

FINAL REPORT

TWENTY-SECOND FUNGAL GENETICS CONFERENCE - Asilomar, California

Jonathan Walton, Michigan State University. walton@msu.edu. March 26, 2004.

The purpose of the Twenty Second Fungal Genetics Conference was to bring together scientists and students who are interested in genetic approaches to studying the biology of filamentous fungi. Topics range from the basic to the applied.

Filamentous fungi impact human affairs in many ways. In the environment they are the most important agents of decay and nutrient turnover. They are used extensively in the food industry for the production of food enzymes such as pectinase and food additives such as citric acid. They are used in the production of fermented foods such as alcoholic drinks, bread, cheese, and soy sauce. More than a dozen species of mushrooms are used as foods directly. Many of our most important antibiotics, such as penicillin, cyclosporin, and lovastatin, come from fungi.

Fungi also have many negative impacts on human health and economics. Fungi are serious pathogens in immuno-compromised patients. Fungi are the single largest group of plant pathogens and thus a serious limit on crop productivity throughout the world. Many fungi are allergenic, and mold contamination of residences and commercial buildings is now recognized as a serious public health threat. As decomposers, fungi cause extensive damage to just about all natural and synthetic materials.

Fungi are also excellent models systems to address questions about basic biological processes. Research using filamentous fungi has provided and is continuing to provide novel and crucial insights into cell cycle regulation, biochemical genetics, recombination, meiosis, self-splicing RNAs, mechanisms of genome instability, cell signaling, circadian rhythms, photobiology, and development. They are also being used as models in genome research. The NIH National Human Genome Research Institute has recently agreed to support the complete genome sequencing of at least seven filamentous fungi (<http://www.nhgri.nih.gov/DER/Sequencing/proposal.html>). This will be an extraordinary resource for fungal researchers and should make filamentous fungi even more attractive as model systems. The fungi to be sequenced include representatives of model fungi (*Neurospora crassa* has already been completed), plant pathogens, human pathogens, beneficial plant-associated fungi, antibiotic producers, and mushrooms.

The Fungal Genetics Conference is held biennially at Asilomar, California. The twenty-second meeting was held from Tuesday March 18 to Sunday March 23, 2003, at the Asilomar Conference Center near Monterey, California. The program is shown in Appendix I. The registration fees for students was \$110, for postdoctoral fellows \$130, and for PIs either \$175 for GSA members or \$275 for non-members. Fees for accommodation and meals ranged from around \$325 to \$605. All meals were taken together in the Asilomar dining hall at round tables of ten people.

A total of 745 people registered for the meeting. Abstracts totalling 498, representing 1560 authors, were submitted and printed in the program. This includes poster and oral presentations.

The DOE grant (\$4000) was used to pay partial expenses of students (domestic) for travel, registration, lodging, and meals.

Appendix I: Final Program

**TWENTY SECOND FUNGAL GENETICS CONFERENCE
SCIENTIFIC PROGRAM**

TUESDAY, March 18

3:00 pm - 6:00 pm Registration, Administration
6:00 Dinner, Crocker Hall
7:30 pm - 10:30 pm Social Reception (Mixer), Merrill Hall

WEDNESDAY, March 19

7:30 - 1:00 pm Registration, Administration
7:30 - 8:30 am Breakfast, Crocker
8:30 am - 12:00 pm **Plenary Session**, Merrill Hall

FUN GAL CELL BIOLOGY Chair: Steve Osmani

Gero Steinberg

Microtubules in polar growth of *Ustilago maydis*

Mike Plamann

Genetics analysis of the regulation of cytoplasmic dynein in Neurospora

Michelle Momany

Septins in *Aspergillus nidulans*

Reinhard Fischer

Nuclear migration and positioning in *Aspergillus nidulans*

Steve Osmani

Direct and indirect roles of the NIMA kinase in mitotic regulation

12:00- 1:00 pm Lunch, Crocker Hall

Following lunch, the mornings speakers will be available on the benches outside the administration building to meet with students.

Please allow time for students to meet the speakers.

3:00 pm - 6:00 pm CONCURRENT SESSIONS I

Chapel, Targeting and secretion of proteins

Merja Penttila, David Archer

Fred Farr Forum, **Epigenetics, transposable elements, prions**

Michael Freitag, Marie-Jose Daboussi

Kiln, The fungal cytoskeleton

Xin Xiang, Robby Roberson

Merrill Hall, Secondary metabolism and mycotoxins

Motoichiro Kodama, Bettina Tudzynski

Nautilus, **Stress responses in fungi**
Paul Tudzynski, Jesús Aguirre

6:00 Dinner, Crocker Hall

7:30 pm - 10:30 pm POSTER SESSION I

The poster sessions will be held in a large tent in the Surf and Sand Parking lot.

Posters 1-45 **Biochemistry and Secondary Metabolism**

Posters 46-86 **Cell Biology**

Posters 239-261 **Genomics and Proteomics**

Posters 346- 370 **Host-Parasite Interactions**

Posters 461-494 **Other**

THURSDAY, March 20

7:30 - 8:30 am Breakfast, Crocker

8:30 am- 12:00 pm **Plenary Session**, Merrill Hall

FUNGAL-HOST INTERACTION Chair: Chris Schardl

Chris Schardl

Distinct endophyte genome evolution associated with differing degrees of antagonism or mutualism

Marc-Henri LeBrun

Of fungi and plants; Specific developmental and metabolic processes required for interactions

Regina Kahmann

Signal transduction in *Ustilago maydis* for mating and more

Aaron Mitchell

New strategies for *Candida albicans* virulence gene discovery

Axel Brakhage

Virulence and melanin biosynthesis of *Aspergillus fumigatus*

12:00- 1:00 pm Lunch, Crocker Hall

Neurospora Luncheon, Chapel

Following lunch, the morning speakers will be available on the benches outside the administration building to meet with students.

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3:00 pm - 6:00 pm **CONCURRENT SESSIONS II**

Chapel, Fungal-plant interactions
Seogchan Kang, Barbara Valent

Fred Farr Forum, Fungal population genetics
Rytas Vilgalys, Tom Bruns

Kiln, Photobiology and clocks
Jennifer Loros, Martha Merrow

Merrill, Medical mycology
David Denning, Joe Heitman

Nautilus, Teaching fungal biology and genetics
Pat Pukkilla, Steve James

6:00 Dinner, Crocker Hall

7:30 pm - 10:30 pm **POSTER SESSION II**

Posters 87-111 **Cell Biology**

Posters 112-137 **Developmental Biology**

Posters 210- 238 **Gene Regulation**

Posters 304- 345 **Host-Parasite Interactions**

Posters 430-460 **Population Genetics and Evolution**

FRIDAY, March 21

7:30 - 8:30 am Breakfast, Crocker

8:30 am- 12:00 pm **Plenary Session**, Merrill Hall

SIGNALING AND SILENCING Chair: Louise Glass

Louise Glass

Fatal attraction: Vegetative incompatibility in *Neurospora*

Peter Philippien

Establishment, maintenance and maturation of hyphal tip growth in the filamentous ascomycete

Ashybya gossypii

Guiseppe Macino

PKC regulates the stability of WC-1 in response to light

Bob Metzenberg

Listening to silenced genes

Nick Talbot

Investigating the genetics of appressorium-mediated plant infection by *Magnaporthe grisea*

12:00- 1:00 pm Lunch, Crocker Hall
Magnaporthe Luncheon, Chapel

Following lunch, the mornings speakers will be available on the benches outside the administration building to meet with students. Please allow time for students to meet the speakers.

3:00 pm - 6:00 pm **CONCURRENT SESSIONS III**

Chapel, **Mating and sexual development**
Robert Debuchy, Cardy Raper

Fred Farr Forum, **Evolution of gene clusters**
Heather Wilkinson, Jon Walton

Kiln, **Regulation of primary metabolism**
Dan Ebbole, Michael Hynes

Merrill, **Fungal genomics**
Mary Anne Nelson, Jim Kronstadt

Nautilus, **Evolutionary Genomics**
Jim Anderson

6:00 Dinner, Crocker Hall

7:30 pm - 10:30 pm **POSTER SESSION III**
Posters 138-166 **Developmental Biology**
Posters 167- 209 **Gene Regulation**
Posters 401-429 **Industrial Biology and Biotechnology**
Posters 262-303 **Genomics and Proteomics**
Posters 371-400 **Host-Parasite Interactions**

SATURDAY, March 22

7:30 - 8:30 am Breakfast, Crocker
8:30 am- 12:00 pm **Plenary Session**, Merrill Hall

GENOMES AND EVOLUTION Chair: Gillian Turgeon

Gillian Turgeon
Comparative genomics of plant pathogenic fungi

Bruce Birren

Neurospora biology, from the genome up

Sophien Kamoun

Molecular adaptation in Phytophthora-plant interactions

Ralph Dean

The Magnaporthe genome project – A community effort

Anita Sil

Using genomics to probe Histoplasma pathogenesis

12:00- 1:00 pm Lunch, Crocker Hall

3:00 pm - 6:00 pm **CONCURRENT SESSIONS IV****Chapel, Signal transduction**

Jin-Rong Xu, Bruce Miller

Fred Farr Forum, Membrane transporters

Arnold Driessens, Greg Upchurch

Kiln, Parasitic interactions with insects, nematodes and other fungi

Ray St Leger, Anders Tunlid

Merrill, Spores, sporulation and hyphal morphogenesis

Jurgen Wendland, Frances Trail

Nautilus, DNA repair/genome dynamics

Steve Harris, Mimi Zolan

6:00 Banquet, Crocker Hall

8:00 pm - 9:00 pm INVITED LECTURE

Hans Van Etten, "A sick view of fungi"

9:00 pm - 12:30 am Closing Party, Merrill Hall

9:00 pm - 12:30 am Quiet Alternative Surf and Sand

SUNDAY, March 18

7:30 - 8:30 am Breakfast, Crocker

8:30 am - 12:00 pm **AD HOC WORKSHOPS**Fred Farr
Forum

Ralph Dean, chair

**Aspergillus Genome
Sequence**

Kiln

H. Corby Kistler,
chair**Fusarium genomes: an
update**

12:00- 1:00 pm Lunch, Crocker Hall
12:00 pm Check-out