

## *Program*

# Natural Products Discovery and Production II: Celebrating the Successes of Traditional and Novel Culture Sources

June 22-26, 2008

Whistler, British Columbia, Canada  
4050 Whistler Way, Whistler, BC, V0N 1B4  
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Senior Director, Merck & Co., Inc. USA

Janet Westpheling  
Professor, University of Georgia, USA

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**Sunday, June 22, 2008**

3:00 p.m. – 5:30 p.m.	Registration
6:00 p.m. – 7:30 p.m.	Dinner
7:30 p.m. – 7:40 p.m.	Speaker Introduction <b>Jan Westpheling (University of Georgia)</b>
7:40 p.m. – 9:00 p.m.	<b>Keynote Speaker</b> <b>How do we get from here to somewhere else?</b> <b>Richard Baltz, Cubist</b>
9:00 p.m. – 10:00 p.m.	Evening Social (Posters on display)

**IMPORTANT ANNOUNCEMENTS**

- **Technical Sessions and Poster Sessions will be held in the Mt. Currie Room.**
- **Lunches and Dinners will be held in the Cheakamus Room.**
- Audiotaping, videotaping and photography of presentations are strictly prohibited.
- Speakers – Please leave at least 5 minutes for questions and discussion.
- Please do not smoke at any conference functions.
- Turn your cellular telephones to vibrate or off during technical sessions.
- Be sure to make any corrections to your name/contact information on the Master Participant List or confirm that the listing is correct. A corrected copy will be sent to all participants after the conference.

**Monday, June 23, 2008**

07:30 a.m. – 08:15 a.m. Breakfast

08:15 a.m. – 08:30 a.m. **Opening Remarks: Beth Junker, Merck Research Laboratories**

**Technical Session 1 – Actinomycetes**

08:30 a.m. – 08:35 a.m. **Introduction – Charles Thompson (University of British Columbia)**

08:35 a.m. – 09:20 a.m. **Exploiting the genetics of natural product biosynthesis for small molecule discovery  
Paul Jensen (UCSD)**

09:20 a.m. – 10:05 a.m. **Towards best in class Hsp90 inhibitors: Non-quinone-containing macbecin analogues  
Christine Martin (Biotica)**

10:05 a.m. – 10:25 a.m. Coffee Break

10:25 a.m. – 11:10 a.m. **Lantibiotics of the mersacidin/actagardine group  
Jesus Cortes (Novacta Biosystems)**

11:10 a.m. – 11:55 a.m. **Model-guided strain improvement of *Streptomyces coelicolor*  
Anna Lantz (Technical University of Denmark)**

11:55 a.m. – 12:00 p.m. **Summary - Frank Koehn (Wyeth)**

12:00 p.m. – 01:00 p.m. Lunch

**Technical Session 2 – Non-Yeast Fungal**

01:00 p.m. – 01:05 p.m. **Introduction- Geoff Turner (Sheffield)**

01:05 p.m. – 01:50 p.m. **Anidulafungin – a new echinocandin antifungal  
Hamish McArthur (Pfizer)**

01:50 p.m. – 02:40 p.m. **Activation of silent gene clusters leading to new compounds  
Axel Brakhage (Hans Knoll Institute)**

02:40 p.m. – 03:00 p.m. Coffee Break

03:00 p.m. – 03:45 p.m. **Scale up of fungal fermentation processes  
Sanjay Tiwari (Biocon)**

03:45 p.m. – 04:30 p.m. **Computational and functional analysis of fungal secondary metabolite biosynthesis clusters  
Natalie Fedorova (JCVI)**

04:35 p.m. – 04:40 p.m. **Summary - Esther Schmitt (Novartis)**

06:00 p.m. – 07:30 p.m. Dinner

**Monday, June 23, 2008 (continued)**

07:30 p.m. – 09:00 p.m.      Poster Session and dessert

09:00 p.m. – 10:00 p.m.      Social Hour

**Tuesday, June 24, 2008**

07:30 a.m. – 08:30 a.m. Breakfast

**Technical Session 3 – Bacterial and Yeast Cultures**

08:30 a.m. – 08:35 a.m. Introduction – Yi Tang (UCLA)

08:35 a.m. – 09:20 a.m. Biosynthesis of plant polyphenols in recombinant microorganisms  
Mattheos Koffas (SUNY Buffalo)

09:20 a.m. – 10:05 a.m. Production of fine chemical phloroglucinol and antimalarial drug FR900098 in *E. coli*  
Huimin Zhao (University of Illinois)

10:05 a.m. – 10:25 a.m. Coffee Break

10:25 a.m. – 11:10 a.m. Fifty years of exploring for improved strains without a map  
Richard DeMaio (Eli Lilly & Co.)

11:10 a.m. – 11:55 a.m. Discovery of novel antibiotics from previously uncultured actinomycetes isolated using the Culturesys *in situ* growth chamber  
Charles M Moore (Novobiotic Pharmaceuticals LLC)

11:55 a.m. – 12:00 p.m. Summary – Don Hahn (Dow AgroSciences LLC)

12:00 p.m. Lunch and Dinner on your own  
Afternoon/Evening free time

**Wednesday, June 25, 2008**

07:30 a.m. - 08:30 a.m. Breakfast

**Technical Session 4 - Plants**

- 08:30 a.m. – 08:35 a.m. Introduction- Jackie Shanks (Iowa State)
- 08:35 a.m. – 09:20 a.m. The specialized biochemistry of the Madagascar periwinkle leaf surfaceome: A factory for producing anticancer alkaloids and other secondary metabolites  
Vincenzo De Luca (Brock University)
- 09:20 a.m. – 10:05 a.m. Biosynthesis of new alkaloids in Madagascar periwinkle  
Sarah O'Connor (MIT)
- 10:05 a.m. – 10:25 a.m. Coffee Break
- 10:25 a.m. – 11:10 a.m. Characteristics of bioreactors for plant cell and organ culture  
Pauline Doran (University of New South Wales)
- 11:10 a.m. – 11:55 a.m. Novel and effective elicitation and nutrient feeding strategies for enhanced secondary metabolite production in plant tissue cultures  
Jian-Yong Wu (Hong Kong University)
- 11:55 a.m. – 12:00 p.m. Summary – Jackie Shanks (Iowa State)
- 12:00 p.m. – 01:00 p.m. Lunch

**Special Session I - Sources of Novel Cultures**

- 01:00 p.m. – 01:05 p.m. Introduction- Vince Gullo (Drew University)
- 01:05 p.m. – 01:30 p.m. Prospecting for bioactive compounds from fungi: A Thai perspective  
Kanyawim Kirtikaya (Biotec Thailand)
- 01:30 p.m. – 01:55 p.m. Understanding the nutritional requirements for the growth of marine actinomycetes and the production of their secondary metabolites  
Ray Lam (Nereus Pharmaceuticals)
- 01:55 p.m. – 02:20 p.m. *In silico* design of novel nearly-natural products  
Daslav Hranueli (University of Zagreb)
- 02:25 p.m. – 02:30 p.m. Summary – Vince Gullo (Drew University)
- 02:30 p.m. – 02:50 p.m. Coffee Break



Wednesday, June 25, 2008 (continued)

Special Session II- Novel Culture

- 02:50 p.m. – 02:55 p.m.      **Introduction – Eric Schmidt (University of Utah)**
- 02:55 p.m. – 03:20 p.m.      **Latest developments of salinosporamide biosynthesis and analog engineering  
Alessandra Eustaquio (Scripps Institution of Oceanography)**
- 03:20 p.m. – 03:55 p.m.      **Characterization and biosynthetic potential of endophytic actinomycetes from Papua New Guinea and the Solomon Islands  
Jeff Janso (Wyeth)**
- 03:55 p.m. – 04:20 p.m.      **Bioactive metabolites from *Dinoflagellates amphidinium* sp.  
Jun'ichi Kobayashi (Hokkaido University)**
- 4:20 p.m. – 4:55 p.m.      **Strategies to find and produce myxobacterial secondary metabolites  
Rolf Müller (University of Saarland)**
- 04:55 p.m. – 5:00 p.m.      **Summary – Stefano Donadio (Kteogen)**
- 05:00 p.m. – 06:00 p.m.      Reception
- 06:00 p.m. – 07:20 p.m.      Conference Banquet
- 07:20 p.m. – 07:30 p.m.      Poster Awards
- 07:30 p.m. – 07:40 p.m.      **Speaker Introduction- Arnold Demain (Drew University)**
- 07:40 p.m. – 08:45 p.m.      **Banquet Speaker  
The changing face of microbial natural products discovery  
Bill Fenical, Scripps Institute**
- 08:45 p.m. – 09:00 p.m.      **Closing Remarks- Jan Westpheling, University of Georgia**
- 09:00 p.m. – 10:00 p.m.      Evening Social (Last viewing of posters)

Thursday, June 26, 2008

07:30 a.m. - 08:30 a.m. Breakfast

Departures

### List of Posters

1. **BIOFILM ASSAY FOR THE DETECTION OF ANTI-EPS ACTIVITY**  
Kristina D. A. Mojica, Department of Oceanography, University of Hawaii at Manoa, USA
2. **ACTINOMYCETES FROM TODOS SANTOS BAY, PRODUCERS OF ANTICANCER COMPOUNDS**  
Amaly Becerril-Espinosa, Facultad de Ciencias Marinas, Universidad Autonoma de Baja California, Mexico
3. **METABOLITE PROFILING OF INTERACTING MYCELIA OF HIGHER FUNGI: A SOURCE OF NOVEL NATURAL PRODUCT CHEMISTRY**  
Diluka Peiris, University of Westminster, UK
4. **A COMPUTER VISION BASED APPROACH FOR CELL TRACKING TO INCREASE THROUGHPUT IN VISUAL DRUG DISCOVERY**  
Martin Wojtczyk, Technische Universität München, Germany
5. **LINCOSAMIDE BIOSYNTHETIC GENE CLUSTERS AS SOURCES OF HYBRID ANTIBIOTICS**  
Dana Ulanova, Institute of Microbiology, Czech republic
6. **ANTIBACTERIAL PROPERTIES OF PLANT ENDOPHYTIC FUNGUS FUSARIUM REDOLENS DZF2 AND OPTIMIZATION OF MYCELIAL CULTURES FOR ANTIBIOTIC (BEAUVERICIN) PRODUCTION**  
Jian-Yong Wu, The Hong Kong Polytechnic University, China
7. **EVALUATION OF RARELY-CULTURED BACTERIA FOR NATURAL PRODUCT DISCOVERY**  
Don Hahn, Dow AgroSciences, USA
8. **A NOVEL TWO STAGE PRODUCTION PROCESS FOR THE ANTIBIOTIC GALLIDERMIN**  
Giovanni Medaglia, ETH, Switzerland
9. **METABOLITE PROFILING OF INTERACTING MYCELIA OF HIGHER FUNGI: A SOURCE OF NOVEL NATURAL PRODUCTS.**  
Diluka Peiris, School of Biosciences, University of Westminster, UK
10. **DEVELOPMENT OF A ROBUST "SCALED-DOWN" CULTIVATION PLATFORM FOR STREPTOMYCES VIA MORPHOLOGY ENGINEERING**  
Prashant M. Bapat, Center for microbial biotechnology, Department of Systems Biology, Technical University of Denmark, Denmark
11. **NEW METHODS FOR MUTATING AND EVALUATING ANTIBIOTIC-PRODUCING STREPTOMYCES LIBRARIES**  
Robert Strobel, Eli Lilly and Company, USA
12. **BIOSYNTHETIC GENES INVOLVED IN BOTH PHAEOCHROMYCIN AND ALNUMYCIN BIOSYNTHESIS.**  
Frank V. Ritacco, Wyeth Research, USA

- 13. DISCRETE EVENT MODELING OF A HIGH-THROUGHPUT SCREENING PROCESS**  
Dale E. Brown, Eli Lilly and Company, USA
- 14. AN ENGINEERED BACTERIAL SYSTEM FOR IDENTIFYING NUCLEAR HORMONE RECEPTOR MODULATORS**  
David W. Wood, Princeton University, New Jersey, USA
- 15. GUADINOMINES, TYPE III SECRETION SYSTEM INHIBITORS, PRODUCED BY STREPTOMYCES SP. K01-0509**  
Masato Iwatsuki, The Kitasato Institute, Japan
- 16. WICKEROL, A NOVEL ANTI-INFLUENZA VIRUS ANTIBIOTIC PRODUCED BY TRICHODERMA ATROVIRIDE FKI-3737**  
Kazuro Shiomi, Kitasato Institute for Life Sciences and Graduate School of Infection Control Sciences, Kitasato University, Japan
- 17. INTERSPECIFIC MYCELIAL INTERACTIONS BETWEEN THE BASIDIOMYCETE SCHIZOPHYLLUM COMMUNE AND TWO ASCOMYCETES, TRICHODERMA VIRIDE AND CHAETOMIUM ELATUM.**  
Victor C. Ujor, University of Westminster, London, United Kingdom
- 18. INHIBITORY EFFECT OF MONASCUS PIGMENT DERIVATIVES ON DIETARY RELATED ENZYMES**  
Heeyong Jung, Department of Biotechnology College of Engineering, Yonsei University, Korea
- 19. PURIFICATION AND CHARACTERIZATION OF NATURAL FOOD BIOPRESERVATIVE PRODUCED FROM LACTOBACILLUS SP. A75 ISOLATED FROM A TRADITIONAL FERMENTED FOOD OF INDIA**  
N. Sharma, Dr. Y.S. Parmar University of Horticulture and Forestry, India
- 20. AN ADDITIONAL PHOSPHOTYROSINE-PROTEIN PHOSPHATASE IS PRESENT IN STREPTOMYCES COELICOLOR A3(2)**  
Sujata V. Sohoni, Center for Microbial Biotechnology, Department of systems Biology, Technical University of Denmark, Denmark
- 21. EXTRACTS FROM STATIONARY PHASE CULTURES ALTER SECONDARY METABOLITE PRODUCTION, MORPHOLOGY AND GROWTH OF ASPERGILLUS NIDULANS**  
Headley Williams, University of Westminster, UK
- 22. CHEMICAL AND TAXONOMIC DIVERSITY IN FUNGI**  
Esther Schmitt, Novartis Institutes for Biomedical Research, Basel, Switzerland
- 23. HISTIDINE-DERIVED ANTIFUNGAL COMPOUND PRODUCED BY A FILAMENTOUS FUNGAL ISOLATED IN NEW ZEALAND**  
Silas G. Villas-Boas, The University of Auckland, New Zealand
- 24. CHARACTERIZATION OF FUSARIUM LARVARUM STRAINS PRODUCING THE NOVEL ANTIFUNGAL, POLY-ADENOSINE POLYMERASE INHIBITORS, PARNAFUNGINS A AND B**  
David Overy, CIBE-Merck Research Laboratories, Spain
- 25. SACCHAROMYCES CEREVISIAE AS CELL FACTORY FOR ANTIOXIDANT ORGANIC SELENO-COMPOUNDS BIOSYNTHESIS**  
Valeria Mapelli, Center for Microbial Biotechnology, Biosys-Technical University of Denmark, Denmark

- 26. ACTINOMYCETES IN VIETNAM**  
Hideyuki Muramatsu, Fermentation Research Labs., Astellas Pharma Inc., Japan
- 27. HAPLOFUNGINS, NOVEL INOSITOL PHOSPHORYLCERAMIDE (IPC) SYNTHASE INHIBITORS ISOLATED FROM LAURIOMYCES BELLULUS SANK 26899**  
Takashi Ohnuki, Daiichi-Sankyo, Japan
- 28. HIGH THROUGHPUT PLATFORM FOR DISCOVERY & PRODUCTIVITY-IMPROVEMENT OF NATURAL PRODUCTS**  
Melanie Khodaie, Center for Microbial Biotechnology, Department of Systems Biology, Technical University of Denmark, Denmark
- 29. THE NAICONS' STRAIN LIBRARY**  
Margherita Sosio, KtedoGen Srl, Italy
- 30. METABOLIC ENGINEERING OF CATHARANTHUS ROSEUS HAIRY ROOTS FOR TERPENOID INDOLE ALKALOID PRODUCTION UNDER LIGHT AND DARK CONDITIONS**  
Guy W. Sander, Department of Chemical and Biological Engineering, Iowa State University, USA
- 31. DRUGS FROM ACTINOBACTERIA ISOLATED FROM DEEP SEA SEDIMENTS**  
Hans-Peter Fiedler, Universität Tübingen, AG Mikrobiologie/Antibiotika, Germany
- 32. GENETIC ENGINEERING OF ESCHERICHIA COLI TO ENHANCE BIOLOGICAL PRODUCTION OF VANILLIN FROM FERULIC ACID**  
Ruzzi Maurizio, DABAC, University of Tuscia, Italy
- 33. THE SEARCH FOR TAXOL-PRODUCING MICROORGANISMS AMONG ENDOPHYTIC BACTERIA FROM THE MEXICAN YEW (TAXUS GLOBOSA).**  
Cecilia de la Paz Vital Beraud, Cinvestav, Mexico
- 34. BIOSYNTHESIS OF SYMBIOTIC NATURAL PRODUCTS**  
Eric W. Schmidt, University of Utah, Salt Lake City, UT, USA
- 35. BIOCHEMICAL ANALYSIS OF INTACT FUNGAL POLYKETIDE MEGASYNTASES**  
Yi Tang, University of California, Los Angeles, USA
- 36. FUNCTIONAL ANALYSIS OF THE FUMITREMORGIN GENE CLUSTER OF ASPERGILLUS FUMIGATUS**  
Geoffrey Turner, University of Sheffield, UK
- 37. A NOVEL SEARCH FOR MOLECULES ACTIVE AGAINST REPRESENTATIVE GRAM-NEGATIVE PATHOGENS**  
Sponga Federica, Interlink Biotechnologies, Gerenzano, Italy
- 38. EXPLOITING THE GENETICS OF NATURAL PRODUCT BIOSYNTHESIS FOR SMALL MOLECULE DISCOVERY**  
Paul R. Jensen, Scripps Institution of Oceanography, California, USA
- 39. THE PHYLOGENY AND BIOGEOGRAPHY OF *GLAREA LOZOYENSIS*, THE SOURCE OF PNEUMOCANDINS**  
Javier Collado, Centro de Investigación Básica, Merck Research Laboratories, Spain  
(to be presented by David Overy)
- 40. THE USE OF SUPERCRITICAL FLUIDS FOR SELECTIVE EXTRACTION OF VOLATILE COMPOUNDS. *SATUREJA MONTANA*: A CASE-STUDY**  
C. Grosso; M. A. Tavares Cardoso, Departamento de Engenharia Química e Biológica, Instituto Superior Técnico, Portugal

**41. THE TRANSIENT EFFECT OF OVEREXPRESSING ORCA3 PLUS JASMONIC ACID FEEDING IN *CATHARANTHUS ROSEUS* HAIRY ROOTS**

Christie A.M. Peebles, Department of Bioengineering, Rice University, USA

**42. TOWARDS ENGINEERING HUMAN-LIKE DRUG METABOLISM IN BACTERIA**

Jamie E Prior, University of Colorado, USA