Program

Natural Products Discovery and Production: New Challenges; New Opportunities

June 4-8, 2006

Hotel Santa Fe
1501 Paseo de Peralta, Santa Fe, NM 87501

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ECI

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The chairs and organizers would like to thank the following for their financial support of this conference:

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Sunday, June 4, 2006

04:00 p.m. – 06:00 p.m.	Registration
06:00 p.m. – 07:20 p.m.	Dinner
07:20 p.m. – 07:30 p.m.	Speaker Introduction: Stephen Donadio, KtedoGen
07:30 p.m. – 09:00 p.m.	**Keynote Speaker: Natural products status: present and future paradigms and projections** *Steve Projan*, Wyeth
09:00 p.m. – 10:00 p.m.	Evening Social

NOTES

- **Please observe "No Smoking" at ECI technical sessions, meals and social hours.**
- **Speakers should allow time at the end of their presentation for questions and discussion.**
- **Poster presenters should stay by their poster for questions and discussion during the poster session in which their poster is scheduled.**
- **Please silence your cell phone during technical sessions.**

- **All technical sessions are in Kiva ABC.**

- **All poster sessions are on the patio in the tent.**

- **All meals are on the patio with the exception of Sunday dinner and Wednesday banquet. These will be in Kiva ABC.**

Monday, June 5, 2006

07:30 a.m. – 08:15 a.m.	Breakfast
08:15 a.m. – 08:30 a.m.	**Opening Remarks:** Beth Junker, Merck Research Laboratories; Allen Laskin, ECI
	Technical Session 1 – Product discovery and modification
08:30 a.m. – 08:35 a.m.	**Introduction:** Hans-Peter Fiedler, Universitat Tubingen
08:35 a.m. – 09:20 a.m.	**Pharmaceutical profiling in drug discovery** *Guy Carter*, Wyeth
09:20 a.m. – 10:05 a.m.	**Discovery of novel inhibitors of bacterial fatty acid synthesis** *Olga Genilloud*, CIBE-Merck
10:05 a.m. – 10:25 a.m.	Coffee Break
10:25 a.m. – 11:10 a.m.	**Combinatorial biosynthesis by de novo design of modular polyketide synthesis genes** *Hugo Menzella,* Kosan
11:10 a.m. – 11:55 a.m.	**New natural products and biosynthetic pathways from *Streptomyces* genome mining** *Greg Challis*, University of Warwick
11:55 a.m. – 12:00 p.m.	**Summary:** Leonard Katz
12:00 p.m. – 04:30 p.m.	Lunch on own in town and afternoon free-time
04:30 p.m. – 06:00 p.m.	**Poster Session A** and refreshments Ray Lam, Nereus; Allen Laskin, Drew University
	Special Session I – Reduction to practice
06:00 p.m. – 06:05 p.m.	**Introduction:** Max Kennedy, IRL Biopharm
06:05 p.m. – 06:20 p.m.	**Difficult industrial fermentations: Special requirements for producing cytotoxins and growing marine microbes** *Max Kennedy,* IRL Biopharm
06:20 p.m. – 06:35 p.m.	**Applying metabolic flux analysis in strain improvement** *Anna Eliasson Lantz,* Biocentrum-DTU
06:35 p.m. – 06:50 p.m.	**Productivity improvement in industrial fermentations with mycelial morphology.** *Sanjay Tiwari*, Biocon
06:50 p.m. – 07:05 p.m.	**Production of exopolysaccharides by *Claviseps* spp. and possible scale up of this process** *Ales Prell,* Institute of Microbiology Czech Academy of Sciences
07:05 p.m. – 07:20 p.m.	**Control of mycelial morphology: Practical approach** *Sergei Braun,* Hebrew University

Monday, June 5, 2006 (continued)

07:20 p.m. – 07:25 p.m.	**Summary:** Janet Westpheling, University of Georgia
07:30 p.m. – 09:00 p.m.	Dinner
09:00 p.m. – 10:00 p.m.	Evening Social

Tuesday, June 6, 2006

07:30 a.m. – 08:30 a.m.	Breakfast
	Technical Session 2 – Biodiversity and strain improvement
08:30 a.m. – 08:35 a.m.	**Introduction:** Margo Haygood, Oregon Health and Science University
08:35 a.m. – 09:20 a.m.	**Deep sea actinomycetes: New opportunities for natural product search and discovery** *Alan Bull,* University of Kent
09:20 a.m. – 10:05 a.m.	**Uncultivated symbionts** *Eric Schmidt,* University of Utah
10:05 a.m. – 10:25 a.m.	Coffee Break
10:25 a.m. – 11:10 a.m.	**Secondary metabolite potential of a biological control agent, *Bacillus cereus*, UW85** *Michael Thomas,* University of Wisconsin
11:10 a.m. – 11:55 a.m.	**Combinatorial biosynthesis of lipopeptide antibiotics** *Richard Baltz,* Cubist
11:55 a.m. – 12:00 p.m.	**Summary:** Richard Baltz, Cubist
12:00 p.m. – 01:00 p.m.	Lunch
	Special Session II – "Off the beaten path" approaches
01:00 p.m. – 01:05 p.m.	**Introduction:** Kim Lewis, Novobiotic/Northeastern University
01:05 p.m. – 01:20 p.m.	***In silico* biosynthesis: A potent new approach to natural product discovery** *James McAlpine,* Ecopia
01:20 p.m. – 01:35 p.m.	**From pathway engineering to production: The role of process development** *Jorge Galazzo,* Kosan
01:35 p.m. – 01:50 p.m.	**Semi-synthetic production of the antimalarial natural product Artemisinin** *Kinkead Reiling,* Arymis
01:50 p.m. – 02:05 p.m.	**Growing "unculturable" bacteria for natural product drug discovery** *Kim Lewis,* Novobiotic/Northeastern University
02:05 p.m. – 02:10 p.m.	**Summary:** Kim Lewis, Novobiotic/Northeastern University

Tuesday, June 6, 2006 (continued)

	Special Session III– "Visions for the future" - panel discussion
02:15 p.m. – 02:20 p.m.	**Introduction:** Steven Giovannoni, Oregon State University
02:20 p.m. – 02:25 p.m.	*Bradley Moore,* Scripps Institution of Oceanography
02:25 p.m. – 02:30 p.m.	*Juan Asenjo,* University of Chile
02:30 p.m. – 02:35 p.m.	*Rowan Morris,* Novartis
02:35 p.m. – 02:40 p.m.	*William Fenical,* Scripps Institution of Oceanography
02:40 p.m. – 03:10 p.m.	**Debate on the future of natural products**
03:10 p.m. – 03:15 p.m.	**Summary:** William Fenical, Scripps Institution of Oceanography
03:15 p.m.	Mid afternoon and evening free-time – dinner on own in town

Wednesday, June 7, 2006

07:30 a.m. - 08:30 a.m.	Breakfast
	Technical Session 3 – Scale up/scale down (well plates, shake flasks, bioreactors)
08:30 a.m. – 08:35 a.m.	**Introduction:** Wouter Duetz, Enzyscreen
08:35 a.m. – 09:20 a.m.	**Microtiter plate wells as mini-bioreactors** *Wouter Duetz,* Enzyscreen
09:20 a.m. – 10:05 a.m.	**Microplates and shake-flasks with dissolved oxygen sensors for microbial screening** *Elmar Heinzle,* Saarland University
10:05 a.m. – 10:25 a.m.	Coffee Break
10:25 a.m. – 11:10 a.m.	**Industrialized strain and fermentation development at Sandoz** *Helmut Haecker,* Sandoz
11:10 a.m. – 11:55 a.m.	**Scale-up of a viscous fungal fermentation for pneumocandins from pilot scale to manufacturing** *Robert Stieber,* Merck
11:55 a.m. – 12:00 p.m.	**Summary:** Heinrich Scherfler, Sandoz
12:00 p.m. – 04:30 p.m.	Lunch on own in town and afternoon free time
04:30 p.m. – 06:00 p.m.	**Poster Session B** and refreshments Ray Lam, Nereus; Allen Laskin, Drew University
06:00 p.m. – 07:30 p.m.	**Banquet**
07:30 pm. – 07:35 p.m.	**Remarks**: Allen Laskin, ECI
07:35 p.m. – 07:40 p.m.	**Poster Awards**
07:40 p.m. – 07:45 p.m.	**Speaker Introduction:** Leonard Katz
07:45 p.m. – 09:15 p.m.	**Banquet Speaker** **Misconception, Mistreatment, Misunderstanding and Microbes** Julian Davies, UBC
09:15 p.m. – 10:15 p.m.	Evening Social

Thursday, June 8, 2006

07:30 a.m. - 08:30 a.m.	Breakfast
	Technical Session 4 – Cell environment optimization
08:30 a.m. – 08:35 a.m.	**Introduction:** Andrew Russell, Eli Lilly
08:35 a.m. – 09:20 a.m.	**Construction of a novel secretion pathway for intracellular proteins in *Aspergillus niger*** *Cees M. J. Sagt,* DSM Life Science Products, Food Specialties RD&T
09:20 a.m. – 10:05 a.m.	**Understanding global regulation of antibiotic biosynthesis in *Streptomyces*** *David Sherman*, University of Michigan
10:05 a.m. – 10:25 a.m.	Coffee Break
10:25 a.m. – 11:10 a.m.	**Cell environment optimization with stochastic search strategies** *Dirk Weuster-Bolz*, Technical University of Munich
11:10 a.m. – 11:55 a.m.	**Comprehensive engineering of metabolic networks to enhance microbial production systems** *Kevin Madden*, Microbia
11:55 a.m. – 12:00 p.m.	**Summary:** Jackie Shanks, Iowa State University
12:00 p.m. – 12:15 p.m.	**Closing Remarks** – Arnold Demain, Drew University
12:15 p.m.	Box Lunch distribution and departure

POSTERS – Session A

Natural product production, diversity, regulation and scale-up

1. **Moriniafungin, a novel sordarin derivative produced by the endophytic fungus *Morinia pestalozzioides***
   Javier Collado, Centro de Investigación Básica, Merck Research Laboratories, Merck, Sharpe and Dohme de España

2. **YM-254890, a novel cyclic depsipeptide with heterotrimeric G protein Gq/11 inhibitory activity**
   Masatoshi Taniguchi, Astellas Pharma Inc.

3. **New anti-infective compounds of microbial origin**
   Hiroshi Tomoda, Kitasato University

4. **Abyssomicins, novel polycyclic polyketide antibiotics active against multiresistant Gram-positive pathogens**
   H. –P. Fiedler, Universitat Tubingen

5. **NADH-fumarate reductase inhibitors produced by fungi**
   Kazuro Shiomi, Kitasato Institute for Life Sciences, Kitasato University

6. **Actinohivin, a promising anti-HIV protein of microbial origin**
   Haruo Tanaka, The Kitasato Institute

7. **Lycopene and beta-carotene accumulation by a soil bacterium**
   Frederik van Keulen, Centro de Engenharia Biológica e Química, Instituto Superior Téchnico

8. **Psychrophilic lipases of Antarctic origin**
   Barbara Andrews, University of Chile

9. **Isolation of novel cryophilic proteases from Antarctic microorganisms**
   Juan A. Asenjo, University of Chile

10. **Searching for novel antibiotic-producing bacteria**
    Stefano Donadio, KtedoGen

11. **Biological and chemical diversity: success factors for industrial natural product research**
    Rowan Morris, Novartis Institutes

12. **Scale-up of bioreactors: physiological approach contra geometrical similarity**
    Ales Prell, Institute of Microbiology Czech Academy of Sciences

13. **Scale-down and parallel operation of a riboflavin production process with *Bacillus subtilis***
    Dirk Weuster-Botz, Institute of Biochemical Engineering, Technical University of Munich, Germany

14. **Microalgal fermentation scale-up**
    Ray Gladue, Martek Biosciences Corporation

15. **Large scale saline fermentation of an obligate marine actinomycete to produce the proteasome inhibitor NPI-0052**
Ray Lam, Nereus Pharmaceuticals

16. **Dbv4 is a DNA-binding protein regulating expression of OxyA during A40926 biosynthesis**
Rosa Alduina, Dipartimento di Biologia Cellulare e dello Sviluppo, Università degli Studi di Palermo

17. **The BCDH gene clusters of *Streptomyces* differentially regulate antibiotic production and morphogenesis and are the exclusive source of some of the precursors for both type I and type II polyketide biosynthesis in this genus**
Janet Westpheling, University of Georgia

18. **NADPH manipulation in *E. coli* for alteration of pattern of metabolic products**
G. Bennett, Rice University

19. **Pathways for central carbon metabolism in *Actinobacter***
Anna Eliasson Lantz, Center for Microbial Biotechnology,BioCentrum-DTU

20. **Connected antioxidant enzymes in controlled protection of the cell environment**
A.V. Maksimenko, E.G. Tischenko, A.V. Vavaev, Russian Cardiology Research and Production Complex

21. **Metabolic effect of a natural-based mixture in patients with Type 2 diabetes**
M. Kidron, I. Raz, E. Khayat, M. Sinai, H. Bar-on, Hadassah Hospital

POSTERS – Session B

Natural product screening, modeling, pathway engineering and strain improvement

22. **Genomic and phenotypic diversity of *Lactococcus lactis* from dairy and non-dairy origin**
Johan E.T. van Hylckama Vlieg, NIZO Food Research

23. **Functional metagenomics to survey β-lactam antibiotic resistance in a remote Alaskan soil**
Heather K. Allen, University of Wisconsin-Madison

24. ***Saccharomyces cerevisiae* as heterologous host for polyketide production**
Songsak Wattanachaisaereekul, Center for Microbial Biotechnology, BioCentrum, Technical University of Denmark

25. ***Aspergillus* as an efficient cell factory: Metabolic engineering strategies for efficient production of the acetyl-CoA precursor molecule**
Gianni Panagiotou, Center of Microbial Biotechnology-Technical University of Denmark

26. ***Amycolatopsis balhimycina* as a model organism for improved glycopeptides production**
Anna Eliasson Lantz, Center for Microbial Biotechnology-Technical Univeristy of Denmark

27. **Re-engineering of our natural products library**
Maya Singh, Wyeth Research

28. **Microtiter plate-based high-throughput fermentation and chemical processing for natural product discovery**
Dwight Baker, Cubist Pharmaceuticals

29. **Microtiter based screening - finding big things in little places**
William Vassiliou, Eli Lilly and Company

30. **Classical strain improvement or finding a needle in a haystack**
Richard DeMaio, Eli Lilly and Company

31. **A 24 deep-well plate cultivation format for classical strain improvement of natural products**
Diane Vesey, Kathleen McLaughlin, Andre Walker, Beth Junker and Neal Connors, Merck & Co.

32. **Breeding of FK506 industrial strain**
Shiho Shimizu, Astellas Pharma Inc.

33. **Identification of novel analogues targeting the nocathiacin I binding site from natural product extracts utilizing a GFP-tagged sensitive/resistant pair**
Samantha Samaras, Merck and Co.

34. **Heterologous expression of compactin gene cluster in *Aspergillus nidulans***
Kanchana Rueksomtawin, Technical University of Denmark

35. **Metabolic engineering of flavonoid biosynthesis in *Saccharomyces cerevisiae* and *Escherichia coli***
Mattheos Koffas, University at Buffalo/The State University of New York

36. **Metabolic engineering bacteria to produce human-like drug metabolites of sirolimus**
Jamie E. Prior, University of Colorado

37. **Metabolic engineering of *Catharanthus roseus* hairy roots for production of indole alkaloids**
Jacqueline V. Shanks, Iowa State University

38. **Engineering of flavonoid biosynthesis in yeast**
John A. Morgan, Purdue University

39. **Laboratory scale modeling of large-scale sterilization cycles prior to technical transfer**
Jean Crinean, Wyeth

40. **A putative membrane protein and an ABC-transporter of *Planobispora rosea* stimulate antibacterial activity in *Streptomyces lividans***
Anna Giardina, Università degli Studi di Palermo

41. **Optimize and improve bacterial polysaccharide production using design of experiment (DOE) and traditional research processes**
Brian Bahler, Wyeth

42. **Improvement of the reproducibility of fermentation processes by robust process operational design and control: an answer on FDA's Pat -Initiative**
Andreas Lubbert, Martin-Luther-University