicrobial Compounds: Elucidating Antibiotic Mechanisms of Action</i>
10.10-10.40	Coffee break
10.40-11.10	Beatrix Suess Frankfurt University, DE <i>Engineered riboswitches - an alternative means to control gene expression</i>
11.10-11.40	Michael Fischbach UCSF, US <i>A gene-to-molecule approach to the discovery and characterization of natural products</i>
11.40-11.50	Martin Grninger Max-Planck-Society, DE <i>Chemically coded two-step synthesis of lactones</i>
11.55-12.05	Ana Lorena Arabolaza Instituto de Biología Molecular y Celular de Rosario-CONICET, AR <i>Cell host design for the production of malonyl-CoA based compounds</i>

12.10-12.20	Marnix H Medema University of Groningen, NL <i>Automated Mining and Synthetic Biology Implementation of Secondary Metabolite Biosynthesis Gene Clusters</i>
12.25-12.35	Wayne Mitchell Experimental Therapeutics Centre, SG <i>Engineering a Natural Product Chemicopia</i>
13.00	Lunch

Session 8: Tools and Host Structures 2

Chair: Name, Affiliation – to be confirmed

15.00-15.30	Kristala Jones Prather MIT, US <i>Parts, devices, and chassis in support of metabolic engineering</i>
15.30-15.40	Anne-Gaëlle Planson University of Evry, FR <i>Therapeutic production in Escherichia coli using retrosynthetic design of metabolic pathways</i>
15.40-16.10	Coffee break
16.10-16.20	Christian Rausch Royal DSM N.V., NL <i>NRSPredictor2: an established method for the prediction of NRPS adenylation domain specificity – update and examples of applications</i>
16.25-16.35	Adam Spargo University of Exeter, UK <i>Rule-based simulation of synthetic integron construction</i>
16.40-16.50	Colin Lazarus University of Bristol, UK <i>Molecular systems development for studying and manipulating natural product biosynthesis</i>
16.55-17.05	Antonio Starcevic University of Zagreb, Zagreb, Croatia <i>Modelling of homologous recombination in modular polyketide synthases combined with synthetic biology as a strategy for producing biologically active lead compounds</i>
17.10-17.30	Chris Voigt UCSF, US <i>Refactoring Prokaryotic Gene Clusters</i>
17.30-18.30	Forward Look Plenary Discussion
19.00	Get-together & Conference Dinner

Friday 7 October

Breakfast & Departure