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</table>
GSA is an international scientific society representing more than 5,000 researchers and educators around the world. As well as connecting researchers through conferences and career programs, we publish two peer-edited scholarly journals, GENETICS and G3: Genes|Genomes|Genetics. We encourage you to join GSA so you can make use of exclusive member benefits and get involved in the Society’s many programs, including professional development training, awards, advocacy, and more. Join us as we work to advance the field and serve our community. Visit genetics-gsa.org for more information.

2024 GSA Board of Directors

**Officers**
- Mariana Wolfner, *President*
- Brenda Andrews, *Vice President*
- Tracy Johnson, *Immediate Past President*
- Swathi Arur, *Secretary*
- Tin Tin Su, *Treasurer*

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- Duojia (DJ) Pan
- Arun Sethuraman
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- Howard Lipshitz, Editor in Chief, GENETICS
- Lauren McIntyre, Editor in Chief, G3: Genes|Genomes|Genetics

**Early Career Representative**
- Jacob Ortega

**Executive Director**
- Tracey DePellegrin

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**GSA Journals**

**GENETICS**

GENETICS has been innovating since 1916, publishing high quality original research across the breadth of the field.

**G3: Genes|Genomes|Genetics**

G3: Genes|Genomes|Genetics is an open access journal that publishes high quality, useful results regardless of perceived impact.
Fungal Genetics Conference

Fungal Genetics Policy Committee
Deb Bell-Pedersen, Texas A&M University, Fungal Policy Committee Chair (2017–2023)
Reinhard Fischer, Karlsruhe Institute of Technology (KIT) (2022–2028)
Amy Gladfelter, University of North Carolina (2017–2023)
Erika Kothe, Friedrich Schiller University Jena (2017–2023)
Luis Larrondo, Pontificia Universidad Católica de Chile (2019–2025)
Xiaorong Lin, University of Georgia (2019–2025)
Li-Jun Ma, University of Massachusetts Amherst (2022–2028)
Vera Meyer, Technical University of Berlin (2019–2025)
Oded Yarden, The Hebrew University of Jerusalem (2022–2028)

Ex Officio
John Leslie, Fungal Genetics Stock Center
Marc Orbach, University of Arizona

Scientific Organizers
Michael Freitag, Oregon State University
Natalia Requena, Karlsruhe Institute of Technology
Genetics Society of America gratefully acknowledges the following sponsors!
Conference App

Download the GSA mobile app to your smartphone (available on both iOS and Android platforms) to have meeting information at your fingertips. Once you download the app, you will only need access to the internet to download updates. You will not need an internet connection to access previously downloaded information. Android users and Windows Mobile Device users will have full access to the Program through the web version available on the conference website.

You can find your registration badge ID in your conference registration confirmation email, which was sent from the address NoReply@Convention-Mail.com.

Registration

Registrants were emailed their badge to print at home. Show your pre-printed badge to the registrar to collect your badge holder and lanyard. In the registration area in Surf and Sand, you will show your badge and be given a badge cover and lanyard. For admission to the sessions, posters, exhibits, and receptions, you must have your official conference badge.

You can download the Program Book and Abstract Book on the conference website or access all the information in the Conference App. Certificates of Attendance and Participation are available online.

<table>
<thead>
<tr>
<th>Time</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:30 p.m.</td>
<td>Tuesday, March 12</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Wednesday, March 13</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Thursday, March 14</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Friday, March 15</td>
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<tr>
<td>8:30 a.m.</td>
<td>Saturday, March 16</td>
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<tr>
<td>9:30 p.m.</td>
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<tr>
<td>5:00 p.m.</td>
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<tr>
<td>2:00 p.m.</td>
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<tr>
<td>1:00 p.m.</td>
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</tr>
<tr>
<td>11:00 a.m.</td>
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</tbody>
</table>

Speaker Ready Room

All plenary and concurrent session speakers must upload and review your presentation in the Speaker Ready Room located in Triton 24 hours before the start of your session. You will not be able to use your own computer or upload your presentation in the session room. The day of your presentation, arrive 20 minutes before the start of your session (not your talk) to let the session chair know that you are there and get any last minute instructions. The Speaker Ready Room will be open during the following hours:

<table>
<thead>
<tr>
<th>Time</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 p.m.</td>
<td>Tuesday, March 12</td>
</tr>
<tr>
<td>7:30 a.m.</td>
<td>Wednesday - Saturday</td>
</tr>
<tr>
<td>5:00 p.m.</td>
<td></td>
</tr>
</tbody>
</table>
Poster Sessions

All posters will be displayed in the Fireside Pavilion located under the Fred Farr Forum. Display your poster after 9:00 a.m. the day of your presentation. All posters will be up for one day. Posters must be removed at 10:30 pm. After that time, remaining posters will be removed and recycled. The meeting does not take responsibility for posters that are not removed on time. Authors will present according to the following schedule:

<table>
<thead>
<tr>
<th>Wednesday, March 13</th>
<th>All “A” posters must be displayed.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7:30 p.m.–8:30 p.m.</td>
</tr>
<tr>
<td></td>
<td>8:30 p.m.–9:30 p.m.</td>
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<tr>
<td></td>
<td>9:30 p.m.–10:30 p.m.</td>
</tr>
<tr>
<td>Thursday, March 14</td>
<td>All “B” posters must be displayed.</td>
</tr>
<tr>
<td></td>
<td>7:30 p.m.–8:30 p.m.</td>
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<tr>
<td></td>
<td>8:30 p.m.–9:30 p.m.</td>
</tr>
<tr>
<td></td>
<td>9:30 p.m.–10:30 p.m.</td>
</tr>
<tr>
<td>Friday, March 15</td>
<td>All “C” posters must be displayed.</td>
</tr>
<tr>
<td></td>
<td>7:30 p.m.–8:30 p.m.</td>
</tr>
<tr>
<td></td>
<td>8:30 p.m.–9:30 p.m.</td>
</tr>
<tr>
<td></td>
<td>9:30 p.m.–10:30 p.m.</td>
</tr>
</tbody>
</table>
EXHIBITS

Be sure to visit the companies who have come to support your science and show you how they can help advance your research. You can renew current relationships or meet potential future suppliers.

21st Bio
www.21st.bio

21st.BIO focuses on developing industrial production technology for proteins and other molecules of interest for food, materials, and agricultural industries. On a mission to support bioindustrial companies globally in upscaling from molecule innovation to large-scale production. 21st.BIO enables its customers to meet market demands and thereby advance the green transition globally.

BioSense Solutions
https://biosensesolutions.dk/

oCellScope™ Live-Cell Imaging – Automated Microbial Growth Kinetics and Morphology Analysis. The oCellScope™ platform is used by microbiologists all over the world to study growth and morphology. We use image analysis and machine learning to provide a time-lapse technology 250 times more sensitive than using OD (plate readers).

FungiDB
www.fungidb.org

FungiDB integrates whole genome sequence and annotation and also includes experimental and environmental isolate sequence data. The database includes comparative genomics, analysis of gene expression, supplemental bioinformatics analyses and a web interface for data mining.

Union Biometrica, Inc.
sales@unionbio.com
www.unionbio.com

Union Biometrica provides flow cytometry for objects that are too large for traditional cytometers, such as fungal pellets, and offers an alternative to manual sorting. These instruments analyze and dispense objects based on size and fluorescent parameters. Automating this process offers increased speed, sensitivity, quantification, and repeatability of experiments.

Social Media/Photo/Video Policy

Live tweeting of presentations is allowed unless the speaker explicitly opts out by stating so at the start of his or her talk. Taking or sharing photos or videos of posters is permitted only with the presenter’s consent during the assigned poster session. Taking photos of posters while the presenter is not present is strictly prohibited. By attending a GSA conference, you grant GSA the right to use your photograph, video, name, and likeness for use in GSA educational, news, or promotional materials.

Please be respectful of your colleagues by turning off or muting your mobile devices before entering meeting rooms.
Wi-Fi Access

Complimentary Wi-Fi is available in the meeting rooms and Fireside Pavilion.

Network: Asilomar Conference
Password: conference (all lower case)

Job and Meeting Postings

 Individuals and institutions offering or seeking employment and organizers of meetings may post notices and resumes on the Community Notices bulletin board which will be located in the Fireside Pavilion.

Meals

Meals are not included in the registration fee. Guests staying at Asilomar and those who purchased a meal plan are invited to eat at Crocker Dining Hall. If you prefer to eat outside, you can pick up a to-go meal in Crocker Dining Hall and sit at the picnic tables available in the meadow. Phoebe Cafe, located in the Social Hall, has a limited menu available for those that did not purchase a meal plan. Meals are offered at the following times:

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 a.m.–8:30 a.m.</td>
<td>Breakfast</td>
</tr>
<tr>
<td>12:00 p.m.–1:00 p.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>6:00 p.m.–7:00 p.m.</td>
<td>Dinner</td>
</tr>
</tbody>
</table>

Childcare

Visit Care.com for help locating a babysitter. Please note that GSA has no affiliation with their services. The parent(s), guardian, legal guardian, or individual requesting childcare services is responsible for screening caregivers and determining whether caregivers are appropriate. The Genetics Society of America does not screen any of the childcare services and assumes no responsibility with respect to these services and accepts no liabilities.

Parents or guardians must accompany children at all times in the Poster and Exhibit area located in Fireside Pavilion. Parents or guardians may bring children under the age of 18 to educational and social events provided the children do not disrupt the event. Under no circumstances are children under the age of 18 allowed in the Exhibit Hall during set-up and dismantle times.

Security/Lost and Found

For all emergencies and lost and found items contact Asilomar security by dialing 0 from any house phone. The conference registration desk will be able to assist you as well.
Code of Conduct

The Genetics Society of America Conferences foster an international community of geneticists and provide an opportunity to discuss scientific advances and form new collaborations.

GSA values your attendance and wants to make your experience productive and inspiring by fostering an open exchange of ideas in a professional setting. Our Code of Conduct was established to communicate a transparent set of standards and guidelines for acceptable behavior at GSA Conferences and to provide a positive, safe, and welcoming environment for all attendees, vendors, volunteers, and staff.

All conference participants (regardless of their role) are expected to follow the Code of Conduct while attending any portion of the meeting, including but not limited to meeting rooms, the exhibit/poster hall, meeting areas in the official conference venue, and social events provided by the meeting or vendors.

Unacceptable Behaviors

Unacceptable behaviors include, but are not limited to:

- Intimidating, harassing, abusive, discriminatory, derogatory, or demeaning speech or actions by any participant and at all related events
- Harmful or prejudicial verbal or written comments or visual images related to gender, gender expression, gender identity, marital status, sexual orientation, race, religion, political orientation, socioeconomic, disability or ability status, or other personal characteristics, including those protected by law
- Inappropriate use of nudity and/or sexual images in public spaces (including presentation slides and posters)
- Deliberate intimidation, stalking, or following
- Violating the rules and regulations of the conference hotel
- Sustained disruption of scientific sessions or other events
- Unwelcome and uninvited attention or contact
- Physical assault (including unwelcome touching or groping)
- Real or implied threat of physical harm
- Real or implied threat of professional or financial damage or harm
- Harassing or unwanted photography
- Photographing slides of oral presentations and posters without permission
- Recording of scientific and other sessions without permission

Taking action or making a report

- If you feel threatened, witness someone being threatened, or observe behavior that presents an immediate or serious threat to public safety, please contact venue staff/security or call 911 immediately.
- GSA staff is available to assist participants in contacting hotel security or local law enforcement, and otherwise assist those experiencing harassment.
- If you see someone taking photographs or videos of a presentation or poster (where permission has not been granted), you may choose to remind them of the Code of Conduct policy and ask them to stop photographing the presentation or poster.
- You may also report unauthorized photography to GSA Staff.
CONFERENCE POLICIES

• Need to file a complaint? Please contact any member of GSA Staff or email Tracey DePellegrin at tdepellegrin@genetics-gsa.org. All reports will be handled confidentially.

Consequences of non-compliance

Anyone asked by GSA, the venue or security staff, or law enforcement officers to stop unacceptable behavior is expected to comply immediately. Retaliation toward GSA or toward someone reporting an incident or after experiencing any of the following consequences will not be tolerated and may result in additional sanctions.

The consequences of non-compliance with GSA’s Code of Conduct may include:

• Immediate removal from the meeting without warning or refund
• Restrictions from future GSA meeting attendance
• Termination of GSA membership or positions on GSA Boards or Committees
• Incidents may be reported to the proper authorities

General Safety Tips

You should practice common sense safety guidelines when attending any conference:

• Be aware of your surroundings at all times, and don’t get distracted by your phone.
• Use the buddy system when leaving the hotel, especially during early morning and late evening hours.
• Don’t wear your meeting badge outside of the designated meeting space or when you leave the hotel.
• Don’t carry a lot of cash or credit cards. Use the hotel room safe.
• Don’t leave personal property unattended anywhere, at any time.
## Monday, March 11, 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00 p.m. – 7:00 p.m.</td>
<td>Registration</td>
<td>Surf and Sand</td>
</tr>
<tr>
<td>7:00 p.m. – 10:00 p.m.</td>
<td>20th International Aspergillus Meeting</td>
<td>Merrill Hall</td>
</tr>
</tbody>
</table>

## Tuesday, March 12, 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 a.m. – 3:00 p.m.</td>
<td>20th International Aspergillus Meeting</td>
<td>Merrill Hall</td>
</tr>
<tr>
<td>9:00 a.m. – 5:00 p.m.</td>
<td>Fusarium Workshop</td>
<td>Chapel</td>
</tr>
<tr>
<td>9:00 a.m. – 5:00 p.m.</td>
<td>Marine Mycology Meeting</td>
<td>Scripps</td>
</tr>
<tr>
<td>9:00 a.m. – 5:00 p.m.</td>
<td>Magnafest</td>
<td>Kiln</td>
</tr>
<tr>
<td>9:00 a.m. – 5:30 p.m.</td>
<td>Dothideomycetes Genetics Workshop</td>
<td>Nautilus</td>
</tr>
<tr>
<td>9:00 a.m. – 6:00 p.m.</td>
<td>2nd Symposium on the Basal Fungal Kingdom</td>
<td>Fred Farr Forum</td>
</tr>
<tr>
<td>4:00 p.m. – 7:00 p.m.</td>
<td>Speaker Ready Room</td>
<td>Triton</td>
</tr>
<tr>
<td>4:30 p.m. – 9:30 p.m.</td>
<td>Registration</td>
<td>Surf and Sand</td>
</tr>
<tr>
<td>7:30 p.m. – 7:30 p.m.</td>
<td>Metzenberg Award Presentation</td>
<td>Chapel</td>
</tr>
<tr>
<td>7:30 p.m. – 8:00 p.m.</td>
<td>Hannah Read Acoustical Show</td>
<td>Chapel</td>
</tr>
<tr>
<td>7:30 p.m. – 9:00 p.m.</td>
<td>Opening Mixer</td>
<td>Meadow</td>
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## Wednesday, March 13, 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 a.m. – 8:30 a.m.</td>
<td>Breakfast</td>
<td>Crocker Hall</td>
</tr>
<tr>
<td>7:30 a.m. – 5:00 p.m.</td>
<td>Speaker Ready Room</td>
<td>Triton</td>
</tr>
<tr>
<td>9:00 a.m. – 12:00 p.m.</td>
<td>Plenary Session I: Functional genomics illuminates foundational biology and evolution</td>
<td>Merrill Hall and Chapel</td>
</tr>
<tr>
<td>12:00 p.m. – 1:30 p.m.</td>
<td>Fun(gi) for All: Building an Inclusive Fungal Genetics Meeting and Community</td>
<td>Chapel</td>
</tr>
<tr>
<td>3:00 p.m. – 6:00 p.m.</td>
<td>Concurrent Sessions</td>
<td></td>
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<tr>
<td></td>
<td>New technologies to understand and control antifungal resistance</td>
<td>Chapel</td>
</tr>
<tr>
<td></td>
<td>Mobile elements and dynamic genomes</td>
<td>Fred Farr Forum</td>
</tr>
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<td></td>
<td>Machine Learning in Fungal Genetics</td>
<td>Heather</td>
</tr>
<tr>
<td></td>
<td>RNA biology</td>
<td>Kiln</td>
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<td></td>
<td>Polarized growth: 100 years with a Spitzenkoerper</td>
<td>Merrill Hall</td>
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<tr>
<td></td>
<td>Extremophilic and anaerobic fungi</td>
<td>Nautilus</td>
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<td></td>
<td>Fermentation, biorenewables, and the built environment</td>
<td>Scripps</td>
</tr>
<tr>
<td>6:00 p.m. – 7:00 p.m.</td>
<td>Dinner (for those staying at Asilomar or bought a meal plan)</td>
<td>Crocker Hall</td>
</tr>
<tr>
<td>7:00 p.m. – 10:30 p.m.</td>
<td>Poster Session and Exhibits</td>
<td>Fireside Pavilion</td>
</tr>
<tr>
<td>Time</td>
<td>Event</td>
<td>Location</td>
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</tr>
<tr>
<td>7:30 a.m. – 8:30 a.m.</td>
<td>Breakfast</td>
<td>Crocker Hall</td>
</tr>
<tr>
<td>7:30 a.m. – 5:00 p.m.</td>
<td>Speaker Ready Room</td>
<td>Triton</td>
</tr>
<tr>
<td>9:00 a.m. – 12:00 p.m.</td>
<td>Plenary Session II: Multilevel regulatory circuits to understand fungal metabolism</td>
<td>Merrill Hall and Chapel</td>
</tr>
<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td>Lunch (for those staying at Asilomar or bought a meal plan) In addition to Crocker Hall, box lunches are available on the patio.</td>
<td>Crocker Hall</td>
</tr>
<tr>
<td>12:30 p.m. – 1:45 p.m.</td>
<td>Ad Hoc Sessions</td>
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<tr>
<td></td>
<td>Neurospora Business Lunch</td>
<td>Chapel</td>
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<tr>
<td></td>
<td>Oomycete Molecular Genetics Network</td>
<td>Kiln</td>
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<td></td>
<td>FungiDB workshop</td>
<td>Merrill Hall</td>
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<tr>
<td></td>
<td>National Microbiome Data Collaborative (NMDC) tools for fungal multi-omics and environmental microbiome research</td>
<td>Nautilus</td>
</tr>
<tr>
<td></td>
<td>Polyextremotolerant Fungi Group Meeting</td>
<td>Scripps</td>
</tr>
<tr>
<td>3:00 p.m. – 6:00 p.m.</td>
<td>Concurrent Sessions</td>
<td></td>
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<tr>
<td></td>
<td>Cytoskeleton and intracellular transport</td>
<td>Chapel</td>
</tr>
<tr>
<td></td>
<td>Phase separation and sequestration</td>
<td>Fred Farr Forum</td>
</tr>
<tr>
<td></td>
<td>Beyond the Dikarya: Studies of basal fungi reveal new biology</td>
<td>Heather</td>
</tr>
<tr>
<td></td>
<td>Chromatin and chromosome biology</td>
<td>Kiln</td>
</tr>
<tr>
<td></td>
<td>Multi-trophic fungal interactions: integrating chemical, molecular, and metagenomic approaches</td>
<td>Merrill Hall</td>
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<tr>
<td></td>
<td>Biofilms, biocontrol, and disease prevention by genome engineering</td>
<td>Nautilus</td>
</tr>
<tr>
<td></td>
<td>Signaling in the gas phase</td>
<td>Scripps</td>
</tr>
<tr>
<td>6:00 p.m. – 7:00 p.m.</td>
<td>Dinner</td>
<td>Crocker Hall</td>
</tr>
<tr>
<td>7:00 p.m. – 9:00 p.m.</td>
<td>Genetics and Biochemistry of Plant-Fungal Interactions</td>
<td>Kiln</td>
</tr>
<tr>
<td>7:00 p.m. – 10:30 p.m.</td>
<td>Poster Session and Exhibits</td>
<td>Fireside Pavilion</td>
</tr>
</tbody>
</table>

**Friday, March 15, 2024**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 a.m. – 8:30 a.m.</td>
<td>Breakfast</td>
<td>Crocker Hall</td>
</tr>
<tr>
<td>7:30 a.m. – 5:00 p.m.</td>
<td>Speaker Ready Room</td>
<td>Triton</td>
</tr>
<tr>
<td>9:00 a.m. – 12:00 p.m.</td>
<td>Plenary Session III: Underneath, within, and around: pathogens and symbionts</td>
<td>Merrill Hall and Chapel</td>
</tr>
<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td>Lunch (for those staying at Asilomar or bought a meal plan) In addition to Crocker Hall, box lunches are available on the patio.</td>
<td>Crocker Hall</td>
</tr>
<tr>
<td>12:30 p.m. – 1:45 p.m.</td>
<td>Ad Hoc Sessions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nematophagous Fungi: Biocontrols agents or cell factories?</td>
<td>Chapel</td>
</tr>
<tr>
<td></td>
<td>JGI-EMSL workshop on genomics and multi-omics</td>
<td>Merrill Hall</td>
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</tbody>
</table>
## Friday, March 15, 2024 (continued)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>3:00 p.m. – 6:00 p.m.</td>
<td>Concurrent Sessions</td>
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<td></td>
<td>Morphogenesis at multiple scales</td>
<td>Chapel</td>
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<tr>
<td></td>
<td>Fungi in microbial ecosystems</td>
<td>Fred Farr Forum</td>
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<td></td>
<td>Connections between light, clocks, and stress</td>
<td>Heather</td>
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<td></td>
<td>Experimental evolution with fungi</td>
<td>Kiln</td>
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<td>Understanding fungal pathogenesis by genomics</td>
<td>Merrill Hall</td>
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<td></td>
<td>Fungi at the cutting edge - microfluidics and other new tools</td>
<td>Nautilus</td>
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<td>Fungi for sustainable food production</td>
<td>Scripps</td>
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<tr>
<td>6:00 p.m. – 7:00 p.m.</td>
<td>Dinner (for those staying at Asilomar or bought a meal plan)</td>
<td>Crocker Hall</td>
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<tr>
<td>7:00 p.m. – 10:30 p.m.</td>
<td>Poster Session and Exhibits</td>
<td>Fireside Pavilion</td>
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## Saturday, March 16, 2024

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:30 a.m. – 8:30 a.m.</td>
<td>Breakfast</td>
<td>Crocker Hall</td>
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<tr>
<td>7:30 a.m. – 5:00 p.m.</td>
<td>Speaker Ready Room</td>
<td>Triton</td>
</tr>
<tr>
<td>9:00 a.m. – 12:00 p.m.</td>
<td>Plenary Session IV: Interactions of fungi with the biosphere</td>
<td>Merrill Hall and Chapel</td>
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<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td>Lunch (for those staying at Asilomar or bought a meal plan)</td>
<td>Crocker Hall</td>
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<tr>
<td>12:30 p.m. – 2:00 p.m.</td>
<td>Fungal Policy Committee Meeting (invitation only)</td>
<td>Surf and Sand</td>
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<tr>
<td>2:00 p.m. – 5:00 p.m.</td>
<td>Concurrent Sessions</td>
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<td></td>
<td>Genetic control of primary and secondary metabolism</td>
<td>Chapel</td>
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<td></td>
<td>Horizontal gene transfer, meiotic drive, and related phenomena</td>
<td>Fred Farr Forum</td>
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<td></td>
<td>Diversity and biotechnology of marine and estuarine fungi</td>
<td>Heather</td>
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<td>Multicellular development</td>
<td>Kiln</td>
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<td>Mechanisms of resistance to antifungals</td>
<td>Merrill Hall</td>
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<td>Evolving metabolomes by divergent genome architectures</td>
<td>Nautilus</td>
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<td>Mycoviruses</td>
<td>Scripps</td>
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<tr>
<td>5:30 p.m. – 5:45 p.m.</td>
<td>Fungal Meeting and GSA Poster Award Presentations</td>
<td>Merrill Hall and Chapel</td>
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<tr>
<td>5:45 p.m. – 6:30 p.m.</td>
<td>Perkins/Metzenberg Lecture</td>
<td>Merrill Hall and Chapel</td>
</tr>
<tr>
<td>6:30 p.m. – 7:30 p.m.</td>
<td>Dinner (for those staying at Asilomar or bought a meal plan)</td>
<td>Crocker Hall</td>
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<tr>
<td>8:30 p.m. – 11:00 p.m.</td>
<td>Closing Party</td>
<td>Merrill Hall</td>
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## Sunday, March 17, 2024

<table>
<thead>
<tr>
<th>Time</th>
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<th>Location</th>
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<tbody>
<tr>
<td>7:30 a.m. – 8:30 a.m.</td>
<td>Breakfast</td>
<td>Crocker Hall</td>
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</tbody>
</table>
Wednesday, March 13, 2024
8:45 a.m.–12:00 p.m.
Merrill Hall and Chapel

Plenary Session I: Functional genomics illuminates foundational biology and evolution

Session Chairs: Megan McDonald University of Birmingham, United Kingdom; and Paulo Canessa UNAB, Chile

8:45 a.m. Welcome from Fungal Genetics Policy Committee Chair Deb Bell-Pedersen Texas A&M University
8:48 Welcome from GSA

8:51 Organizer Welcome Michael Freitag, University of Oregon and Natalia Requena, Karlsruhe Institute of Technology

1 9:00 Genome evolution in filamentous plant pathogens Thorsten Langner Max-Planck-Institute for Biology

2 9:30 Securing crops against rust pathogens: Robigus in the modern times Melania Figueroa CSIRO

3 10:00 Chromosomal engineering in the plant pathogenic fungus Verticillium dahliae Yukiyo Sato Institute for Plant Sciences, University of Cologne, Germany

10:30 Break

4 11:00 Understanding the function of DNA adenine methylation in early–diverging fungi Victoriano Garre Universidad de Murcia

5 11:30 Single–cell detection of copy number changes reveals dynamic mechanisms of adaptation to antifungals in vitro and in vivo Anna Selmecki University of Minnesota

Wednesday, March 13, 2024
12:30 p.m.–1:30 p.m.
Chapel

Fun(gi) for All: Building an Inclusive Fungal Genetics Meeting and Community

Session Chair: Jessie MacAlpine, NIH/NIAID

Join us for a session to discuss Equity, Diversity and Inclusion topics relative to the Fungal Genetics Conference and community. Help us to identify and prepare action items to work towards a more inclusive future.

Elizabeth Ballou will give a talk on mentorship structure followed by group discussions including these topics:

Creating an Inclusive Environment
Women and Gender Minorities in STEM
Underrepresented Minorities in STEM
Accessibility at the Fungal Genetics Conference
Wednesday, March 13, 2024
3:00 p.m.–6:00 p.m.
Nautilus

**Extremophilic and anaerobic fungi**

*Session Chairs:* Michelle O’Malley University of CA Santa Barbara, United States; and Cene Gostincar University of Ljubljana, Biotechnical Faculty, Slovenia

6 3:00 Separation of life stages within anaerobic fungi highlights differences in global transcription and metabolism [Lazarina Butkovich](#) University of California, Santa Barbara

7 3:20 The Dark Side of Anaerobic Digestion: Carbohydrate–Active Enzymes from Uncultured Rumen Fungi [Katharine Dickson](#) University of California, Davis

8 3:40 Potential of anaerobic fungi to degrade natural and synthetic biopolymers [Magdalena Calusinska](#) University of California Santa Barbara

9 4:00 Unleashing the hidden potential of anaerobic fungi: insights and innovations [Sabine Podmirseg](#) Universität Innsbruck, Institute of Microbiology

10 4:20 Break

11 5:00 Structural Adaptation of Fungal Cell Wall in Hypersaline Environment [Ramon Alberto Batista Garcia](#) Universidad Autonoma del Estado de Morelos

12 5:20 How does light affect rock–inhabiting fungi? [Julia Schumacher](#) Bundesanstalt für Materialforschung und –prüfung (BAM)

13 5:40 Long–read sequencing reveals cryptic genome biology of insect gut–associated fungus – *Zancudomyces culisetae* (Harpellales, Zoopagomycota) [Yan Wang](#) University of Toronto

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Wednesday, March 13, 2024
3:00 p.m.–6:00 p.m.
Scripps

**Fermentation, biorenewables, and the built environment**

*Session Chairs:* Roberto Silva University of Sao Paulo, Brazil; and Han Wosten Utrecht University, Netherlands

14 3:00 Functional characterization of sugar transporters in *Saccharomyces cerevisiae* for the improvement of second generation (2G) ethanol production [Roberto Silva](#) University of Sao Paulo

15 3:20 Genetic engineering, pilot plant bioprocess development and sustainability assessment of a Trichoderma platform for cellulase production [Mario Murakami](#) Brazilian Center for Research in Energy and Materials (CNPEM)

16 3:40 A Biofoundry for Synthetic Biology and Genetic Tool Development of Anaerobic Gut Fungi [Elaine Kirschke](#) University of California Santa Barbara

17 4:00 Exploring the role of alpha–1,3–glucan synthases on fungal cell wall integrity in Aspergillus niger [Katharina Ost](#) Osnabrück University of Applied Sciences

18 4:20 Break

19 4:40 Understanding the dynamics of carbon catabolite repression in filamentous fungi [J. Philipp Benz](#) Technical University of Munich

20 5:00 Understanding the inner workings of the basidiomycete Fomes fomentarius for materials applications [Carsten Pohl](#) Technische Universität Berlin

21 5:20 Characterizing the effects of simulated space environmental conditions on the biological and mechanical properties of fungal composite biomaterials [Rolando Perez](#) Blue Marble Space Institute of Science

22 5:40 Biomineralization–Enabled Self–Growing Building Blocks for Habitat Outfitting on Mars [Nisha Rokaya](#) University of Nebraska–Lincoln
Wednesday, March 13, 2024  
3:00 p.m.–6:00 p.m.

Heather  
**Machine Learning in Fungal Genetics**  
*Session Chairs:* Abbe LaBella University of NC Charlotte; and Benjamin Schwessinger ANU, Australia

22 3:00 Structural genomics insights onto the evolution of generalist parasitism in Ascomycetes *Sylvain Raffaele* INRAE

23 3:20 Machine learning–enabled prediction of genes associated with drug resistance and thermotolerance in Saccharomycotina yeasts *Marie–Claire Harrison* Vanderbilt University

24 3:40 Applied machine learning models for elucidating complex relationships between epigenomic regulatory design rules and gene expression between fungal species across phylogenetic distances. *Laura Weinstock* Sandia National Laboratories

25 4:00 Global analysis of circuitry governing *Candida albicans* morphogenesis within host immune cells and identification of inhibitors of morphogenesis *Nicola Case* University of Toronto

26 4:20 Break

26 4:40 A deep learning strategy for biosynthetic gene cluster prediction in fungal genomes *Stephen Harding* U.S. Department of Agriculture

27 5:00 EffectorGeneP: accurate effector gene annotation in pathogen genomes from infection transcriptomes *Jana Sperschneider* CSIRO

28 5:20 Modernizing high–throughput mycology with robotics and artificial intelligence *Johan Christiansen* Technical University of Denmark

29 5:40 MycoAI: Artificial Intelligence for fungal identification *Duong Vu* Westerdijk Fungal Biodiversity Institute

30 3:00 Transposon mobility in serial isolates of *Cryptococcus* from patients with recurrent cryptococcal meningitis *Asiya Gusa* Duke University

31 3:20 Transposable elements as hidden players in fungal evolution *Ursula Oggenfuss* University of Minnesota

32 3:40 Chromosome–level genome assemblies from *Fusarium graminearum* populations highlight the distribution of structural variants *Christopher Toomajian* Kansas State Univ

33 4:00 Evolutionary playgrounds and how to find them *Alexandra Dallaire* Royal Botanic Gardens Kew

34 4:20 Break

34 4:40 Entanglement of transposable elements and virulence in rapid crop pathogen adaptation *Daniel Croll* University of Neuchatel

35 5:00 Horizontal transfers between fungal *Fusarium* species contributed to successive outbreaks of coffee wilt disease *Lily Peck* University of California Los Angeles

36 5:20 Sanctuary I: A Starship transposon mediating the horizontal transfer of the necrotrophic effector ToxA *Megan McDonald* University of Birmingham

37 5:40 Gene acquisition by giant transposons primes fungi for rapid evolution via horizontal gene transfer *Andrew Urquhart* Uppsala University

Wednesday, March 13, 2024  
3:00 p.m.–6:00 p.m.

Fred Farr Forum  
**Mobile elements and dynamic genomes**  
*Session Chairs:* Aaron Vogan Uppsala University, Sweden; and Emile Gluck–Thaler University of Wisconsin–Madison, United States

30 3:00 Transposon mobility in serial isolates of *Cryptococcus* from patients with recurrent cryptococcal meningitis *Asiya Gusa* Duke University

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32 3:40 Chromosome–level genome assemblies from *Fusarium graminearum* populations highlight the distribution of structural variants *Christopher Toomajian* Kansas State Univ
Wednesday, March 13, 2024
3:00 p.m.–6:00 p.m.
Chapel
New technologies to understand and control antifungal resistance

Session Chairs: Sabine Fillinger INRAE, BIOGER, Paris, France; and Christian Landry Université Laval, Quebec City, Canada

38 3:00 Small molecules restoreazole activity against drug–tolerant and drug–resistant Candida isolates Iuliana Ene Institut Pasteur
39 3:20 Most azole antifungal resistance mutations in the drug target provide cross–resistance and carry no fitness cost Camille Bédard Université Laval
40 3:40 Dynamics of copy–number variation in response to fluconazole are dependent on drug concentration and temperature Saaz Sakrikar New York University
41 4:00 Exposure to agricultural DHODH inhibitors result in cross–resistance to the novel antifungal olorofim in A. fumigatus Norman van Rhijn University of Manchester
42 4:20 Break
43 4:40 Induction of Aspergillus fumigatus zinc cluster transcription factor Odra/Mdu2 provides combined cellular responses for oxidative stress protection and multiple antifungal drug resistance Christoph Sasse University of Göttingen
44 5:00 Fungicides alternation and mixture lead to in vitro selection of generalist resistance mechanisms (MDR) in Zymoseptoria tritici Elza Neau Université Paris Saclay
45 5:20 Constraint on boric acid resistance and tolerance evolvability in Candida albicans Aleeza Gerstein University of Manitoba
46 5:40 Identification of protein kinases that govern the susceptibility of C. albicans to antifungal drugs Damian Krysan University of Iowa

Wednesday, March 13, 2024
3:00 p.m.–6:00 p.m.
Merrill Hall
Polarized growth: 100 years with a Spitzenkoerper

Session Chairs: Meritxell Riquelme CICESE, Mexico; and Juergen Wendland Hochschule Geisenheim University, Germany

46 3:00 The Spitzenkorper: engine and guide of hyphal growth Salomon Bartnicki–Garcia CICESE
47 3:20 Hyphal characteristics among the fungi Robby Roberson Arizona State University
48 3:40 The striatin–interacting protein phosphatase and kinase complex (STRIPAK complex) in Ustilago maydis Joerg Kaemper Karlsruhe Institute of Technology
49 4:00 Is there localized mRNA translation at the hyphal tip? Domenico Modaffari University of Edinburgh
4:20 Break
50 4:40 Probing the Candida albicans Spitzenkörper Martine Bassilana University Cote d’Azur/CNRS/INSERM
51 5:00 Lipid rafts in Schizophyllum commune – insights in localization and composition Berit Porsche Friedrich Schiller University
52 5:20 Investigation of Differing Roles of Ammonium Transporters in the Nematode–trapping Fungus Arthrobotrys oligospora Sheng–Chian Juan Institute of Molecular Biology, Academia Sinica
53 5:40 Re–routing of MAP kinase signaling for penetration peg formation in predator yeast Juergen Wendland Hochschule Geisenheim University
Wednesday, March 13, 2024
3:00 p.m.–6:00 p.m.
Kiln
**RNA biology**
*Session Chairs:* Anita Sil University of CA San Francisco, USA; and Qiang Cai Wuhan University, China

54 3:00 In–host profiling of transcription factor activity yields insights into fungal colonization of the gut **Suzanne Noble** UCSF School of Medicine

55 3:20 On the mechanism of RNAi-mediated silencing of repetitive DNA in *Cryptococcus neoformans* **Sheng Sun** Duke University Medical Center

56 3:40 The role of extracellular vesicles in cross–kingdom RNA trafficking **Baoye He** University of California, Riverside

57 4:00 *Trichoderma atroviride* small RNA1 targets the Arabidopsis *PRIM2* gene to establish a mutulaistic relationship **Sergio Casas–Flores** Institute for Scientific and Technological Research of San Luis Potosí

58 4:20 Break

59 4:40 Investigating the role of chromatin dynamics in *Histoplasma* morphogenesis **Nebat Ali** UCSF

60 5:00 *Cryptococcus neoformans* Adaptation to the Host is Regulated by the RAM Pathway **Emma Blackburn** University of Georgia

61 5:20 Continual propagation of [D1,2] stwintrons in divergent *Xylariales* **Erzsébet Fekete** University of Debrecen

62 5:40 tRNA Modification and The Rice Blast Fungus **Rongrong He** Huazhong Agricultural University

Thursday, March 14, 2024
9:00 a.m.–12:00 p.m.
Merrill Hall and Chapel

**Plenary Session II: Multilevel regulatory circuits to understand fungal metabolism**
*Session Chairs:* Lori Huberman Cornell University, United States; and Joerg Kaemper Karlsruhe Institute of Technology, Germany

62 9:00 From ascomycete reference strain to quirky anaerobe; how fungi degrade plant biomass **Jolanda van Munster** SRUC

63 9:30 Codon usage variation, selection, and evolution in a fungal subphylum **Abigail LaBella** University of North Carolina at Charlotte

64 10:00 Epigenetic control of *Neurospora* development **Zachary Lewis** University of Georgia

65 11:00 Echinocandin heteroresistance causes prophylaxis failure and facilitates breakthrough *Candida parapsilosis* infection **Bing Zhai** Shenzhen Institute of Advanced Technology

66 11:30 Insights into metabolism from transcriptional regulators **Chris Koon Ho Wong** University of Macau
Thursday, March 14, 2024
Ad hoc Lunch Sessions

12:30 p.m.—1:45 p.m.
Merrill Hall
**FungiDB workshop**

12:30 p.m.—1:45 p.m.
Nautilus
**National Microbiome Data Collaborative (NMDC) tools for fungal multi–omics and environmental microbiome research**

12:30 p.m.—1:45 p.m.
Chapel
**Neurospora Business Meeting**

12:30 p.m.—1:45 p.m.
Kiln
**Oomycete Molecular Genetics Network**

12:30 p.m.—1:45 p.m.
Scripps
**Polyextremotolerant Fungi Group Meeting**

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Thursday, March 14, 2024

3:00 p.m.—6:00 p.m.
Heather
**Beyond the Dikarya: Studies of basal fungi reveal new biology**

*Session Chairs:* Kerstin Voigt Leibniz Institute for Natural Product Research and Infection Biology - Hans Knöll Institute, Germany; and Lillian Fritz–Laylin University of Massachusetts, United States

67 3:00 The role of cell wall remodeling in innate immunity of early divergent Mucoromycotina fungi [Hana Barrett](#) Cornell University

68 3:20 Unraveling the 6mA–regulated transcriptional regulatory networks in the early diverging fungus *R. microsporus* [Carlos Lax](#) Departamento de Genética y Microbiología, Facultad de Biología, Universidad de Murcia

69 3:40 Spores of arbuscular mycorrhizal fungi host surprisingly diverse communities of endobacteria [Olga Lastovetsky](#) University College Dublin

70 4:00 Anaerobic fungi are an untapped reservoir of biosynthetic potential [Michelle O’Malley](#) UCSB

4:20 Break

71 4:40 Fucose – an overlooked sugar in fungal metabolism [Anna Muszewska](#) Institute of Biochemistry and Biophysics, PAS

72 5:00 A novel link between calcineurin, amino acid permease, and protein kinase A in virulence in pathogenic fungi [Soo Chan Lee](#) University of Texas

73 5:20 Dispersal and biotic filtering structure Mucoromycota fungal communities and their associated bacteria across two different biomes [Nicole Reynolds](#) Cornell University

74 5:40 Lichtheimia corymbifera as model system for mucormycosis [Kerstin Voigt](#) University of Jena

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Thursday, March 14, 2024
3:00 p.m.–6:00 p.m.
Nautilus

Biofilms, biocontrol, and disease prevention by genome engineering

Session Chairs: Joanna Tannous Oak Ridge National Laboratory, United States; and Frederico Lopez Universidad de Alicante, Spain

75 3:00 Role of potassium transport for Candida auris biofilm formation and skin colonization Jeniel Nett University of Wisconsin–Madison
76 3:20 Genome of endophytic Fusarium oxysporum from the strawberry root microbiome lacks common virulence factors Nicholas LeBlanc USDA–ARS
77 3:40 Study of the interaction of the pathogen Zymoseptoria tritici with wheat endophytic fungi Andrea Sánchez–Vallet Universidad Politécnica de Madrid
78 4:00 Pochonia chlamydosporia chitosan metabolism: A way to modulate its pathogenicity during plant parasitic nematodes–plant interaction Federico Lopez–Moya University of Alicante
4:20 Break
79 4:40 Atpenin A5 – Elucidating the function of a succinate dehydrogenase inhibitor produced by the poplar pathogen Sphaerulina musiva Cole Sawyer University of Tennessee Knoxville
80 5:00 Surprising strain–specific molecular determinants of Aspergillus fumigatus pathogenicity revealed by new cancer small molecule therapies Katherine Doss Dartmouth College
81 5:20 Genome engineering of filamentous fungi for the production of bioactive compounds Arnold Driessen University of Groningen
82 5:40 Investigating interactions between Zymoseptoria tritici and Pseudomonas bacteria through multi–omic approaches George Lund Rothamsted Research

Thursday, March 14, 2024
3:00 p.m.–6:00 p.m.
Kiln

Chromatin and chromosome biology

Session Chairs: Mareike Moeller Australian National University, Australia; and Slavica Janevska Leibniz–HKI, Germany

83 3:00 Understanding the mechanisms that regulate H3K27me3 in the model fungi Neurospora crassa Felicia Ebot Ojong The University of Georgia
84 3:20 Impacts of the Epigenome Beyond Transcriptional Regulation David Cook Kansas State University
85 3:40 Histone binding of ASF1 is required for fruiting body development, but not for genome stability in the filamentous ascomycete Sordaria macrospora Minou Nowrousian Ruhr–University Bochum
86 4:00 Argonaute proteins are important for RIPping in Fusarium graminearum Zeyi Wang Purdue University
4:20 Break
87 4:40 Exploring the role of Spoks (Spore Killers) in chromosome dynamics of Fusarium oxysporum Manuel Sánchez López–Berges Universidad de Córdoba
88 5:00 Recent co–evolution of two pandemic plant diseases in a multi–hybrid swarm Mostafa Rahnama Tennessee Tech University
89 5:20 Arbuscular mycorrhizal fungi heterokaryons have two nuclear populations with distinct roles in host–plant interactions Gokalp Yildirir University of Ottawa
90 5:40 Assessing the plasticity of the Neurospora crassa genome organization Andrew Klocko University of Colorado, Colorado Springs
Thursday, March 14, 2024
3:00 p.m.–6:00 p.m.
Chapel

**Cytoskeleton and intracellular transport**

*Session Chairs:* Xin Xiang USUHS, United States; and Rosa Perez CICESE, Mexico

91 3:00 Molecular mechanisms of peroxisome movement **John Salogiannis** University of Vermont Larner College of Medicine

92 3:20 Microtubule–dependent endosomal mRNA transport **Michael Feldbrugge** Heinrich–Heine University

93 3:40 The role of the GTPase Cdc42 in *Cryptococcus neoformans* stress response **Hannah Akahoho** Clemson University

94 4:00 Allocation of nuclei and growth potential among buds of the multi–budding yeast, **Aureobasidium pullulans** **Alison Wirshing** MIT

4:20 Break

95 4:40 Super–resolution microscopy of the temporal dynamics of septin ring formation during appressorium development by the rice blast fungus **Marisela Garduño–Rosales** The Sainsbury Laboratory

96 5:00 Cooperation between actomyosin– and microtubule–dependent transport in *Aspergillus nidulans* **Miguel Penalva** CSIC Centro de Investigaciones Biológicas

97 5:20 The role of peroxisome hitchhiking in secondary metabolism in *Aspergillus nidulans* **Livia Songster** UC San Diego

98 5:40 Septins Regulate Exocytosis through Physical Interactions with the Exocyst Complex during Fission Yeast Cytokinesis **Jian–Qiu Wu** The Ohio State University

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**Multi–trophic fungal interactions: integrating chemical, molecular, and metagenomic approaches**

*Session Chairs:* Jeffrey Rollins University of Florida, United States; and Kai Heimel Georg–August–University, Germany

99 3:00 Insights into the mating compatibility and sexual communication of *Linnemannia elongata* (Mortierellomycotina) isolates using a novel microfluidic device **Kyle Mondron** Oregon State University

100 3:20 Interactions between Polyextremotolerant Fungi and Photoautotrophs are Enhanced by Excreted Melanin **Erin Carr** University of Nebraska–Lincoln

101 3:40 A predatory fungus detects prey pheromones via G–protein–coupled receptors **Chih–Yen Kuo** Institute of Molecular Biology, Academia Sinica

102 4:00 An ER stress regulated signaling network orchestrates fungal–plant communication on multiple levels **Kai Heimel** Georg–August–University Goettingen

4:20 Break

103 4:40 One signal, two kingdoms: Decoding interkingdom plant signals in fungi **Shelley Lumba** University of Toronto

104 5:00 Mechanism of niche adaptation and defence: beneficial endophytes deploy host–protective antimicrobial effectors **Laura Armbruster** University of Cologne

105 5:20 Understanding the interconnected microbial life in rhizosphere and its role in shaping vascular wilt disease by *Fusarium oxysporum* **Amey Redkar** National Centre for Biological Sciences (NCBS)

106 5:40 Do fungal terpenoids volatiles structure the mycosphere? **Erika Kothe** Friedrich Schiller University

#Fungal24|20
Thursday, March 14, 2024
3:00 p.m.–6:00 p.m.
Fred Farr Forum

**Phase separation and sequestration**

*Session Chairs: Amy Gladfelter Duke University, United States; and Yansong Miao Nanyang Technological University, Singapore*

107 3:00 Biomolecular condensates in fungi are tuned to function at specific temperatures  *Amy Gladfelter* Duke University

108 3:20 Dynamic Actin Remodeling via Molecular Condensation in Fungal Signaling  *Yansong Miao* Nanyang Technological University

109 3:40 The effects of phase separation on chromatin modifications, transcriptional regulation and virulence in the human fungal pathogen *Candida albicans*  *Qing Lan* University of Macau

110 4:00 Alternative splicing regulation in plants by effectors of symbiotic arbuscular mycorrhizal fungi  *Ruben Betz* Karlsruhe Institute of Technology KIT, Joseph Gottlieb Kölreuter Institute for Plant Sciences JKIP

4:20 Break

111 4:40 *Cryptococcus* employs alternative translation of a novel regulator *REF1* to produce isoforms with differential capacities for phase separation to control morphogenesis  *Nathan Glueck* University of Georgia

112 5:00 Exploring RNA thermosensors that drive development and virulence in thermally dimorphic fungal pathogens  *Murat Can Kalem* University of California San Francisco

113 5:20 Investigating spatial protein quality control in filamentous fungi  *Martin Egan* University of Arkansas

114 5:40 How fuzzy molecular interactions can keep strict organismal time.  *Jennifer Hurley* Rensselaer Polytechnic Institute

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Thursday, March 14, 2024
3:00 p.m.–6:00 p.m.
Scripps

**Signaling in the gas phase**

*Session Chairs: Joan Bennett Rutgers University, United States; and David Ezra ARO, Volcani Institute, Israel*

115 3:00 Aflatoxin production regulation: a role for volatile and non–volatile chemicals in biocontrol interactions between *Aspergillus flavus* strains  *Rebecca Sweany* U.S. Department of Agriculture

116 3:20 Survey of lipooxygenase genes in phytopathogenic fungi  *Kayla Pennerman* ORISE

117 3:40 Exploring effect of Ethyl 3–methylbutanoate on fumonisin production and FUM gene expression in *Fusarium verticillioides*  *Antonia Susca* National Research Council of Italy

118 4:00 "*Daldinia cf. concentrica*, its VOCs and their impact on plant pests"  *David Ezra* ARO, The Volcani Institute

4:20 Break

119 4:40 Yeast volatile organic compounds: antifungal and nutraceutical effects on cultivated mushroom species  *Alessandra Di Francesco* University of Udine

120 5:00 VOC profiles from a chestnut blight fungus *Cryphonectria parasitica* in response to hypovirus CHV1  *Yo–Han Ko* Jeonbuk National University

121 5:20 Following Fungal Farts: Using random barcoded transposon–site sequencing (RB–TnSeq) bacterial libraries to explore the effects of volatiles from the filamentous fungus Trichoderma atroviride  *Catharine Adams* UC Berkeley

122 5:40 Spatial variability in bacterial and fungal communities of apples (*Malus domestica*): unexpected patterns of nestedness and co–occurrence from individual fruits to the orchard scale  *Justin Shaffer* California State University, Fresno

#Fungal24|21
**Friday, March 15, 2024**

9:00 a.m.–12:00 p.m.
Merrill Hall and Chapel

**Plenary Session III: Underneath, within, and around: pathogens and symbionts**

*Session Chairs:* Rebecca Shapiro University of Guelph; and Sung–Hwan Yun Soonchunhyang Univ, Republic of Korea

123  9:00 The ins and outs of *Magnaporthe oryzae* effectors **Barbara Valent** Kansas State Univ

124  9:30 A fungal abscisic acid–like and botrydial metabolic gene cluster critical for mutualist–pathogen transition in root fungal endophyte *Colletotrichum tofieldiae* **Kei Hiruma** The University of Tokyo

125  10:00 Fungal signaling and plant responses driving fungal accommodation in arbuscular mycorrhizas: from research to application **Andrea Genre** University of Torino

10:30 Break

126  11:00 Biological roles of a tripeptide exported in cryptococcal extracellular vesicles **Marcio Rodrigues** Oswaldo Cruz Foundation (Fiocruz)

127  11:30 Evolution in overdrive: fungal secreted proteins and innate immune genes **Ksenia Krasileva** University of California, Berkeley

**Friday, March 15, 2024**

12:30 p.m.–1:45 p.m.
Merrill Hall

**JGI–EMSL workshop on genomics and multi–omics**

12:30 p.m.–1:45 p.m.
Chapel

**Nematophagous Fungi: Biocontrols agents or cell factories?**

Friday, March 15, 2024
3:00 p.m.–6:00 p.m.
Heather
Connections between light, clocks, and stress
Session Chairs: Jennifer Hurley Rensselaer Polytechnic Institute, United States; and Monika Schmoll University of Vienna, Austria

128 3:00 Integrated Insights into the Light–Sensing Mechanisms and Transcriptional Responses of *Botrytis cinerea* Paulo Canessa Universidad Andres Bello
129 3:20 Genome–wide regulation of mRNA polyadenylation across nutrient environments and over circadian time Christina Kelliher University of Massachusetts Boston
130 3:40 Rhythmic interaction between ZUOTIN and ribosomes may promote daily rhythms in protein folding and activity Madhusree Gangopadhyay Texas A&M University
131 4:00 On the evolution of clock mechanisms in fungal systems: a case of moonlighting functions of core–clock components? Luis Larrondo Pontificia Universidad Catolica de Chile
4:20 Break
132 4:40 Phytochromes in *Aspergillus fumigatus*: Light, stress and virulence Reinhard Fischer Karlsruhe Institute of Technology (KIT)
133 5:00 Phosphorylation of SP sites in WCC determines the phase of the circadian clock of *Neurospora* Michael Brunner Univ Heidelberg
134 5:20 A Case for the Kinases: A Role for CKI in Temperature Compensation of the *Neurospora crassa* Circadian Clock Elizabeth–Lauren Stevenson Dartmouth College
135 5:40 Light sensing in mushroom–forming fungi: The White Collar regulatory network of *Schizophyllum commune* Peter Jan Vonk Utrecht University

Friday, March 15, 2024
3:00 p.m.–6:00 p.m.
Kiln
Experimental evolution with fungi
Session Chairs: Shay Covo Hebrew University, Israel; and Robert Cramer Geisel School of Medicine at Dartmouth, United States

136 3:00 Training a pathogen: uncovering the evolutionary mechanisms of host adaptation in *Cryptococcus neoformans* Zoe Hilbert Boston College
137 3:20 Loss of RNA interference in *Cryptococcus neoformans* clinical and environmental isolates: a pathway to hypermutation Jun Huang Duke University
138 3:40 Avc1 regulates adaptation to high CO2 levels in the human fungal pathogen *Cryptococcus neoformans* Benjamin Chadwick University of Georgia
139 4:00 Rapid gain and loss of an aneuploid chromosome drives key morphology states and virulence in a fungal pathogen of humans Sarah Heater UCSF
4:20 Break
140 4:40 Experimental Evolution of *Benniella erionia* and Mollicutes–Related Endobacteria Reid Longley Los Alamos National Laboratory
141 5:00 Long–Term Evolution of the Extremely Halotolerant Black Yeast *Hortaea werneckii*: Unraveling Morphological and Genomic Adaptations to High Salinity Nina Gunde–Cimerman Biotechnical faculty, University of Ljubljana
142 5:20 Transposons drive environmental adaptation in a clonally evolving fungal pathogen Antonio Di Pietro Universidad de Cordoba
143 5:40 The effect of facultative heterochromatin on DNA replication fidelity: Do chromatin domains determine evolution rates in fungal chromosomes? Shay Covo Hebrew University
Friday, March 15, 2024
3:00 p.m.–6:00 p.m.
Nautilus

Fungi at the cutting edge – microfluidics and other new tools
Session Chairs: Erin Bredeweg Pacific Northwest National Laboratory, United States; and Norio Takeshita University of Tsukuba, Japan

144 3:00 A look into the Pyrenophora teres f. teres colonization strategies on barley using a transformation–free staining and confocal microscope analysis Ashley Nelson North Dakota State University
145 3:20 Integrating microfluidics and biomolecular mapping to advance microbial research Jayde Aufrechte Pacific Northwest National Laboratory
146 3:40 Novel microscopy tools reveal dynamic sub–cellular distributions of core clock components in Neurospora crassa Ziyan Wang Geisel School of Medicine at Dartmouth
147 4:00 Microfluidic Approaches In Fungal Research Alexandra Brand University of Exeter
4:20 Break
148 4:40 Expanding the fluorescent toolbox in Aspergillus fumigatus Isabelle Storer University of Manchester
149 5:00 FACS–based method streamlines pooled transformations in Aspergillus oryzae Sarah McFarland Novozymes Inc
150 5:20 Invasiveness and chemotropism of hyphae analyzed by microfluidic devices Norio Takeshita University of Tsukuba
151 5:40 Fungi Unleashed – Rapid Ionomics Profiling with Laser–Induced Breakdown Spectroscopy Tomas Rush Oak Ridge National Laboratory

Friday, March 15, 2024
3:00 p.m. – 6:00 p.m.
Scripps

Fungi for sustainable food production
Session Chairs: Maiko Umemura National Institute of Advanced Industrial Science and Technology (AIST), Japan; and Amit Vas Nature's Fynd

152 3:00 Designing fungal foods for planetary and human health: from traditional fermentation to synthetic biology Vayu Hill–Maini University of California, Berkeley
153 3:20 From Fungi To High–Tech Cheese: How To Use Precision Fermentation To Rescue Our Food System Beatrice Bernardi Formo Bio GmbH
154 3:40 Truffles population genomic and associated fungal and bacterial communities – who shapes the true truffles aroma? Tine Grebenc Slovenian Forestry Institute
155 4:00 Koji mold, a traditional Japanese fermentative microorganism, opens up mycoprotein potential Daisuke Hagiwara University of Tsukuba
4:20 Break
156 4:40 From Texture to Taste: Linking fungal genotype to material structure and function Josephine Wee The Pennsylvania State University
157 5:00 Regulation of sugar metabolism under abiotic stress in various yeasts and filamentous fungi Elisabeth Tamayo Technical University of Munich
158 5:20 Characterization of acid phosphatases in Aspergillus oryzae strain with reduced “umami” degradation activity Kanae Sakai Osaka University
159 5:40 Making fungal biology easier to engineer for sustainable food production Peter Punt Ginkgo Bioworks
Friday, March 15, 2024
3:00 p.m.—6:00 p.m.
Fred Farr Forum

**Fungi in microbial ecosystems**

*Session Chairs:* Bart Thomma University of Cologne, Germany; and Jesse Uehling Oregon State University, United States

160 3:00 Fungi with diverse lifestyles employ antimicrobial proteins to mediate niche establishment *Anton Kraege* University of Cologne


162 3:40 Comparative genomics of *Basidiobolus* isolated from the herptile gut microbiome *Lluvia Vargas* Oregon State University

163 4:00 Distribution of endobacteria associated with Mortierellomycotina and Mucoromycotina fungi across coastal and desert eco-regions of South Africa *Mmanoko Napo* North West University

4:20 Break

164 4:40 The molecular mechanisms of toxocyst development in oyster mushroom *Yi–Yun Lee* Institute of Molecular Biology, Academia Sinica

165 5:00 The nematode–trapping fungus *Arthrobotrys flagrans* small–secreted protein NipA interferes with cuticle integrity in *Caenorhabditis elegans* *Jennifer Emser* Karlsruhe Institute of Technology

166 5:20 Inducing Novel Endosymbioses by Bacterial Implantation into Fungi *Thomas Gassler* Institute of Microbiology, ETH Zurich

167 5:40 Do Fungi have an Immune System? The Neurospora crassa and Pseudomonas syringae pathosystem reveals an initial cellular reaction to bacterial proximity *Frances Stark* University of California, Berkeley

Friday, March 15, 2024
3:00 p.m.—6:00 p.m.

Chapel

**Morphogenesis at multiple scales**

*Session Chairs:* Nancy Keller University of Wisconsin, Madison; and Robert Arkowitz CNRS/INSERM/University Cote d’Azur, France

168 3:00 Spatiotemporal regulation of peroxisome and endoplasmic reticulum dynamics during *Podospora anserina* sexual development *Leonardo Peraza–Reyes* National Autonomous University of Mexico (UNAM)

169 3:20 Molecular determinants of *Cryptococcus neoformans* pleiotropic morphologies in response to host–relevant conditions *Elizabeth Ballou* MRC Centre for Medical Mycology, University of Exeter

170 3:40 *Candida albicans* morphogenesis at different scales *Robert Arkowitz* University Côte d’Azur/CNRS/INSERM

171 4:00 Modeling Asynchronous Nuclear Division in *Ashbya Gossypii* *Grace McLaughlin* Duke University

4:20 Break

172 4:40 Peroxisome hitchhiking in the Pezizomycotina *Samara Reck–Peterson* UC San Diego

173 5:00 A conserved oxylipin alarm blocks the fungicidal effects of echinocandins in pathogenic aspergilli *Dante Calise* University of Wisconsin – Madison

174 5:20 A fitness landscape instability determines the morphological diversity of tip growing organisms *Maxim Ohairwe Ermoshkin* New York University

175 5:40 The *Neurospora crassa* JSN–1 protein binds multiple transcripts, including mRNA species required for proper conidiation *Anne Yenewodage* Hebrew Univ of Jerusalem
Friday, March 15, 2024
3:00 p.m.–6:00 p.m.
Merrill Hall

Understanding fungal pathogenesis by genomics
Session Chairs: Aleeza Gerstein University of Manitoba, Canada; and Daniel Croll University of Neuchatel, Switzerland

176 3:00 Evolution of outbreak potential and pathogenesis via a novel fungal adhesin Teresa O'Meara University of Michigan
177 3:20 Host adaptation mechanisms in fungal pathogens: harnessing GWAS to explore host associated genomic traits in natural infections of fungal pathogens Cecile Lorrain ETH Zurich
178 3:40 Genomic insights into recurrent vulvovaginal candidiasis Abdul–Rahman Adamu Bukari University of Manitoba
179 4:00 Evolutionary significance of fungal hypermutation Johanna Rhodes Radboudumc

Sat All 0 Break
180 4:40 *Verticillium dahliae* Vta3 promotes *ELV1* virulence factor gene expression in xylem sap, but tames Mtf1–mediated late stages of fungus–plant interactions and microsclerotia formation Ying–Yu Chen University of Goettingen
181 5:00 Segmental duplications drive the evolution of accessory genomic regions in the major fungal plant pathogen *Fusarium oxysporum* Anouk van Westerhoven Wageningen University
182 5:20 Ryp transcription factors link temperature sensing and morphogenesis in *Histoplasma* Anna Morrison UCSF
183 5:40 Pathogenicity is associated with population structure in a fungal pathogen of humans Anne Hatmaker Vanderbilt University

Saturday, March 16, 2024
9:00 a.m.–12:00 p.m.
Merrill Hall and Chapel

Plenary Session IV: Interactions of fungi with the biosphere
Session Chairs: Sarah Gurr University of Exeter, United Kingdom; and Reinhard Fischer Karlsruhe Institute of Technology (KIT), Germany

184 9:00 Shaping of the structure and composition of microbiomes by natural products Axel Brakhage Leibniz–HKI
185 9:30 Small RNA–mediated gene expression regulation: a new knowledge on the mechanisms of biocontrol interactions Mukesh Dubey Swedish University of Agricultural Sciences
186 10:00 Hijacked! Investigating the strategies used by a zombie–making fungus to manipulate carpenter ant behavior Charissa de Bekker Universiteit Utrecht
10:30 Break
187 11:00 Development of a vaccine against *Coccidioides*, the Valley fever pathogen Marc Orbach University of Arizona
188 11:30 Cross–kingdom predator–prey interactions from two sides of a coin Yen–Ping Hsueh Academia Sinica
Saturday, March 16, 2024
2:00 p.m.–5:00 p.m.

Heather

**Diversity and biotechnology of marine and estuarine fungi**

*Session Chairs:* Cassandra Ettinger University of California, Riverside, United States; and Frank Kempken Christian–Albrechts University, Germany

189 2:00 Diversity and characterization of filamentous fungi isolated from sediments of Basque estuaries

**Ziortza Agirrezabala**

Urkia Laboratory of Biology, Department of Applied Chemistry, Faculty of Chemistry, University of the Basque Country (UPV/EHU) San Sebastian

190 2:20 The myco–ecology of the *Stylophora pistillata* holobiont: a case study with two associated fungi – *Cladosporium halotolerans* and *Stachybotrys chlorohalonata*

**Lior Granit**

Hebrew Univ of Jerusalem

191 2:40 Fungal diversity in deep–sea sunken plant substrates

**Yuriko Nagano**

JAMSTEC

192 3:00 Ecology of marine fungi in the South Pacific Ocean off Chile

**Marcelo Gutiérrez**

Universidad de Concepción

3:20 Break

193 3:40 Prevalence, succession, and activity of marine fungi in particle–associated communities

**Syrena Whitner**

University of Hawai'i at Manoa

194 4:00 Transcriptional landscape of the salinity–driven physiology and biotechnological potential of the halophile model *Aspergillus sydowii*

**Yordanis Perez Llano**

Autonomous University of the State of Morelos

195 4:20 Eukaryotic metagenome–assembled genomes recovered from seagrass leaves include a novel chytrid in the order Lobulomycetales

**Cassandra Ettinger**

University of California, Riverside

196 4:40 Sustainable uses of marine fungal biodiversity: the Flensburg strain collection of marine fungi

**Antje Labes**

Flensburg University of Applied Science

Saturday, March 16, 2024
2:00 p.m.–5:00 p.m.

Nautilus

**Evolving metabolomes by divergent genome architectures**

*Session Chairs:* Milton Drott USDA, ARS, United States; and Tomas Rush Oak Ridge National Laboratory, United States

197 2:00 Convergent genome expansion in fungi linked to evolution of root–endophyte symbiosis

**Yi–Hong Ke**

Duke University

198 2:20 Origin and evolution of fungal secondary metabolism

**Jerome Collemare**

Westerdijk Fungal Biodiversity Institute

199 2:40 Ectomycorrhizal *Suillus* fungi represent hot–spots of metabolic diversity, structured by gene presence/absence variation and significant horizontal gene transfer

**Lotus Lofgren**

Duke University

200 3:00 Insights into the biology and ecology of the Ceratocystidaceae emerging from their genomes

**Brenda Wingfield**

University of Pretoria

3:20 Break

201 3:40 Genomic Architecture of Fungal Metabolism Involved in Host and Ecological Specialization

**Kathryn Bushley**

USDA–ARS

202 4:00 Extensive and independent evolution of secondary metabolism genes across the early diverging fungal genus *Basidiobolus*

**Javier Tabima**

Clark University

203 4:20 Starship elements drive genome evolution dynamics in a model eukaryotic microbe

**Emile Gluck–Thaler**

University of Wisconsin–Madison

204 4:40 Genomic and Phenotypic variation in *Rhodotorula* species sampled from Extreme Environments

**Jason Stajich**

Univ California, Riverside
Saturday, March 16, 2024  
2:00 p.m.–5:00 p.m.  
Chapel  

**Genetic control of primary and secondary metabolism**  
*Session Chairs*: Maria Stroe Karlsruhe Institute of Technology, Germany; and Richard Wilson University of Nebraska Lincoln, United States

205 2:00 p.m. Unearthing Nature's Hidden Arsenal: Mining Fungal Genomes for a New Class of Natural Products **Grant Nickles** University of Wisconsin–Madison

206 2:20 The peroxisome trafficking protein Pxda is required for secondary metabolite production and infection in the plant pathogenic fungus Alternaria alternata **Valentin Wernet** University of California San Diego

207 2:40 A novel reporter system to identify arginoketides in soil that mediate cross–kingdom microbial interactions **Maira Rosin** Leibniz Institute for Natural Product Research and Infection Biology (Leibniz–HKI)

208 3:00 On the role of natural products as virulence factors in fungi with a predatory lifestyle **Maria Stroe** Karlsruhe Institute for Technology

3:20 Break

209 3:40 The evolution of fungal secondary metabolism and its regulation; lessons from Aspergillus fungi **Antonis Rokas** Vanderbilt University

210 4:00 A new mediator of nitrogen metabolite repression in Aspergillus nidulans **Richard Todd** Kansas State Univ

211 4:20 Identifying interconnected carbohydrate sensing pathways in oleaginous yeast **Lori Huberman** Cornell University

4:40 A protein kinase coordinates Magnaporthe oryzae metabolism during biotrophy to drive growth in living host rice cells **Richard Wilson** University of Nebraska–Lincoln

212 2:00 p.m. Deciphering ploidy transitions of titan cells in Cryptococcus neoformans **Zhuyun Bian** Duke University School of Medicine

213 2:20 Variation in parasexual recombination between Aspergillus niger and Aspergillus fumigatus **Ben Auxier** Wageningen University

214 2:40 Discovery of plant- and algal-derived plastids in diverse fungi **Julia Kelliher** Los Alamos National Laboratory

215 3:00 Diverse signatures of convergent evolution in cacti–associated yeasts **Carla Gonçalves** Universidade Nova de Lisboa

3:20 Break

216 4:00 Increased genetic diversity of clonal rice blast fungus lineages through multiple mini–chromosome transfers **Cristina Barragan** The Sainsbury Laboratory

217 4:20 Innovation, constraint, and the evolution of genetic networks in major eukaryotic lineages **Jacob Steenwyk** UC–Berkeley / HHMI

218 4:40 Frequent horizontal chromosome transfer between asexual fungal insect pathogens **Michael Habig** Kiel University

219 5:00 Mobile elements on mobile chromosomes in Fusarium oxysporum **Like Fokkens** Wageningen University & Research
Saturday, March 16, 2024  
2:00 p.m.–5:00 p.m.  
Merrill Hall  
Mechanisms of resistance to antifungals

Session Chairs: Matthew Fisher Imperial College London, United Kingdom; and Daniel Santos Universidade Federal de Minas Gerais, Brazil

220 2:00 p.m. Azole resistance mechanisms, multifungicide resistance and population structure of *Aspergillus fumigatus* from agricultural environments and retail plant products in the United States Marin Brewer University of Georgia

221 2:20 The role of environmental fungicides in triggering antifungal resistance in *Cryptococcus* spp Daniel Santos Univ Federal de Minas Gerais

222 2:40 How accurately can experimental evolution predict fungicide resistance mechanisms? Nichola Hawkins National Institute of Agricultural Botany

223 3:00 Elevated mutation rates in multi–azole resistant *Aspergillus fumigatus* drive the rapid evolution of antifungal resistance Michael Bottery University of Manchester

3:20 Break

224 3:40 Interspecific hybridisation as a new evolutionary fungicide resistance mechanism in the fungal pathogen *Pyrenophora teres* Chala Turo Curtin University

225 4:00 The proteomic response of *Aspergillus fumigatus* to Amphotericin B (AmB) reveals the involvement of the RTA–like protein RtaA in AmB resistance Sophie Träger–Görler Leibniz, Hans Knöll Institute (HKI)

226 4:20 High–throughput genetics, essential gene discovery, and fluconazole resistance in *Cryptococcus neoformans* Blake Billmyre University of Georgia

4:40 Collateral sensitivity in amphotericin B–resistant *Candida auris*: from molecular mechanisms to therapeutic opportunities Hans Carolus KU Leuven

Saturday, March 16, 2024  
2:00 p.m.–5:00 p.m.  
Kiln  
Multicellular development

Session Chairs: Ines Teichert Forest Botany and Tree Physiology, University of Göttingen, Germany; and Jan Dijksterhuis Westerdijk Fungal Biodiversity Institute, Netherlands

227 2:00 p.m. Characterization of spatio–temporal dynamics of the constrained network of the filamentous fungus *Podospora anserina* using a geomatics–based approach Florence Chapeland–Leclerc LIED Universite Paris Cite

228 2:20 Morphological diversity as an adaptation strategy of extremotolerant fungi Cene Gostincar University of Ljubljana, Biotechnical Faculty

229 2:40 Role of stop–loss editing of *efd4* and *efd7* in fruiting body development and ascospore physiology in *Sordaria macrospora* Ines Teichert Forest Botany and Tree Physiology, University of Göttingen

230 3:00 Cell and Network Dynamics in Arbuscular Mycorrhizal Fungi Vasileios Kokkoris Vrije Universiteit (VU) Amsterdam

3:20 Break

231 3:40 Cytoskeletal Mechanisms Driving 3D Cellularization of Multinucleated Chytrid Fungi Edgar Medina University of Massachusetts Amherst

232 4:00 *Fusarium graminearum* on barley: Novel encounters between a fungal pathogen and its grain host. Frances Trail Michigan State Univ

233 4:20 Identification of environmental and genetic regulators of apothecium development in *Sclerotinia sclerotiorum* Jeffrey Rollins Univ Florida

234 4:40 Comparative approaches for understanding mushroom development Laszlo Nagy HUN–REN Biological Research Center
Saturday, March 16, 2024
2:00 p.m.–5:00 p.m.
Scripps
Mycoviruses
Session Chairs: Ioly Kotta–Loizou Imperial College London, United Kingdom; and Marc Meneghini University of Toronto, Canada

235 2:00 p.m. RNA Editing of Genomic Neighbors Controls Antiviral Response in *Neurospora crassa* Shinji Honda University of Fukui

236 2:20 Conserved antiviral factors repress pathogenic proliferation of the L–A RNA mycovirus in budding yeast Jie Gao University of Toronto

237 2:40 Identification of the Viral Determinant of Hypovirulence and Host Range in Sclerotiniaceae of a Genomovirus Reconstructed from the Plant Metagenome Shin–Yi Marzano USDA–ARS

238 3:00 Characterization of a single–stranded DNA mycovirus infecting the plant pathogenic fungus *Botrytis cinerea* Maria A. Ayllón Universidad Politécnica de Madrid

3:20 Break

239 3:40 From multi– to single–mycoviral infection in the plant pathogenic fungus *Botrytis cinerea* Julián Méndez–García Centro de Biotecnología y Genómica de Plantas, Universidad Politécnica de Madrid (UPM)–Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA/CSIC), Pozuelo de Alarcón, Madrid, SPAIN

240 4:00 Virome characterization of a collection of *Botrytis cinerea* from Australia Lorena Rodriguez La Trobe University

241 4:20 The evolution and distribution of endogenous DNA viruses in early–divergent fungi Mark Yacoub University of California, Riverside

242 4:40 Viro–Fungal Tag–Team: Aspergillus dsRNA virus drives fungal fitness and pathogenicity in the mammalian host Neta Shlezinger The Hebrew University

Saturday, March 16, 2024
5:30 p.m.–5:45 p.m.
Merrill Hall and Chapel
Fungal Genetics Conference and GSA Poster Award Presentations

Saturday, March 16, 2024
5:45 p.m.–6:30 p.m.
Merrill Hall and Chapel
Perkins/Metzenberg Lecture

5:45 p.m.–5:50 p.m. Introduction of Perkins/Metzenberg Lecture, Jay Dunlap, Dartmouth Geisel School of Medical, United States

5:50 p.m.–6:30 p.m. N. Louise Glass, University of California, Berkeley

#Fungal24|30
Biochemistry and metabolism .......................... 243 – 291
Biotechnology ........................................... 292 – 321
Cell biology and development ....................... 322 – 407
Comparative and functional genomics .... 408 – 513
Fungal diversity ........................................ 514 – 553
Gene regulation ........................................... 554 – 622
Pathogenic and mutualistic interactions .. 623 – 769
Population and evolutionary genetics ..... 770 – 814
Synthetic biology ........................................ 815 – 831
Other ............................................................ 832 – 855

Biochemistry and metabolism
243A Genomic spoilage determinants and evolutionary history of diastatic Saccharomyces cerevisiae strains Jeremy Smith Cornell University
244A A protein kinase coordinates Magnaporthe oryzae metabolism during biotrophy to drive growth in living host rice cells Nawaraj Dulal University of Nebraska–Lincoln
245A Predicting fungal secondary metabolite activity from biosynthetic gene cluster data using machine learning Olivia Riedling Vanderbilt University
246A Lipid flippase regulation of antifungal drug resistance and virulence in Cryptococcus neoformans Chaoyang Xue Rutgers University
247A An improved CRISPR–Cas12a editing system uncovers the role of horizontally–transferred metabolic pathways in mitochondria of the oomycete Phytophthora infestans Carl Mendoza University of California, Riverside
248A The hypoxia regulator Sre1 controls cryptococcal response to nickel, a micronutrient for fungi Amber Matha University of Georgia
249A A role for melanin and perylene quinones for abiotic and biotic stress tolerance Jia Gao Institute of Applied Biosciences
250A Tailor–made biosurfactant production in the corn smut Ustilago maydis Björn Sandrock Philipps–University Marburg
251A Mechanism of circadian clock control of rhythmic translation in Neurospora crassa Ebimobowei Preh Texas A&M University
252A Aspartyl peptidase May1 induces host inflammatory response by altering cell wall composition in the fungal pathogen Cryptococcus neoformans Yeqi Li University of Georgia
253A Constitutive excretion of melanin induced by nonsense mutation in Exophiala species Quin Barton University of Nebraska–Lincoln
254A RNAseq and targeted metabolomics analyses implicate G protein signaling in regulation of arginine and ornithine metabolism and compartmentation in Neurospora crassa Monique Quinn University of California, Riverside
255A The Aspergillus nidulans sarB gene encodes a putative N–acetylglucosamine transporter involved in amino acid utilization Heather Forster Kansas State University
256A Transcription factor Adr1 and its role in citrate utilization and gluconeogenesis in C. albicans Amelia White University of Georgia
257A Investigating the activation model of a wheat tandem kinase upon effector recognition from Magnaporthe oryzae pathotype Triticum Yi–Chang Sung University of California, Davis
258A Alternative ergosterol biosynthetic pathways in Mucor lusitanicus and their connection with antifungal resistance Gabor Nagy University of Szeged
259A A novel glycosyltransferase organizes glyogen and cell wall glucans in Cryptococcus neoformans Liza Loza Washington University in St. Louis
260B Rhythmic interaction between ZUOTIN and ribosomes may promote daily rhythms in protein folding and activity Madhusree Gangopadhyay Texas A&M University
261B Circadian clock regulation of translation fidelity through the methionyl–tRNA synthetase in Neurospora crassa Griffin Best Texas A&M University
262B Elucidating cryptococcal capsule synthesis through proximity labeling methods Daphne Ko Washington University in St. Louis
263B The heat shock transcription factor HsfA plays a role in membrane lipids biosynthesis connecting thermotolerance and unsaturated fatty acid metabolism in Aspergillus fumigatus Iran Malavazi Federal University of Sao Carlos

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264B Exploring effect of Ethyl 3–methylbutanoate on fumonisin production and FUM gene expression in *Fusarium verticillioides* Antonia Susca National Research Council of Italy

265B FuNTAP: A *Fusarium graminearum* Protein Interaction Network of Trichothecene Biosynthesis Pathways Gopal Subramaniam Agriculture Canada

266B Modulating lipid composition in the filamentous fungus *Ashbya gossypii* alters assembly of the septin cytoskeleton Brandy Curtis Duke University

267B Galactose growth in budding yeast species lacking the canonical GAL pathway Emily Ubbelohde University of Wisconsin – Madison

268B Feedback regulation of secondary metabolite production via a G–protein coupled receptor adjusting several metabolic pathways Monika Schmoll University of Vienna

269B Are the type strains of *Aspergillus oryzae* and *A. sojae* truly domesticated? Jens Frisvad Technical University of Danmark

270B Unraveling *Cryptococcus neoformans* Metabolic Adaptations: Implications for Therapeutic Targets Arohi Singhal Clemson University

271B Oryzapsin, orthologs of yeast yapsin in *Aspergillus oryzae*, are involved in ergosterol biosynthesis Youhei Yamagata Tokyo University of A & T

272B The CakA kinase links the cell cycle with secondary metabolism in *Aspergillus nidulans* Zhiqiang Dong University of Macau

273B Sulfur metabolism–mediated fungal glutathione biosynthesis is essential for oxidative stress resistance and pathogenicity in the plant pathogenic fungus *Fusarium graminearum* Hokyoun Son Seoul National University

274B Molecular Insights into Glycerol Transport in *Neurospora crassa* Basant Ibrahim Abdelaziz Elsayed Nada Technical University of Munich

275B An essential telomere binding protein regulating the transition from primary to secondary metabolism in *Aspergillus nidulans* Xiaofeng Liu University of Macau

276C Characterization of annularins in the filamentous fungus *Podospora anserina* by an interdisciplinary study Xiaoyue Peng LIED Universite Paris Cite

277C On the role of natural products as virulence factors in fungi with a predatory lifestyle Maria Stroe Karlsruhe Institute for Technology

278C Accessory chromosomes are reservoirs of unique secondary metabolite biodiversity in *Fusarium poae* Thomas Witte University of Ottawa

279C The transcriptomic landscape of lignocellulose degradation by anaerobic fungi Jessica Matthews SRUC

280C Acquired amphotericin B resistance and fitness trade–off compensation in *Candida auris* Hans Carolus KU Leuven

281C Inter–fungal warfare in the maize kernel: mechanism of pyrrocidine–induced fumonisin elimination Lily Lofton University of Georgia

282C Unsilencing the cryptic isocyanides and secondary metabolites of *Penicillium expansum* Justin Eagan University of Wisconsin – Madison

283C Deciphering the Genotype–Phenotype Connection: Environmental Influence on Secondary Metabolite Production in *Basidiobolus* Kimberly Syring Oregon State University

284C Exploring biosynthetic gene clusters in *Aspergillus fischeri* Karin Steffen Vanderbilt University

285C Using TN–seq to identify molecular targets of fungal spore germination inhibitors Jackie Spieles University of Wisconsin–Madison


287C Sugar, sugar: Development of the trehalose biosynthesis enzymes as antifungal drug targets Erica Washington Duke University

289C Powdery mildew breaks down host chloroplasts for nutrient acquisition Hang Xue University of California, Berkeley

290C Nonsense–mediated decay (NMD) in *Cryptococcus neoformans* utilizes human–like SMG downstream effectors with non–redundant functions Sean Duffy SUNY at Buffalo Jacobs School of Medicine and Biomedical Sciences

291C Manipulation of plant host cell cycle and lipid metabolism to fuel powdery mildew spore production Mary Wildermuth University of California Berkeley
**Biotechnology**

292A Developing Innovative Antifungal Drug Delivery Systems to Fight *Fusarium oxysporum* Infection in Humans Siyuan Wu University of Massachusetts Amherst

293A A novel isomaltose sensor/transporter identification involved in the activation of the transcription factor AmyR in *Aspergillus oryzae* and *A. nidulans* Da Min Jeong Tohoku university

294A Control of *Penicillium camemberti* morphology to influence conidia production in an industrial environment Aymeric Paradis Université Paris Cité

295A Roles for heterotrimeric G–proteins and adenyl cyclase in differential regulation of cellulase gene expression and cellulase activity in *Neurospora crassa* Yagna Oza University of California, Riverside

296A Functional Characterization of the *pgs* Gene provides insights into the molecular basis of pathogenicity in an important pine pathogen. Brenda Wingfield University of Pretoria

297A Exploring the role of alpha–1,3–glucan synthases on fungal cell wall integrity in *Aspergillus niger* Katharina Ost Osnabrück University of Applied Sciences

298A Development of *Trichoderma reesei* capable of producing products at higher production temperature without compromising productivity Cherry Lin IFF

299A Sub–genomic RNAi–assisted strain evolution of filamentous fungi for enhanced protein production xianhua Sun Institute of Animal Sciences, Chinese Academy of Agricultural Sciences

300A Deciphering the Regulatory Mechanisms Governing Recombinant Protein Secretion in Filamentous Fungi Everton Paschoal Antoniello University of Campinas

301A Glycosylation studies of industrial *Trichoderma reesei* strains Lori Maggio–Hall International Flavors & Fragrances

302B Expanding the use of targeted liposomes from an antifungal treatment to a fungal glycan capture tool Quanita Choudhury University of Georgia

303B Fungi Unleashed – Rapid Ionomic Profiling with Laser–Induced Breakdown Spectroscopy Tomas Rush Oak Ridge National Laboratory

304B Biological control of Pythium pathogens in hydroponic greenhouses. Paul Morris Bowling Green State University

305B Efficient genetic modifications via CRISPR/Cas9 genome editing in *Aspergillus sojae* and comparative analysis of strain–specific characteristics in soy sauce brewing Takayuki Igarashi The University of Tokyo

306B Making Anti–Fungal Peptides (AFPs) More Potent Through Target–Specific Activation David Larwood University of California, San Francisco

307B Characterization of acid phosphatases in *Aspergillus oryzae* strain with reduced “umami” degradation activity Kanae Sakai Osaka University

308B Engineering of *Aspergillus niger* for efficient production of xylitol from arabinose Marcel Rüllke Technical University of Munich

309B High–throughput screening of filamentous fungi using droplet digital microfluidic system. Mari Valkonen VTT Technical Research Centre of Finland Ltd

310B Role of non–programmed cell death inducing effectors in the *Parasagomonas nodorum*–wheat necrotrophic interaction Gayan Kariyawasam North Dakota State University

311B All Hands on Dect: Treating Cryptococcosis with DectiSomes Nhu Pham University of Georgia

312C Mycelia in the Mix: Unraveling the Impact of Additives on *Ganoderma sessile* and *Trametes versicolor* in 3D Printed Biocomposites Caleb Bedsole Texas A&M University

313C From Fungi To High–Tech Cheese: How To Use Precision Fermentation To Rescue Our Food System Beatrice Bernardi Formo Bio GmbH

314C Modernizing high–throughput mycology with robotics and artificial intelligence Johan Christiansen Technical University of Denmark

315C Genetically manipulating anaerobic, lignin–degrading microbial communities Vikram Mubayi University of California Santa Barbara

316C A two–step method to generate marker–less mutants in *Coccidioides M. Mandel* University of Arizona

317C FACS–based method streamlines pooled transformations in *Aspergillus oryzae* Sarah McFarland Novozymes Inc

318C Exploring soil bacteria for aerobic detoxification of deoxynivalenol Natalia Martinez Reyes Universidad de León

320C Understanding the inner workings of the basidiomycete Fomes fomentarius for materials
Cell biology and development

322A Ergosterol is critical for sporogenesis in Cryptococcus neoformans **Amber Matha** University of Georgia

323A Investigating dormancy and its breaking in Aspergillus fumigatus **Justina Stanislaw** University of Georgia

324A Sex & Speciation: exploring the mechanism of sexual incompatibility by live–cell imaging of fertilization in Podospora anserina **Sylvain Brun** Université Paris Cité

325A Deciphering the roles of jumonji domain containing proteins in Podospora anserina **Pierre Grognet** Université Paris–Saclay, CEA, CNRS, Institute for Integrative Biology of the Cell (I2BC)

326A Loss of female fertility may be beneficial for conidial dispersal and mycovirus elimination in the grey mould fungus **Momotaka Uchida** Tokyo University of Science

327A TORC1 Signaling and Cell Growth Control in Budding Yeast **Andrew Capaldi** University of Arizona

328A A CRISPR/Cas9 system in Neurospora crassa – user-friendly, fast and efficient **Stefanie Gruettner** Botanical Institute of Kiel University

329A UV induces translation in Fusarium species in a developmentally-regulated manner **Shay Covo** Hebrew U

330A Modeling Asynchronous Nuclear Division in Ashbya Gossypii **Grace McLaughlin** Duke University

331A The molecular mechanisms of toxocyst development in oyster mushroom **Yi–Yun Lee** Institute of Molecular Biology, Academia Sinica

332A Structural and molecular investigation of secondary metabolite compartmentalization in fungal vesicles **Fabio Gherlone** Leibniz–HKI Jena

333A Septins Regulate Exocytosis through Physical Interactions with the Exocyst Complex during Fission Yeast Cytokinesis **Jian–Qiu WU** The Ohio State University

334A VE–1 regulates the transcription and accumulation of components of the MAPK signalling pathway during sexual development in Neurospora crassa **Luis Corrochano** University of Seville

335A Interrupting the progression of an amphibian pandemic **David Firer** McGill University

336A Correlation among nuclear increase, enzyme production and hyphal morphology in Asperillus oryzae **Ayaka Itani** University of Tsukuba

337A Generation and characterization of serial deletion-- and point--mutants within the 5′–UTR region of brlA allow the identification of promoter sequences required and dispensable for Aspergillus nidulans conidiation **Oier Etxebeste** University of the Basque Country

338A On the evolution of clock mechanisms in fungal systems: a case of moonlighting functions of core–clock components? **Luis Larondo** Pontificia Universidad Catolica de Chile

339A Developing a new generation of antifungals: Identifying the targets of natural products with antifungal properties **Caroline Wang** University of Texas Southwestern Medical Center

340A Cryptococcus employs alternative translation of a novel regulator **REF1** to produce isoforms with differential capacities for phase separation to control morphogenesis **Nathan Glueck** University of Georgia

341A Repair to survive: Tolerance to plant defence compounds involves several membrane repair strategies in the grey mould fungus **Botrytis cinerea** **Suraj Hassan Muralidhar** Wageningen University and Research

342A A novel chitin–binding apoplastic effector MoScp5 suppresses the chitin–triggered immunity by Magnaporthe oryzae is crucial for the rice blast disease **Wei Tang** State Key Laboratory of Ecological Pest Control for Fujian and Taiwan Crops, Fujian Agriculture and Forestry University

343A Filamentous fungi release extracellular vesicles at log– and stationary phases **Shunichi Urayama** University of Tsukuba

344A Identification of an α–factor–like peptide mating pheromone secreted by the heterothallic ascomycete **Aspergillus fumigatus** **Sven Krappmann** University Hospital Erlangen

345A Determining the cellular architecture of Magnaporthe oryzae appressoria through Cryo–Electron Tomography **Lauren Ryder** The Sainsbury Laboratory

applications **Carsten Pohl** Technische Universität Berlin

321C The Dark Side of Anaerobic Digestion: Carbohydrate–Active Enzymes from Uncultured Rumen Fungi **Katharine Dickson** University of California, Davis

333A Accumulation of components of the MAPK signalling
POSTER SESSION LISTINGS

346A Growth inhibition between filamentous fungal colonies of the same strain and its regulatory mechanism Yuya Hamanaka The University of Tokyo

347A MoPce1, a CAP/PR domain containing effector is required for the pathogenicity of Magnaporthe oryzae by interacting with the OsDi19–5 in rice Zhenyu Fang Fujian University Key Laboratory for Plant Microbe Interaction, Fujian Agriculture and Forestry University, Fuzhou 350002, China.

348A A nonclassically secreted effector of Magnaporthe oryzae targets host nuclei and regulates the rice immunity Xiaomin Chen Fujian University Key Laboratory for Plant Microbe Interaction, College of Life Sciences, Fujian Agriculture and Forestry University, Fuzhou 350002, China.

349A Investigation of Differing Roles of Ammonium Transporters in the Nematode–trapping Fungus Arthrobotrys oligospora Sheng–Chian Juan Institute of Molecular Biology, Academia Sinica

350A The NADPH–Oxidases NoxA and NoxB of Arthrobotrys flagrans are required for trap formation and functioning Marius Kriegler Institute for Applied Bioscience

351A Vacuolar SNAREs–dependent retromer recruitment contributes to effective host invasion in Magnaporthe oryzae Xin Chen State Key Laboratory for Ecological Pest Control of Fujian and Taiwan Crops, College of Plant Protection, Fujian Agriculture and Forestry University, Fuzhou 350000, Fujian, China

352B Fungal COP9 signalosome assembly requires connection of two trimeric intermediates for integration of intrinsic deneddylase Emmanouil Stavros Xylakis Georg August Universität

353B The Neurospora crassa JSN–1 protein binds multiple transcripts, including mRNA species required for proper conidiation Anne Yenewodage Hebrew Univ of Jerusalem

354B The Right Place at the Right Time: Epigenetic control of sexual development and cell fate decisions in Neurospora crassa Abigail Deaven University of Georgia

355B Characterization of parasexual DNA exchange in blast fungi. Ryo Chiba Tokyo University of Science

356B Is there localized mRNA translation at the hyphal tip? Domenico Modaffari University of Edinburgh

357B Antioxidant Pathways that Protect the Plasma Membrane in Candida albicans Kara Swenson Stony Brook University

358B Comparing CRISPR–Cas9 Methods in Candida auris: a Challenging Conundrum Dimitrios Sofras KU Leuven

359B Physiological adaptation to changing environments by the polyextremotolerant yeast Aureobasidium pullulans Audrey Williams Duke University

360B Evolution of thermotolerance in Cryptococcus species Vikas Yadav Duke University Medical Center

361B Cytoplasmic sequestering of a fungal stress–activated MAPK in response to a host plant phenolic acid Benjamin Horwitz Technion – IIT

362B Elucidation of the Cryptococcus neoformans STRIPAK complex Patricia Peterson Duke University Medical Center

363B Evidence of phenotypic switching in Fusarium oxysporum Pilar Gutiérrez–Escribano University of Córdoba

364B Conserved Regulators of the Septation Initiation Network are required for Aspergillus fumigatus Echinocandin Resistance and Virulence Harrison Thorn University of Tennessee Health Science Center

365B Identification of environmental and genetic regulators of apothecium development in Sclerotinia sclerotiorum Jeffrey Rollins Univ Florida

366B The role of peroxisome hitchhiking in secondary metabolism in Aspergillus nidulans Livia Songster UC San Diego

367B Separation of life stages within anaerobic fungi highlights differences in global transcription and metabolism Lazarina Butkovich University of California, Santa Barbara

368B Refining morphological models: branching and germination rate dynamics in early mycelial growth Alexander Doan University of Maryland Baltimore County

369B Uncovering important transcriptional regulations during conidiation and spore germination Pin Wu University of Macau

370B Characterization of a Myb–like protein MylA in Aspergillus flavus He Jin Cho Kyungpook National University
371B Heat resistant ascospores Jan Dijksterhuis Westerdijk Fungal Biodiversity Institute
372B Regulated IRE1–dependent mRNA decay is induced by physiological ER stress associated with amylolytic enzyme production in Aspergillus oryzae Mizuki Tanaka Tokyo University of Agriculture and Technology.

373B Characterization of spatio–temporal dynamics of the constrained network of the filamentous fungus Podospora anserina using a geomatics–based approach Florence Chapeland–Leclerc LIED Universite Paris Cite

374B The Role of Meiotic Factors in Ploidy Dynamics María Angélica Bravo Núñez Harvard University

375B Dark stipe mutants in fruiting body development of Coprinopsis cinerea Shanta Subba University of Göttingen

376B Evolution of chromosomal regions with A mating type loci in Agaricomycetes Ursula Kües University of Goettingen

377B Digital reconstruction and analysis of the growing and branching network of the filamentous fungus Podospora anserina Florence Chapeland–Leclerc LIED Universite Paris Cite

378B Collateral sensitivity prevents antifungal drug resistance evolution in Candida auris Hans Carolus KU Leuven

379B Regulation of sexual development by IndB and IndD, the physical interactors of the NsdD GATA factor in Aspergillus nidulans. Kap–Hoon Han Woosuk University

380B The apical endoplasmic reticulum in Neurospora crassa Juan Manuel Martinez Andrade Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE)

381C The putative translational repressor, SsdA, partially regulates carbon source–dependent roles of CotA signaling in Aspergillus fumigatus Adela Martin–Vicente University of Tennessee Health Science Center

382C Sticky Business: Unraveling the Evolutionary Significance of Asymmetric Adhesion in Colletotrichum Species Caleb Bedsole Texas A&M University

383C Expanding the fluorescent toolbox in Aspergillus fumigatus Isabelle Storer University of Manchester

384C The sterol C–24 methyltransferase encoding gene, erg6, is essential for viability of Aspergillus species Jinhong Xie University of Tennessee Health Science Center

385C The striatin–interacting protein phosphatase and kinase complex (STRIPAK complex) in Ustilago maydis Joerg Kaemper Karlsruhe Institute of Technology

386C Deciphering ploidy transitions of titan cells in Cryptococcus neoformans Zhuyun Bian Duke University School of Medicine

387C Post–Biogenesis Maturation of Pathogenic Fungal Spores Expands Germination Competence Megan McKeon University of Wisconsin–Madison

388C Characterization of exposed Cryptococcus neoformans cell wall components via fluorescence microscopy Joseph Vasselli Duke University

389C Novel microscopy tools reveal dynamic subcellular distributions of core clock components in Neurospora crassa Ziyang Wang Geisel School of Medicine at Dartmouth

390C Role for Septins During High Temperature Stress Response in Cryptococcus neoformans Tejas Mahendra Patel Clemson University

391C The role of the GTPase Cdc42 in Cryptococcus neoformans stress response Hannah Akahoho Clemson University

392C A fitness landscape instability determines the morphological diversity of tip growing organisms Maxim Ohairwe Ermoshkin New York University

393C Defining sexual reproduction in Coccidioides posadasii Bridget Barker Northern Arizona University

394C Re–routing of MAP kinase signaling for penetration peg formation in predator yeast Juergen Wendland Hochschule Geisenheim University

395C Role of the cargo receptor CSE-8 in the intracellular trafficking of chitin synthases class I to the Spitzenkörper and septa in Neurospora crassa Meritxell Riquelme1, Samantha V González-Téllez2 1Microbiology, CICESE, 2Microbiology, Centro de Investigación Científica y de Educación Superior de Ensenada, B. C.

396C Investigating uniparental inheritance of mitochondrial DNA during sexual reproduction in Cryptococcus neoformans Ran Shi UGA
The peroxisome trafficking protein PxdA is required for secondary metabolite production and infection in the plant pathogenic fungus *Alternaria alternata*. Valentin Wernet, University of California San Diego.

Allocation of nuclei and growth potential among buds of the multi–budding yeast, *Aureobasidium pullulans*. Alison Wirshing, MIT.

Fungal Raincoats. Teis Esben, Sondergaard Aalborg University.

Cytoskeletal Mechanisms Driving 3D Cellularization of Multinucleated Chytrid Fungi. Edgar Medina, University of Massachusetts Amherst.


Understanding the loading and functions of mRNAs in Plant Extracellular Vesicles. Huaitong Wu, University of California at Riverside.


Deciphering the role of the SAM domain containing protein Vts1 during rice blast disease. Neftaly Cruz Mireles, Norwich Research Park.

Pseudorabies virus upregulates low–density lipoprotein receptors to facilitate viral entry. Ming Shengli, Henan Agricultural University.

The glycoprotein 5 of porcine reproductive and respiratory syndrome virus stimulates mitochondrial ROS to facilitate viral replication. Wang Jiang, Henan Agricultural University.

Comparative and functional genomics

FungiDB: A free, web–based informatics resource for in silico hypothesis testing, data mining and exploration. Evelina Basenko, FungiDB, University of Liverpool.

Genomic and Phenotypic variation in *Rhodotorula* species sampled from Extreme Environments. Jason Stajich, Univ California, Riverside.

Computational analysis and tRNA–sequencing reveal the diversity of tRNA across an entire fungal subphylum. Lauren Dineen, University of North Carolina at Charlotte.

Codon usage and tRNA diversity in the subphylum Saccharomycotina. Colin Speer, University of North Carolina at Charlotte.

Rapid gain and loss of an aneuploid chromosome drives key morphology states and virulence in a fungal pathogen of humans. Sarah Heater, UCSF.

Needles in fungal haystacks: Discovery of a putative a–factor pheromone and a unique mating strategy in the Leotiomycetes. Andi Wilson, University of Pretoria.

Understanding the molecular mechanisms behind the fungal thermophilism. Andrei Stecca Steindorff, Lawrence Berkeley National Laboratory.

Two–speed genomes drive the evolution of pathogenicity in amphibian–infecting chytrids. Rhys Farrer, University of Exeter.


Continual propagation of [D1,2] stwintrons in divergent Xylariales. Erzs?bet Fekete, University of Debrecen.

Genomic and epigenomic variation in pathogenic *Cryptococcus* species. Tal Goodisman, University of Exeter.

Investigating the role of chromosomal rearrangements in adaptive evolution of the plant pathogenic fungus *Verticillium dahliae*. Chen–yu Kuan, University of Cologne.

The roles of deubiquitination module and Rad6–Bre1 ubiquitin ligase complex in oxidative stress response and biofilm formation of *Candida glabrata*. Lee Yi Hang, Department of Plant Pathology and Microbiology, National Taiwan University, 10617 Taipei, Taiwan.

Pangenome graph uncovers signatures of rapid evolution in spinach downy mildew. Petros Skiadas, Utrecht University.

QTL Mapping and Bulk Segregant Analysis identifies CO₂ tolerance genes associated with.
virulence in the global pathogen *Cryptococcus neoformans* Benjamin Chadwick University of Georgia

423A A novel effector gene located in a selective sweep region plays an important role in virulence of a host–specific fungal pathogen Wagner Calegari Fagundes Max Planck Institute for Evolutionary Biology, Plön & Christian–Albrechts University Kiel

424A Network–based approach for discovering transcription factors associated with fungal plant biomass conversion Ferry Hagen Westerdijk Fungal Biodiversity Institute

425A Mating Pheromone and Receptor Genes in the *Ceratocystidaceae*: Insights into Diverse Mating Strategies Markus Wilken University of Pretoria

426A Genome–wide identification of effectors and variant effects from across the breadth of diversity of *Fusarium Hye–Seon Kim USDA–Agricultural Research Service

427A A deep learning strategy for biosynthetic gene cluster prediction in fungal genomes Stephen Harding U.S. Department of Agriculture

428A A smut hybrid provides insights in the regulation of effector genes contributing to tumor formation of *Ustilago maydis* Janina Werner Institute for Plant Sciences and Cluster of Excellence on Plant Sciences (CEPLAS), University of Cologne

429A Identification of essential components for protein secretion in the phytopathogen *Zymoseptoria tritici* Alexander Featherstone The University of Birmingham

430A High–throughput genetics, essential gene discovery, and fluconazole resistance in *Cryptococcus neoformans* Blake Billmyre University of Georgia

431A Functional characterization of a novel sugar transporter in *Trichoderma reesei* and its role in cellulase induction Lucas Matheus Soares Pereira Ribeirão Preto Medical School, University of São Paulo, Ribeirão Preto, Brazil.

432A A near–complete genome assembly and annotation of the dothideomycete marine fungus, *Neophaeotheca triangularis*, the first from the order Neophaeothecoales Faith Martin Oregon State University

433A Chromosomal engineering in the plant pathogenic fungus *Verticillium dahliae* Yukiyoshi Sato Institute for Plant Sciences, University of Cologne, Germany

434A Convergent genome expansion in fungi linked to evolution of root–endophyte symbiosis Yi–Hong Ke Duke University

435A Genome–wide functional analysis of WD40 proteins in the fungal pathogen *Cryptococcus neoformans* Jin–Tae Choi Yonsei University

436A High–resolution assemblies for oat crown rust enable the detection of somatic hybridization and cryptic recombination Eva Henningsen CSIRO

437A Systematic Analysis of Host–derived Cues for the Regulation of Pathogenicity–linked Transcription factors in Human Fungal Pathogen *Cryptococcus neoformans* Seong–Ryung Yu College of Life Science and Biotechnology, Yonsei University

438A Unravelling the MAT1 Locus: Insights Into Sexual Reproduction Across Diverse *Sclerotinia* Species Markus Wilken University of Pretoria

439A Investigating Toxicity Through Fungal Genomes: A Case Study on *Pseudopithomyces chartarum*, the Causal Agent of Facial Eczema in Cattle Nermim Yilmaz FABI

440A The next dimension of CAZymes – Inferring the functional interplay between fungal carbohydrate–active enzymes for biomass conversion Kristian Barrett Technical University of Denmark

441A LCR differ among fungal phyla and from proteome background Anna Muszewska Institute of Biochemistry and Biophysics, PAS

442A Unravelling the 3D Architecture of *Batrachochytrium* genomes by Hi–C analysis Nicolas Helmstetter University of Exeter

443A Gene expression patterns reveal the ability of *Trichoderma reesei* RUT–C30 to utilize *Hyaloscypha bicolor* melanized necromass Irshad Ul Haq University of Minnesota, Twin Cities

444B Exposure to agricultural DHODH inhibitors result in cross–resistance to the novel antifungal olorofin in *A. fumigatus* Norman van Rhijn University of Manchester

445B Crosstalk Between *Aspergillus nidulans* CWIS and SIN Pathways Under Cell Wall Stress Alexander Doan University of Maryland, Baltimore County

446B *Fusarium proliferatum* in different host plants: evolution and comparative genomics Alessandra Villani National Research Council, Institute of Sciences of Food Production
**POSTER SESSION LISTINGS**

**447B** Diverse signatures of convergent evolution in cacti–associated yeasts Carla Gonçalves Department of Biological Sciences & Evolutionary Studies Initiative, Vanderbilt University

**448B** Fast–tracking metabolism: insights into the mechanisms and evolution of high glycolytic rates in non–conventional yeasts Linda Horianopoulos University of Wisconsin–Madison

**449B** Host adaptation mechanisms in fungal pathogens: harnessing GWAS to explore host associated genomic traits in natural infections of fungal pathogens Cecile Lorrain ETH Zurich

**450B** Identification and characterization of histone modifying genes in the Coprinopsis cinerea genome Marilee Ramesh Roanoke College

**451B** Predicting fungicide tolerance: defining mutations in the CyP51 and CytB genes among septoria leaf spot populations in Canada Mohamed Hafez Abdel–Fattah Agriculture and Agri–Food Canada

**452B** Exploring the genetic basis of interaction between the filamentous fungus Trichoderma atroviride and bacteria using a genome–wide loss–of–function approach José Villalobos–Escobedo University of California, Berkeley

**453B** Small but mighty: genome analysis of a basidiomycetous species in the genus Meira isolated from North American Catalpa seed pods Catalina Salgado–Salazar United States Department of Agriculture

**454B** Gene expression and zinc tolerance in Suillus luteus Jessica Fletcher University of Colorado Denver

**455B** Unique Expansion of PARP Family Proteins in the Fusarium oxysporum species complex Cecilia Murphy University of Massachusetts Amherst

**456B** Investigating fungicide mode of action using high–throughput functional genomics Lori Huberman Cornell University

**457B** Characterizing the histone post–translational modification enrichment and genome organization in species of the Ogataea clade Nickolas Lande University of Colorado Colorado Springs

**458B** The High Osmolarity Glycerol transcription factors Atf1 and Srr1 regulate stress response and cellulase production in Trichoderma reesei David Maués University of São Paulo

**459B** Generation of haplotype phased genomes and nuclei specific expression profiles by long read sequencing in major Australian stripe rust lineages Mareike Moeller Australian National University

**460B** Evaluating histone acetyltransferases in Parastagonospora nodorum as potential fungal targets for alternative disease management Anjana Sharma Curtin University

**461B** Exploring the Unique Genome of Fusarium solani in Sugarbeet: Insights on its Opportunistic Habits Abbeah Navasca North Dakota State University

**462B** Identification of specific gene expression profiles of two conidia types in Colletotrichum graminicola Disha Rathi Georg–August University Göttingen, Institute of Microbiology and Genetics

**463B** The pangenome of human and banana infecting Fusarium musae strains matias pasquali University of Milan

**464B** Deciphering the mechanistic basis of tolerance to oligorofim in Aspergillus fumigatus Clara Valero The University of Manchester

**465B** Genome analysis and molecular detection of Fusarium solani f. sp. phalaenopsis causing leaf yellows of moth orchids Chih–Li Wang National Chung Hsing University, Taiwan

**466B** Comparative Analysis of Carbohydrate Active Enzymes in Rhizopus spp. and Aspergillus spp.: A Bioinformatics Approach Tomás Vellozo Echevarría Danmarks Tekniske Universitet

**467B** Exploring domain assortments in NOD–like receptors of Sordariales fungi reveals two types of NACHT domains Pierre Gladieux INRAE

**468B** Two genomes of Fusarium verticillioides from human patients: a comparative genome analysis Luca Degradi University of Milan

**469B** Comparative genomic and transcriptomic analysis to uncover host defense response and fungal virulence factors in the interactions of mango leaf and Colletotrichum asiaticum Dai–Keng Hsieh National Chung Hsing University

**470B** Transcriptomic and metabolic changes caused by mutation in xylanase regulator 1 (xyr1) in Trichoderma reesei Emmi Sveholm VTT Technical Research Centre of Finland

**471B** Evolutionary playgrounds and how to find them Alexandra Dallaire Royal Botanic Gardens Kew

**472B** Transcriptional Profiles during Spore Germination in Opportunistic Human Pathogenic

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Ascomycetes: Evolved Adaptations Mediated by abaA Da–Woon Kim Michigan State University

473B Comparative transcriptomics of spore germination stages in a plant pathogenic and an endophytic fungus Soumya Moonjely Michigan State University

474B Understanding the role of somatic hybridisation in global wheat stem rust epidemics through the development of haplotype–phased reference genome assemblies Rebecca Spanner University of Minnesota

475B Diversity and functional characterization of filamentous fungal sugar transportomes Miia Mäkelä University of Helsinki

476B Development of a method for QTL mapping in Saccharomycetes interspecific hybrids William Yaeger Lehigh University

477B The lifestyle of Mucoromycotina Fine Root Endophytes through the genomic lens Alan Wanke University of Cambridge

478B A telomere–to–telomere Coprinopsis cinerea Amut1Bmut1 genome assembly and gene model annotation Botond Hegedüs Synthetic and Systems Biology Unit, Institute of Biochemistry, HUN–REN Biological Research Center

479B Functional in vitro and physiological in vivo characterization of five new xylose transporters of Aspergillus niger Christina Lyra University of Helsinki

480B Regulatory rewiring of mating and environmental responses underlying homothallism in filamentous fungi is revealed with a systems maximally informative laboratory experiment (SMILE) Jeffrey Townsend Yale School of Public Health

481B Investigating the novel role of post–translational modifications of Rra1 in Cryptococcus neoformans Siobhan Duffy Duke University

482B The Rsp5 ubiquitin ligase contributes to stress response and pathogenesis in the fungal pathogen Cryptococcus neoformans Marnus du Plooy Duke University

483C Rapid pooled CRISPR/Cas9–directed insertional mutagenesis screens in Cryptococcus neoformans illuminate the biology of a deadly human fungal pathogen Manning Huang University of California, San Francisco

484C Transposable element (TE)–driven genome expansion in giant Entomophthoraceae genomes Xueyan Xu University of California–Riverside

485C Developmental and metabolic gene regulatory network rewiring of a GATA–type multifunctional regulator in two distantly related Aspergillus species Heungyun Moon University of Wisconsin–Madison

486C Investigation of Potential CFEM Proteins that Contribute to Host Recognition in Fusarium oxysporum 47 Gengtan Li University of Massachusetts Amherst

487C Differential codon usage patterns in endophytic and non–endophytic xylarialean fungi Roxanne Bantay University of Arizona

488C Using CAZyme secretome relatedness for elucidating Fusarium evolution and speciation Lene Lange LL–BioEconomy

489C Functional redundancy among members of the TLO expanded gene family in Candida albicans Emily Simonton University of Wisconsin–Madison

490C Comparative genomics of Basidiobolus isolated from the herptile gut microbiome Lluvia Vargas Oregon State University

491C Macrophomina phaseolina clonal and recombinant genotypes specialized for virulence against strawberry and soybean hosts Kayla Pennerman USDA–ARS

492C Genome assemblies of microbes isolated from soil post wildfire as foundation for decoding pyrophilic traits Ehsan Sari University of California Riverside

493C Ectomycorrhizal Suillus fungi represent hotspots of metabolic diversity, structured by gene presence/absence variation and significant horizontal gene transfer Lotus Lofgren Duke University

494C Investigating the impact of transposable elements on genome evolution during human infection in Cryptococcus neoformans Anna Mackey Duke University

495C Loss of RNA interference in Cryptococcus neoformans clinical and environmental isolates: a pathway to hypermutation Jun Huang Duke University

496C Genomic Architecture of Fungal Metabolism Involved in Host and Ecological Specialization Kathryn Bushley USDA–ARS

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**497C** *Fusarium graminearum* as an apple fruit pathogen  
*Mladen Petres* University of Novi Sad, Faculty of Agriculture

**498C** Exploration of secondary metabolite genetic diversity in *Fusarium sambucinum* through comparative genomic approaches  
*Theodora Borland* Oregon State University

**499C** Genomic Resources for the ARS Entomopathogenic Fungi Collection  
*Kathryn Bushley* USDA–ARS

**500C** Global analysis of circuitry governing *Candida albicans* morphogenesis within host immune cells and identification of inhibitors of morphogenesis  
*Nicola Case* University of Toronto

**501C** Comparative Genomics Resource (CGR) at NCBI: new possibilities to advance fungal research  
*Barbara Robbertse* National Institutes of Health

**502C** Genome sequencing and analysis provides novel insight into *Septoria glycines*  
*Kona Swift* University of Arkansas

**503C** Differences in thermotolerance between ecotypes of *Neurospora discreta* are primarily due to only two genomic regions  
*Aaron Robinson* Los Alamos National Laboratory

**504C** The telomeric–linked helicase genes are highly dynamic members of the *Fusarium oxysporum* subtelomere  
*Sahar Salimi* Tennessee Tech university

**505C** Comparative genomics of *Cryptococcus* and *Kwoniella* reveals pathogenesis evolution and contrasting modes of karyotype evolution via chromosome fusion or intercentromeric recombination  
*Marco Dias Coelho* Duke University Medical Center

**506C** Assessing genome assembly and annotation quality in MycoCosm.  
*Sajeet Haridas* DOE Joint Genome Institute

**507C** Identification of a putative gyromitrin biosynthesis gene cluster in the false morels  
*Alden Dirks* University of Michigan

**508C** Applied machine learning models for elucidating complex relationships between epigenomic regulatory design rules and gene expression between fungal species across phylogenetic distances.  
*Laura Weinstock* Sandia National Laboratories

**509C** Characterization of transcriptional differences during Cercospora beticola disease progression on infected detached and attached sugar beet leaves  
*Mari Natwick* North Dakota State University

**510C** Functional genomics of loblolly pine EMF communities revealed by metatranscriptomics  
*Keaton Tremble* Duke University

**511C** Development of a CRISPR/Cas9–mediated gene knockout method for functional genomics of the barley spot blotch pathogen *Bipolaris sorokiniana*  
*Shaobin Zhong* North Dakota State University

**512C** Truffles population genomic and associated fungal and bacterial communities – who shapes the true truffles aroma?  
*Tine Grebenc* Slovenian Forestry Institute

**513C** Host specificity of oak–associated foliar endophytes and saprobes associated with enhanced *in vitro* growth on polyphenolic compounds  
*Jana U'Ren* Washington State University

**Fungal diversity**

**514A** Inter–kingdom and intra–kingdom interactions in the microbiome of fungal fruiting body and associated decaying wood  
*Fred Asiegbu* University of Helsinki

**515A** *Seiridium* species causing cypress canker: Insights from South African isolates and historical disease reports  
*Janneke Aylward* University of Pretoria

**516A** Exploring the *Cryptococcus wingfieldii* complex: from African scolytine beetles to novel species discovery  
*Janneke Aylward* University of Pretoria

**517A** Form follows function in endophyte communities of carnivorous plants: trap type determines endophyte community.  
*Brandon Shaw* Loughborough University

**518A** Determining the Impact of Perfluorinated Compounds on Microbial Species Diversity  
*Halie Martin* University of Colorado Colorado Springs

**519A** Hawaiian ridge to reef census of Basidiomycete yeasts demonstrates high novel biodiversity in cryptic habitats  
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**520A** Fungal diversity associated with grapevine trunk diseases in Northern Italy and development of a qPCR for the detection of Botryosphaeriaceae  
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523A Diversity and characterization of filamentous fungi isolated from sediments of Basque estuaries Ziortza Agirrezabala Urkia Laboratory of Biology, Department of Applied Chemistry, Faculty of Chemistry, University of the Basque Country (UPV/EHU), 20018 San Sebastian

524A Accessing Fumonisin risk in corn from Nebraska and insight into the associated Fusarium spp. populations Ram Kumar Shrestha University of Nebraska–Lincoln

525A Microbiome Profiling of Soybean Roots as Affected by Sudden Death Syndrome (SDS) and Fungicide Applications Ma. Theresa Jonna Atienza–Parcon Southern Illinois University Carbondale

526A Virome characterization of a collection of Botrytis cinerea from Australia Lorena Rodriguez La Trobe University

527A starbase: A database and toolkit for classification of extremely large mobile genetic elements Adrian Forsythe Uppsala University

528B The effects of urbanization on the community composition of amphibian, water, and sediment samples in a Worcester, MA waterway Sara Wheeler Clark University

529B Diversity of cycloheximide–tolerant fungi in South African gold mine substrates Taygen Fuchs University of Pretoria

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532B Characterization of Candida auris and other fungal pathogens in the dog oral mycobiome Theodore White University of Missouri–Kansas City

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538B Unraveling the complexity of chronic cryptococcosis: mixed cryptococcal infections and in–host evolution Marhiah Montoya Duke University

539B Plastic–associated fungi of agricultural polyethylene–mulch in Western Oregon and their bioremediation mechanisms. Leon Rogers Oregon State University

540C Culture–Based estimation of Mucoromycota Communities: Insight into Plants as Biotic Drivers in Shaping Community Structure Alicia Kock North–West University, Potchefstroom

541C Fusarium Head Blight poses a new threat to Eastern Africa: examining the pathogen genomics and mycotoxin profiles of the 2022 FHB outbreak Liza DeGenring University of Minnesota

542C Diversification and Conservation of Fungal Inhibitor of Apoptosis Proteins Miette Hennessy University of Wisconsin – Madison

543C Toward a global understanding of fungal mitochondrial genomics Steven Ahrendt DOE Joint Genome Institute

544C The virulence factor Ave1 of the fungal plant pathogen Verticillium dahliae displays antimicrobial activity by targeting bacterial membranes and cell walls Gabriella Petti University of Cologne

545C Spatial variability in bacterial and fungal communities of apples (Malus domestica): unexpected patterns of nestedness and co–occurrence from individual fruits to the orchard scale Justin Shaffer California State University, Fresno

546C A Secondary Account of the North American Species of Rhizopogon Alija Mujic California State University, Fresno

547C Fungi in the Foothills: Cortinarius Species Diversity in the Sierra Nevada Oak Woodlands Danielle Sublett California State University Fresno

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555A Rho–GDP dissociation inhibitor affects growth and aflatoxin production in Aspergillus flavus Michael Price Liberty University College of Osteopathic Medicine

556A Deacetylation by sirtuin E is important for Aspergillus fumigatus pathogenesis and virulence Natália Wassano Universidade Estadual de Campinas (UNICAMP)

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559A Upc2–mediated mechanisms of azole resistance in Candida auris Jizhou Li Centre hospitalier universitaire vaudois

560A RNA editing in three members of the Microbotryum violaceum fungal complex and characterization of ADAR genes of Microbotryum dianthorum Shikhi Baruri University of Louisville

561A Cryptococcus neoformans Adaptation to the Host is Regulated by the RAM Pathway Emma Blackburn University of Georgia

562A Roles of P–body factors in C. albicans filamentation Melissa Tosiano Carnegie Mellon University

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571A Chromatin Assembly Factor 1 is Required for Normal Gene Repression and Chromatin Structure at PRC2–targeted Genes Eduardo Torres University of Georgia

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579B Localization and functional domain analysis of AmyR in the black koji–mold Aspergillus luchuensis and its closely related species Jikian Tokashiki Tohoku Univ.

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Srr1, a conserved transcription factor regulates postmeiotic spore morphogenesis and ballistospory in mushroom–forming fungi Zhihao Hou HUN–REN Biological Research Centre Szeged

A novel reporter system to identify arginoketides in soil that mediate cross–kingdom microbial interactions Maira Rosin Leibniz Institute for Natural Product Research and Infection Biology (Leibniz–HKI)

Understanding the mechanisms that regulate H3K27me3 in the model fungi Neurospora crassa Felicia Ebot Ojong The University of Georgia

Clade–wide exploration of fungal sRNAs reveals hints of conservation Nathan Johnson Universidad Mayor

A conserved oxylipin alarm blocks the fungicidal effects of echinocandins in pathogenic aspergilli Dante Calise University of Wisconsin – Madison

Hdp2 is the central transcriptional regulator during the early stage of plant infection of Ustilago maydis Joerg Kaemper Karlsruhe Institute of Technology

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Unraveling the 6mA–regulated transcriptional regulatory networks in the early diverging fungus R. microsporus Carlos Lax Departamento de Genética y Microbiología, Facultad de Biología, Universidad de Murcia

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626A Yeast – oomycete interaction in Arabidopsis phyllosphere via a membrane permease Yiheng Hu Microbial Interactions in Plant Ecosystems, Center for Plant Molecular Biology, University of Tübingen

627A A DASH complex ortholog mediates pH adaptation and virulence in *Cryptococcus neoformans*. Rebekah Satalino Liberty University College of Osteopathic Medicine

628A Endophytic Fungi as Biofertilizing and Biocontrol Agents of Cranberry Plants Bhagya Chattanahalli Thimmappa Department of Biochemistry and Robert–Cedergren Centre for Bioinformatics and Genomics, Université de Montréal, Montreal, Quebec, Canada

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635A Comparative transcriptomic and histochemical analyses of *Microbotryum pavonius* infection on two *Dianthus* species. Is it a “generalist” or “specialist” fungus? Derica Tavares University of Louisville

636A Characterization of the Effector Protein MVLG_01732 from *Microbotryum lychnidis–dioicae* and Its Interactions with Host Proteins Joseph Ham University of Louisville

637A Learning from the negative: Studying pathogen evolution from the “non–pathogen” perspective Thomas Sauters Vanderbilt University

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643A Avc1 regulates adaptation to high CO<sub>2</sub> levels in the human fungal pathogen *Cryptococcus neoformans* Benjamin Chadwick University of Georgia

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646A A look into the *Pyrenophora teres* f. *teres* colonization strategies on barley using a transformation–free staining and confocal microscope analysis Ashley Nelson North Dakota State University

647A The key role of the biotic component in kiwifruit vine decline syndrome (KVDS) in Italy, an emerging multifactorial syndrome Micol Guaschino University of Torino

648A A predatory fungus detects prey pheromones via G–protein–coupled receptors Chih–Yen Kuo Institute of Molecular Biology, Academia Sinica

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663A Development of in vitro platform techniques for investigating bacteria–fungi interactions in the gut microbiome Yujin Lee Yonsei University

664A A fungal transcription factor BOT6 triggers the transition of fungal infection strategy from mutualistic to pathogenic in plant–associated endophytic fungus Colletotrichum tofieldiae Ren Ujimatsu The University of Tokyo

665A Effector proteins involved in defense of mushroom–forming fungi against their competitors Marieke van Maanen Utrecht University

666A Role of Mac1–dependent copper acquisition and superoxide dismutase activity in Fusarium oxysporum pathogenicity Rafael Palos Fernández Facultad de Ciencias, Universidad de Córdoba, Campus de Excelencia Agroalimentario (ceiA3).

667A Feeling the heat: investigating the dual assault of Zymoseptoria tritici and heat stress on Wheat (Triticum aestivum) Hannah Blyth Rothamsted Research

668A The SOVIG9 effector protein is involved in host–specific phytoalexin induction by S. reilianum in Sorghum bicolor Lukas Dorian Dittiger Friedrich Schiller University

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685B A set of effector proteins modulate host–specific virulence of Sporisorium reilianum f. sp. reilianum Shivam Chaudhary Friedrich Schiller University

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714B Toward understanding of the biosynthetic pathway of Ptr ToxC in Pyrenophora tritici–repentis Zhaohui Liu North Dakota State University

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716B Establishing laboratory model systems for ectomycorrhizal symbiosis Ines Teichert Forest Botany and Tree Physiology, University of Göttingen

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733C Symbiotic stress response: Ectomycorrhizal fungi change seedling drought physiology and gene expression Laura Bogar University of California, Davis

734C The role of purine metabolism in the C. elegans Intracellular Pathogen Response to microsporidia and Orsay Virus infection Nicole Wernet UC San Diego

735C The Cell Wall Glucan–glycogen Complex: A Novel Determinant of the Candida albicans Host–pathogen interaction Jian Miao The University of Tennessee Health Science Center

736C The Candida albicans quinone reductase Zta1 promotes resistance to oxidative stress Rafael Gandra Stony Brook University

737C Combating emerging Aspergillus fumigatus triazole resistance by targeting the fungal hypoxia response Robert Cramer Geisel School of Medicine at Dartmouth

738C Dispersal and biotic filtering structure Mucoromycota fungal communities and their associated bacteria across two different biomes Nicole Reynolds Cornell University

739C Integrative multi–omics analyses of host and pathogen signaling during Fusarium Head Blight disease of cereals Mitch Elmore USDA–ARS

740C Suppression of host immune processes by effectors from Zymoseptoria tritici Graeme Kettles University of Birmingham

741C Transcriptional Profiling and Functional Analysis of Candida auris Biofilm Regulators During Infection Tristan Wang University of Maryland Baltimore

742C Single–cell profiling of Magnaporthe oryzae infections on rice plants Jessie Fernandez University of Florida

743C Unraveling the genetic determinants of virulence in the pathogen Cryptococcus neoformans Katrina Jackson Northern Arizona University

744C Investigating the prevalence and influence of endophythal bacteria on Mucorales Elizabeth Ballou MRC Centre for Medical Mycology, University of Exeter

745C The sugar beet (Beta vulgaris subsp. vulgaris) phyllosphere harbors bacteria capable of inhibiting Cercospora beticola, the causal agent of Cercospora leaf spot (CLS) Madison Christenson North Dakota State University

746C Intermicrobial carbon substrate metabolism contributes to the pathogenesis of fungal–bacterial intra–abdominal co–infection Saikat Paul The University of Tennessee Health Science Center

747C Effects of Synonymous and Nonsynonymous Mutations on Cyp51 Expression and DMI Resistance in Cercospora beticola Isaac Courneya North Dakota State University

748C Characterizing the Magnaporthe oryzae acyl–CoA–binding protein–encoding gene ACB1 reveals critical roles in homeoviscous adaptation during rice
infection Michael Richter University of Nebraska-Lincoln

749C Fungi with diverse lifestyles employ antimicrobial proteins to mediate niche establishment Anton Kraege University of Cologne

750C An Analysis of Cryptococcal Dissemination and Organ Seeding Joseph Bednarek University of Utah

751C Waterways are hotspots for Coccidioides in arid, urban environments John Taylor University of California

752C Exploring the role of carbon catabolite repression in Aspergillus fumigatus virulence in the cornea Becca Wells University of Oklahoma Health Sciences Center Center

753C Comparative proteomic analysis of Solanum lycopersicum in response to endophytic and pathogenic strains of Fusarium oxysporum Madison Newman University of Massachusetts Amherst

754C Functional characterization of the Avr4 effector in the banana pathogen Pseudocercospora fijiensis using CRISPR–Cas9–mediated transformation Maikel Steentjes Wageningen University

755C Trichoderma atroviride small RNA1 targets the Arabidopsis PRIM2 gene to establish a mutualistic relationship Sergio Casas–Flores Institute for Scientific and Technological Research of San Luis Potosi

756C Exploring Ectomycorrhizal Fungal Diversity of three Taiwan Endemic Pinaceae Trees in Mountain Forest Ecosystems Ren–Cheng Liu Tunghai University

757C Exploring Microbiome Stability and Biocontrol Agents in Rice Blast Mitigation: A Gnotobiotic Approach with Oryza Sativa Tim Johnson University of Florida

758C CbCyp51 mediated DMI resistance is modulated by codon bias Melvin Bolton United States Department of Agriculture


760C Discovery of plant– and algal–derived plastids in diverse fungi Julia Kelliher Los Alamos National Laboratory

761C Transcriptional Responses During Early Fungal–Algal Symbiotic Interactions in the lichen–forming fungus Umbilicaria mublenbergii Diwen Wang Purdue University

762C Mechanisms of bacterial–fungal interactions and their environmental roles Leah Johnson Los Alamos National Laboratory

763C The fungal virulence factor cardiolipin synthase MoGep4 acts as a fungicide target Peng Sun Huazhong Agricultural University

764C Endophyte fungi of the Talaromyces genus help Typha latifolia plants to tolerate contamination by heavy metals Domingo Martinez Soto Centro de Investigación Científica y de Educación Superior de Ensenada

765C Horizontal transfers between fungal Fusarium species contributed to successive outbreaks of coffee wilt disease Lily Peck University of California Los Angeles

766C Communication between Fusarium and its microbial partners: the role of microRNAs Marine Navarro INRAE

767C Mechanism of niche adaptation and defence: beneficial endophytes deploy host–protective antimicrobial effectors Laura Armbruster University of Cologne

768C An environmental isolate of Pseudomonas reduces Aspergillus flavus growth in an iron–dependent manner affecting the expression of numerous genes and mycotoxin production Ana Calvo Northern Illinois University

769C Comparative transcriptomics identifies secreted protein associated with virulence of Seiridium cardinale Edoardo Scali UC Berkeley

Population and evolutionary genetics

770A Global genomic analyses of wheat powdery mildew reveal association of pathogen spread with historical human migration and trade and more Alexandros Georgios Sotiropoulos University of Southern Queensland

771A Role of gene flow in dictating adaptation and evolution of reproductive barriers. Supreet Saini Indian Institute of Technology Bombay

772A Assembly of Alternaria solani reference whole genome sequence to elucidate single nucleotide polymorphism based phylogenetic relationships among the isolates in US. Ipsita Mallik North Dakota State University
POSTER SESSION LISTINGS

**773A** Increased genetic diversity of clonal rice blast fungus lineages through multiple mini–chromosome transfers **Cristina Barragan** The Sainsbury Laboratory

**774A** The emerging Eucalyptus scab and shoot malformation epidemic in North Sumatra defined by panmictic populations of *Elsinoe necatrix* **Nam Pham** Forestry and Agricultural Biotechnology Institute (FABI)

**775A** Observing Histoplasma across the globe, Elucidating Transposable Elements and Synteny **Tania Kurbessoian** University of North Carolina, Chapel Hill

**776A** Do spore killing genes maintain accessory chromosomes in plant pathogenic fungi? **Aaron Vogan** Uppsala University

**777A** Spontaneous chlorate resistance mutations in *Fusarium verticillioides* **Maninder Kaur** Kansas State University

**778A** Divergence of TORC1–mediated stress response leads to novel acquired stress resistance in a pathogenic yeast **Bin He** University of Iowa

**779A** Parallel expansion and divergence of an adhesin family in pathogenic yeasts **Bin He** University of Iowa

**780A** Extensive and independent evolution of secondary metabolism genes across the early diverging fungal genus **Basidiobolus Javier Tabima** Clark University

**781A** Interspecific hybridisation as a new evolutionary fungicide resistance mechanism in the fungal pathogen *Pyrenophora teres* **Chala Turo** Curtin University

**782A** Second Alternative Oxidase Genes in Aspergillaceae: Genesis, Loss and Mutations **Levente Karaffa** University of Debrecen

**783A** Population structure is linked to host vernalization requirement in the barley net blotch fungal pathogen **Julie Ramirez Martinez** INRAe

**784A** Mystery of virulence gene duplication unravels – the ToxB effector gene in *Pyrenophora tritici–repens* was likely captured and copied by a Helitron **Ryan Gourlie** Agriculture and Agri–food Canada

**785B** Comparative genomics reveals intra and inter species variation in the pathogenic fungus *Batrachochytrium dendrobatidis* **Mark Yacoub** University of California, Riverside

**786B** Pathogenicity is associated with population structure in a fungal pathogen of humans **Anne Hatmaker** Vanderbilt University

**787B** Developing genomic methods to dissect thermophilicity in *Myceliophthora thermophila* **Olusunya Ogunyewo** University of California Berkeley

**788B** Genome–wide association studies for the genetic basis of variation in fungicide sensitivity and mycotoxin production in U.S. isolates of *Fusarium graminearum* **Christopher Toomajian** Kansas State Univ

**789B** Developmental regulation of transposon activity drives adaptation in the clonally evolving fungal pathogen *Fusarium oxysporum* **Ana Rodríguez López** University of Córdoba

**790B** Population genetic consequences of introduction and invasion in *Suillus luteus*, an ectomycorrhizal fungus co–introduced with exotic forestry **Yi–Hong Ke** Duke University

**791B** Exploring the role of Spoks (Spore Killers) in chromosome dynamics of *Fusarium oxysporum* **Manuel Sánchez López–Berges** Universidad de Córdoba

**792B** The impact of structural variations on reproductive barriers and speciation in the fungal morphospecies *Trichaptum abietinum* **Inger Skrede** University of Oslo

**793B** A global pangenome of *Aspergillus fumigatus* reveals the origin of azole resistance **Harry Chown** Imperial College London

**794B** Genomic factors shape carbon and nitrogen metabolic niche breadth across an entire subphylum **Dana Opulente** Villanova University

**795B** Entanglement of transposable elements and virulence in rapid crop pathogen adaptation **Daniel Croll** University of Neuchatel

**796B** Assessing Roles for Dynamic *Magnaporthe oryzae* Mini–Chromosomes in Host Adaptation **Tyler Suelter** Kansas State University

**797B** Tracing parallel evolution in a clonal lineage of the rice blast fungus for over a century **Sergio M. Latorre** University College London

**798B** Demographic history and effects of habitat loss on the genetic structure in a red listed forest fungus **Susanne Methlie** University of Oslo

**799B** Inferring molecular bases of the *Rhizopus microsporus* – *Mycetohabitans* symbiosis by genome–wide positive selection analysis **Margaret Branine** Cornell University

**800B** Parallel evolution in gene expression during the spore germination of the mycoparasites, *Trichoderma*

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asperelloides and Tolypocladium ophioglossoides Yen–Wen Wang Yale University

801C Fungi grown by insects, Nature’s prototype of a Biorefinery, can guide design of industrial enzyme blends and elucidate fungal adaptation to domestication Lene Lange LL–BioEconomy

802C Heat stress, genetic changes and thermal adaptation in Cryptococcus deneoformans Paola Ramos Duke University

803C Genotype phenotype associations reveal genome scale convergence across 993 budding yeasts Kyle David Vanderbilt University

804C Paternity test: Identifying the parental genomic contributions to the important biological control, Trichoderma strain T22 Tammy Stackhouse University of Georgia

805C Elucidating the population genomic structure of Malassezia species: Implications for sexual reproduction Marcia David–Palma Duke University

806C Exploring the Genetic Diversity of Arthrobotrys oligospora Wild Populations in Taiwan Guillermo Vidal–Diez de Ulzurrun Academia Sinica

807C Population genomic analyses reveal deep population subdivision in Rhizoctonia solani AG–1 isolates associated with different crops in North America and the Caribbean Juanita Gil University of Arkansas

808C Recent co–evolution of two pandemic plant diseases in a multi–hybrid swarm Mostafa Rahnama Tennessee Tech University

809C Dynamics of copy–number variation in response to fluconazole are dependent on drug concentration and temperature Saaz Sakrikar New York University

810C Genomic insights into the evolution of virulence in tan spot disease Reem Aboukhadour Agriculture and Agri–Food Canada

811C Genomic Insights into the Population Structure and Reproductive Strategies of the rice pathogen Cercospora janseana Jacob Seairght Louisiana State University Agricultural Center

812C Investigating the history and consequences of secondary contact between divergent populations of Trichaptum abietinum in Europe Dabao Lu University of Oslo

813C Experimental Evolution of Benniella erionia and Mollicutes–Related Endobacteria Reid Longley Los Alamos National Laboratory

Synthetic biology

815A Expanding the repertoire of fungal heterologous hosts for the expression of natural products Adrian Gadar DTU biosustain

816A Learning chemistry from fungi to make sustainable chemicals Pablo Cruz–Morales Technical University of Denmark

817A Investigation of the biosynthetic gene cluster for the production of the blue–green pigment xylindein by Chlorociboria species Yanfang Guo Westerdijk Fungal Biodiversity Institute

818A Characterization of two landing sites for genomic integration in the Sordariales Podospora anserina Herve Lalucque Universite Paris Cite

819A Probing the limitations of synthetic biology platforms through in situ biosynthetic gene cluster reconstruction Daniel Berry Victoria University of Wellington

820A Leverage of fungal growth data through modelling: applications to the study of antifungal drugs David Canovas University of Sevilla

821B Towards the development of a safeguarding CRISPR RNA–guided gene drive to mitigate the impacts of the non–native fungal pathogen Sphaerulina musiva on managed ecosystems Joanna Tannous Oak Ridge National Laboratory

822B High–throughput CAZyme production in Aspergillus oryzae Marti Morera DTU

823B Signal Peptide Engineering in Filamentous Fungi driven by lab automation and Al Lucas Levassor Technical University of Denmark, DTU

824B A Single Step Multi–Copy Integration System Based on Rolling–Circle Replication Martzel Antsotegi Technical University of Denmark (DTU)

825B Characterizing the effects of simulated space environmental conditions on the biological and mechanical properties of fungal composite biomaterials Rolando Perez Blue Marble Space Institute of Science

826C Advancing Yarrowia lipolytica for heterologous production of production of fungal polyketides Jens Laurids Sorensen Aalborg University

827C Biomineralization–Enabled Self–Growing Building Blocks for Habitat Outfitting on Mars Nisha Rokaya University of Nebraska–Lincoln

828C Towards Genetic Engineering in Anaerobic Fungi Sarah Seagrave UCSB
829C Synthetic expression system enhances recombinant protein production in *Aspergillus oryzae* [Casper van der Luijt](#) University of Copenhagen

830C Development of bacterially-mediated transformation methods for anaerobic gut fungi [Hugh Purdy](#) University of California, Santa Barbara

831C A Biofoundry for Synthetic Biology and Genetic Tool Development of Anaerobic Gut Fungi [Elaine Kirschke](#) University of California Santa Barbara

**Other**

832A Myco–Ed: Mycological Curriculum for Education and Discovery [Stephen Mondo](#) DOE Joint Genome Institute

833A Controlling Fusarium head blight and mycotoxin contamination by exploring an endophytic fungal RNAi delivery system [Guixia Hao](#) USDA/ARS

834A The *hdt4* transcription factor gene controls development and secondary metabolism in the fungus *Aspergillus flavus* [Farzana Ehetasum](#) Northern Illinois University

835A Fungal Genetics Stock Center: A Status Report [Jaideep Mallick](#) Kansas State University

836A *Fusarium oxysporum* – the next model system to study melanoma [Shay Covo](#) Hebrew University

837A Systematic characterization of GPI–anchored mannoproteins in *Cryptococcus neoformans yeqi* [Li](#) University of Georgia

838A A multifaceted approach to improving outcomes of cerebral aspergillosis [Sarah Beattie](#) University of Iowa

839A Production of poly(β–L–malic acid) by the yeast–like fungus *Aureobasidium pullulans* [Difan Xiao](#) RWTH Aachen University

840B The myco–ecology of the *Stylophora pistillata* holobiont: a case study with two associated fungi – *Cladosporium halotolerans* and *Stachybotrys chlorohalonata* [Lior Granit](#) Hebrew Univ of Jerusalem

841B The *Stylophora pistillata*–associated fungus *Cladosporium halotolerans* affects the expression of stress–related genes in the coral host following exposure to elevated sea water temperature [Rotem Levi](#) Hebrew Univ of Jerusalem

842B The proteomic response of *Aspergillus fumigatus* to Amphoterocin B (AmB) reveals the involvement of the RTA–like protein RtaA in AmB resistance [Sophie Tröger–Görler](#) Leibniz Institute for Natural Product Research and Infection Biology, Hans Knöll Institute (HKI)

843B Fungal Flc/Pkd2 proteins, that are required for cell wall integrity and calcium homeostasis, belong to a distinct ancient eukaryotic transmembrane protein superfamily [Edward Wallace](#) University of Edinburgh

844B Bioremediation of heavy metals from wood preservatives by ectomycorrhizal fungi [Ray Van Court](#) Oregon State University

845B Identification of *A. fumigatus* virulence factors by in vivo RNA–seq analysis [Hong Liu](#) Lundquist Institute for Biomedical Innovation at Harbor–UCLA Medical Center

846B The histone deacetylase HosA regulates host cell interactions, resistance to intracellular oxidative stress, and virulence in *A. fumigatus* [Hong Liu](#) Lundquist Institute for Biomedical Innovation at Harbor–UCLA Medical Center

847B Enhanced mycelial growth rate and fruit body yield via mycovirus elimination in the edible mushroom *Lentinula edodes* [Hayeon Song](#) Wonkwang University

848C VOC profiles from a chestnut blight fungus *Cryptonectria parasitica* in response to hypovirus CHV1 [Yo–Han Ko](#) Jeonbuk National Univ

849C Effect of double–stranded RNAs on antifungal activity of *Trichoderma harzianum* [Jeonbuk National University](#)

850C Fungi and humidity dynamics [Jan Dijkstra](#) Westerdijk Fungal Biodiversity Institute

851C Immune Mechanism of Intramuscular Vaccination against Cryptococcus [Yu Zhang](#) Rutgers University

852C Evaluating the Performance of AlphaFold for Fungal Small Secreted Cysteine Rich Protein Structure Determination: A case for *Trichoderma* hydrophobins [Gunseli Bayram Akcapinar](#) Acibadem University

853C Vaccination with ZNF2 overexpression strain provides cross–protection between serotypes [Nhu Pham](#) University of Georgia

854C Gene expression analysis of *CpDmt2*–null mutant of *Cryphonectria parasitica* associated with hypoviral clearance [Jeesun Chun](#) Jeonbuk National University

855C Vertical transfer of the core microbiome in ectomycorrhizal fungi – an example of the true truffle (Tuber aestivum) [Nejc Suban](#) Slovenian Forestry Institute