

## FINAL REPORT

### TWENTY-SECOND FUNGAL GENETICS CONFERENCE - Asilomar, California

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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 model 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

**FUNGAL 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 Pentilla, 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

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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*

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

Neurospora 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 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 Pukilla, 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 Philippsen**

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*

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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**

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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 Driessen, 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