# 32nd Fungal Genetics Conference

March 12-17, 2024

# PROGRAM BOOK

GENETICS GSA G3 Genes | Genomes | Genetics

**TABLE OF CONTENTS**

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*

**Directors**
Daniel Barbash
Shawn Burgess
Amanda Larracuente
Teresa Lee
Eyleen O'Rourke
Duojia (DJ) Pan
Arun Sethuraman
Martha Soto
Jason Stajich
Patricia J. Wittkopp

**Journal Editors**
Howard Lipshitz, Editor in Chief, GENETICS
Lauren McIntyre, Editor in Chief, G3: Genes|Genomes|Genetics

**Early Career Representative**
Jacob Ortega

**Executive Director**
Tracey DePellegrin

**GSA Journals**

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

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!

GENETICS

G3 Genes | Genomes | Genetics

ADM

novozymes®
Rethink Tomorrow

NIH National Institutes of Health
*Turning Discovery Into Health*

OPEN FUNG

## 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.

| | |
|---|---|
| Tuesday, March 12 | 4:30 p.m.–9:30 p.m. |
| Wednesday, March 13 | 8:00 a.m.–5:00 p.m. |
| Thursday, March 14 | 8:30 a.m.–2:00 p.m. |
| Friday, March 15 | 8:30 a.m.–1:00 p.m. |
| Saturday, March 16 | 8:30 a.m.–11:00 a.m. |

## 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:

| | | | |
|---|---|---|---|
| Tuesday, March 12 | 4:00 p.m.–7:00 p.m. | Wednesday - Saturday | 7:30 a.m.–5:00 p.m. |

## 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:

| | | |
|---|---|---|
| **Wednesday, March 13** | All "A" posters must be displayed. | |
| | 7:30 p.m.–8:30 p.m. | Odd-numbered posters |
| | 8:30 p.m.–9:30 p.m. | Even-numbered posters |
| | 9:30 p.m.–10:30 p.m. | Open Viewing |
| **Thursday, March 14** | All "B" posters must be displayed. | |
| | 7:30 p.m.–8:30 p.m. | Odd-numbered posters |
| | 8:30 p.m.–9:30 p.m. | Even-numbered posters |
| | 9:30 p.m.–10:30 p.m. | Open Viewing |
| **Friday, March 15** | All "C" posters must be displayed. | |
| | 7:30 p.m.–8:30 p.m. | Odd-numbered posters |
| | 8:30 p.m.–9:30 p.m. | Even-numbered posters |
| | 9:30 p.m.–10:30 p.m. | Open Viewing |

# 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/

oCelloScope™ Live-Cell Imaging – Automated Microbial Growth Kinetics and Morphology Analysis. The oCelloScope™ 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:

| | |
|---|---|
| Breakfast | 7:30 a.m.– 8:30 a.m. |
| Lunch | 12:00 p.m.–1:00 p.m. |
| Dinner | 6:00 p.m.–7:00 p.m. |

## 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.

- 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 | | |
|---|---|---|
| 5:00 p.m. – 7:00 p.m. | Registration | Surf and Sand |
| 7:00 p.m. – 10:00 p.m. | 20th International Aspergillus Meeting | Merrill Hall |
| **Tuesday, March 12, 2024** | | |
| 8:30 a.m. – 3:00 p.m. | 20th International Aspergillus Meeting | Merrill Hall |
| 9:00 a.m. – 5:00 p.m. | Fusarium Workshop | Chapel |
| 9:00 a.m. – 5:00 p.m. | Marine Mycology Meeting | Scripps |
| 9:00 a.m. – 5:00 p.m. | Magnafest | Kiln |
| 9:00 a.m. – 5:30 p.m. | Dothideomycetes Genetics Workshop | Nautilus |
| 9:00 a.m. – 6:00 p.m. | 2nd Symposium on the Basal Fungal Kingdom | Fred Farr Forum |
| 4:00 p.m. – 7:00 p.m. | Speaker Ready Room | Triton |
| 4:30 p.m. – 9:30 p.m. | Registration | Surf and Sand |
| 7:00 p.m. – 7:30 p.m. | Metzenberg Award Presentation | Chapel |
| 7:30 p.m. – 8:00 p.m. | Hannah Read Acoustical Show | Chapel |
| 7:30 p.m. – 9:00 p.m. | Opening Mixer | Meadow |
| **Wednesday, March 13, 2024** | | |
| 7:30 a.m. – 8:30 a.m. | Breakfast | Crocker Hall |
| 7:30 a.m. – 5:00 p.m. | Speaker Ready Room | Triton |
| 9:00 a.m. – 12:00 p.m. | Plenary Session I: Functional genomics illuminates foundational biology and evolution | Merrill Hall and Chapel |
| 12:00 p.m. – 1:00 p.m. | Lunch (for those staying at Asilomar or bought a meal plan) In addition to Crocker Hall, box lunches are available on the patio. | Crocker Hall |
| 12:00 p.m. – 1:30 p.m. | Fun(gi) for All: Building an Inclusive Fungal Genetics Meeting and Community | Chapel |
| 3:00 p.m. – 6:00 p.m. | Concurrent Sessions | |
| | New technologies to understand and control antifungal resistance | Chapel |
| | Mobile elements and dynamic genomes | Fred Farr Forum |
| | Machine Learning in Fungal Genetics | Heather |
| | RNA biology | Kiln |
| | Polarized growth: 100 years with a Spitzenkoerper | Merrill Hall |
| | Extremophilic and anaerobic fungi | Nautilus |
| | Fermentation, biorenewables, and the built environment | Scripps |
| 6:00 p.m. – 7:00 p.m. | Dinner (for those staying at Asilomar or bought a meal plan) | Crocker Hall |
| 7:00 p.m. – 10:30 p.m. | Poster Session and Exhibits | Fireside Pavilion |

| Thursday, March 14, 2024 | | |
|---|---|---|
| 7:30 a.m. – 8:30 a.m. | Breakfast | Crocker Hall |
| 7:30 a.m. – 5:00 p.m. | Speaker Ready Room | Triton |
| 9:00 a.m. – 12:00 p.m. | Plenary Session II: Multilevel regulatory circuits to understand fungal metabolism | Merrill Hall and Chapel |
| 12:00 p.m. – 1:00 p.m. | Lunch (for those staying at Asilomar or bought a meal plan) In addition to Crocker Hall, box lunches are available on the patio. | Crocker Hall |
| 12:30 p.m. – 1:45 p.m. | Ad Hoc Sessions | |
| | Neurospora Business Lunch | Chapel |
| | Oomycete Molecular Genetics Network | Kiln |
| | FungiDB workshop | Merrill Hall |
| | National Microbiome Data Collaborative (NMDC) tools for fungal multi-omics and environmental microbiome research | Nautilus |
| | Polyextremotolerant Fungi Group Meeting | Scripps |
| 3:00 p.m. –6:00 p.m. | Concurrent Sessions | |
| | Cytoskeleton and intracellular transport | Chapel |
| | Phase separation and sequestration | Fred Farr Forum |
| | Beyond the Dikarya: Studies of basal fungi reveal new biology | Heather |
| | Chromatin and chromosome biology | Kiln |
| | Multi-trophic fungal interactions: integrating chemical, molecular, and metagenomic approaches | Merrill Hall |
| | Biofilms, biocontrol, and disease prevention by genome engineering | Nautilus |
| | Signaling in the gas phase | Scripps |
| 6:00 p.m. – 7:00 p.m. | Dinner | Crocker Hall |
| 7:00 p.m. – 9:00 p.m. | Genetics and Biochemistry of Plant-Fungal Interactions | Kiln |
| 7:00 p.m. – 10:30 p.m. | Poster Session and Exhibits | Fireside Pavilion |
| **Friday, March 15, 2024** | | |
| 7:30 a.m. – 8:30 a.m. | Breakfast | Crocker Hall |
| 7:30 a.m. – 5:00 p.m. | Speaker Ready Room | Triton |
| 9:00 a.m. – 12:00 p.m. | Plenary Session III: Underneath, within, and around: pathogens and symbionts | Merrill Hall and Chapel |
| 12:00 p.m. – 1:00 p.m. | Lunch (for those staying at Asilomar or bought a meal plan) In addition to Crocker Hall, box lunches are available on the patio. | Crocker Hall |
| 12:30 p.m. – 1:45 p.m. | Ad Hoc Sessions | |
| | Nematophagous Fungi: Biocontrols agents or cell factories? | Chapel |
| | JGI-EMSL workshop on genomics and multi-omics | Merrill Hall |

| Friday, March 15, 2024 (continued) | | |
|---|---|---|
| 3:00 p.m. – 6:00 p.m. | Concurrent Sessions | |
| | Morphogenesis at multiple scales | Chapel |
| | Fungi in microbial ecosystems | Fred Farr Forum |
| | Connections between light, clocks, and stress | Heather |
| | Experimental evolution with fungi | Kiln |
| | Understanding fungal pathogenesis by genomics | Merrill Hall |
| | Fungi at the cutting edge - microfluidics and other new tools | Nautilus |
| | Fungi for sustainable food production | Scripps |
| 6:00 p.m. – 7:00 p.m. | Dinner (for those staying at Asilomar or bought a meal plan) | Crocker Hall |
| 7:00 p.m. – 10:30 p.m. | Poster Session and Exhibits | Fireside Pavilion |
| **Saturday, March 16, 2024** | | |
| 7:30 a.m. – 8:30 a.m. | Breakfast | Crocker Hall |
| 7:30 a.m. – 5:00 p.m. | Speaker Ready Room | Triton |
| 9:00 a.m. – 12:00 p.m. | Plenary Session IV: Interactions of fungi with the biosphere | Merrill Hall and Chapel |
| 12:00 p.m. – 1:00 p.m. | Lunch (for those staying at Asilomar or bought a meal plan) In addition to Crocker Hall, box lunches are available on the patio. | Crocker Hall |
| 12:30 p.m. – 2:00 p.m. | Fungal Policy Committee Meeting (invitation only) | Surf and Sand |
| 2:00 p.m. – 5:00 p.m. | Concurrent Sessions | |
| | Genetic control of primary and secondary metabolism | Chapel |
| | Horizontal gene transfer, meiotic drive, and related phenomena | Fred Farr Forum |
| | Diversity and biotechnology of marine and estuarine fungi | Heather |
| | Multicellular development | Kiln |
| | Mechanisms of resistance to antifungals | Merrill Hall |
| | Evolving metabolomes by divergent genome architectures | Nautilus |
| | Mycoviruses | Scripps |
| 5:30 p.m. – 5:45 p.m. | Fungal Meeting and GSA Poster Award Presentations | Merrill Hall and Chapel |
| 5:45 p.m. – 6:30 p.m. | Perkins/Metzenberg Lecture | Merrill Hall and Chapel |
| 6:30 p.m. – 7:30 p.m. | Dinner (for those staying at Asilomar or bought a meal plan) | Crocker Hall |
| 8:30 p.m. – 11:00 p.m. | Closing Party | Merrill Hall |
| **Sunday, March 17, 2024** | | |
| 7:30 a.m. – 8:30 a.m. | Breakfast | Crocker Hall |

## 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

4:20 Break

**10** 4:40 Physiological adaptation to changing environments by the polyextremotolerant yeast Aureobasidium pullulans **Audrey Williams** Duke University

**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

## 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

4:20 Break

**18** 4:40 Understanding the dynamics of carbon catabolite repression in filamentous fungi **J. Philipp Benz** Technical University of Munich

**19** 5:00 Understanding the inner workings of the basidiomycete Fomes fomentarius for materials applications **Carsten Pohl** Technische Universität Berlin

**20** 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

**21** 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

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

## 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

**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

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.

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 restore azole 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

4:20 Break

**42** 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

**43** 5:00 Fungicides alternation and mixture lead to *in vitro* selection of generalist resistance mechanisms (MDR) in *Zymoseptoria tritici* **Elza Neau** Université Paris Saclay

**44** 5:20 Constraint on boric acid resistance and tolerance evolvability in Candida albicans **Aleeza Gerstein** University of Manitoba

**45** 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 pentration 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 Potosi

4:20 Break

**58** 4:40 Investigating the role of chromatin dynamics in *Histoplasma* morphogenesis **Nebat Ali** UCSF

**59** 5:00 *Cryptococcus neoformans* Adaptation to the Host is Regulated by the RAM Pathway **Emma Blackburn** University of Georgia

**60** 5:20 Continual propagation of [D1,2] stwintrons in divergent *Xylariales* **Erzs?bet Fekete** University of Debrecen

**61** 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

10:30 Break

**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

## 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

## 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

## Thursday, March 14, 2024

3:00 p.m.–6:00 p.m.

Merrill Hall

### 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

## 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 Scienes 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

## 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

## 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

Ad hoc Lunch Sessions

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 $CO_2$ 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 Aufrecht** 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 Ionomic 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

**161** 3:20 Mechanisms of bacterial–fungal interactions and their environmental roles **Leah Johnson** Los Alamos National Laboratory

**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

4:20 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 p.m. 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

## Saturday, March 16, 2024

2:00 p.m.–5:00 p.m.

Fred Farr Forum

### Horizontal gene transfer, meiotic drive, and related phenomena

*Session Chairs:* Like Fokkens Wageningen University & Research, Netherlands; and SaraH Zanders Stowers Institute for Medical Research, United States

**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 Tröger–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* **María 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

## 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

**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* **Hokyoung 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

**286C** New Regulators of Gliotoxin Synthesis, HsfA and RogA, Identified through the Systems Biology Network GRAsp **Hye–won Seo** UW–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 adenylyl 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 Antoniel** 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 *Parastagonospora 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

**316C** Genetically manipulating anaerobic, lignin–degrading microbial communities **Vikram Mubayi** University of California Santa Barbara

**317C** A two–step method to generate marker–less mutants in *Coccidioides* **M. Mandel** University of Arizona

**318C** FACS–based method streamlines pooled transformations in *Aspergillus oryzae* **Sarah McFarland** Novozymes Inc

**319C** Exploring soil bacteria for aerobic detoxification of deoxynivalenol **Natalia Martínez Reyes** Universidad de León

**320C** Understanding the inner workings of the basidiomycete Fomes fomentarius for materials

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

## 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 rice blast 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 Larrondo** 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 a–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

**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 Universitat

**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 sub–cellular distributions of core clock components in *Neurospora crassa* **Ziyan 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 pentration 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 Riquelme[1], **Samantha V González-Téllez**[2] [1]Microbiology, CICESE, [2]Microbiology, 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

**397C** 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

**398C** Allocation of nuclei and growth potential among buds of the multi–budding yeast, *Aureobasidium pullulans* **Alison Wirshing** MIT

**399C** Fungal Raincoats **Teis Esben Sondergaard** Aalborg University

**400C** Cytoskeletal Mechanisms Driving 3D Cellularization of Multinucleated Chytrid Fungi **Edgar Medina** University of Massachusetts Amherst

401C Development of Efficient Base-Editing Systems with Versatile Applications in Fungi **Guoliang Yuan**, Jeffrey J. Czajka, Ziyu Dai, Kyle R. Pomraning, Joonhoon Kim, Beth A. Hofstad, Shuang Deng Chemical and Biological Processes Development Group, Pacific Northwest National Laboratory

**402C** Understanding the loading and functions of mRNAs in Plant Extracellular Vesicles **Huaitong Wu** University of California at Riverside

**403C** Developmental Specific Effects of Key Plant Essential Oils against *Aspergillus fumigatus* in Pre– & Post–Infection Plate Models **William Holt** Florida Gulf Coast University

**404C** Role of fungal transglutaminase domain–containing proteins in wound–related hyphal protection at the septal pore **Jun–ichi Maruyama** The University of Tokyo

**405C** Deciphering the role of the SAM domain containing protein Vts1 during rice blast disease **Neftaly Cruz Mireles** Norwich Research Park

**406C** Pseudorabies virus upregulates low–density lipoprotein receptors to facilitate viral entry **Ming Shengli** Henan Agricultural University

**407C** 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

**408A** FungiDB: A free, web–based informatics resource for in silico hypothesis testing, data mining and exploration. **Evelina Basenko** FungiDB, University of Liverpool

**409A** Genomic and Phenotypic variation in *Rhodotorula* species sampled from Extreme Environments **Jason Stajich** Univ California, Riverside

**410A** Computational analysis and tRNA–sequencing reveal the diversity of tRNA across an entire fungal subphylum **Lauren Dineen** University of North Carolina at Charlotte

**411A** Codon usage and tRNA diversity in the subphylum Saccharomycotina **Colin Speer** University of North Carolina at Charlotte

**412A** Rapid gain and loss of an aneuploid chromosome drives key morphology states and virulence in a fungal pathogen of humans **Sarah Heater** UCSF

**413A** Needles in fungal haystacks: Discovery of a putative a–factor pheromone and a unique mating strategy in the Leotiomycetes **Andi Wilson** University of Pretoria

**414A** Understanding the molecular mechanisms behind the fungal thermophilism **Andrei Stecca Steindorff** Lawrence Berkeley National Laboratory

**415A** Two–speed genomes drive the evolution of pathogenicity in amphibian–infecting chytrids **Rhys Farrer** University of Exeter

**416A** Lessons from genomic and transcriptomic analysis of five marine–derived fungi **Frank Kempken** Christian–Albrechts University

**417A** Continual propagation of [D1,2] stwintrons in divergent *Xylariales* **Erzs?bet Fekete** University of Debrecen

**418A** Genomic and epigenomic variation in pathogenic *Cryptococcus* species **Tal Goodisman** University of Exeter

**419A** Investigating the role of chromosomal rearrangements in adaptative evolution of the plant pathogenic fungus *Verticillium dahliae* **chen–yu Kuan** University of Cologne

**420A** 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

**421A** Pangenome graph uncovers signatures of rapid evolution in spinach downy mildew **Petros Skiadas** Utrecht University

**422A** QTL Mapping and Bulk Segregant Analysis identifies $CO_2$ 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 Neophaeothecales **Faith Martin** Oregon State University

**433A** Chromosomal engineering in the plant pathogenic fungus *Verticillium dahliae* **Yukiyo 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–Ryong 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 **Neriman 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 olorofim 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

**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 **Cecelia 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 olorofim 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 asianum* **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

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 *Saccharomyces* 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

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

**480C** 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

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

**482C** 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 hot–spots 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

**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 communitites 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 **Anthony Amend** Univ Hawaii

**520A** Fungal diversity associated with grapevine trunk diseases in Northern Italy and development of a qPCR for the detection of Botryosphaeriaceae **Greta Dardani** University of Torino

**521A** Fungal diversity in deep–sea sunken plant substrates **Yuriko Nagano** JAMSTEC

**522A** Exploring the biogeography of Backusella: Insights into the distribution of early diverging fungi **Andrew Urquhart** Uppsala University

**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

**530B** ZymoSoups: A high–throughput forward genetics method for rapid identification of virulence genes in *Zymoseptoria tritici* **Haider Ali** University of Birmingham

**531B** Elucidating the role of lipid flippase in host–*Cryptococcus neoformans* interactions during pulmonary cryptococcosis **Siddhi Pawar** Rutgers University

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

**533B** Unveiling an Underground War: Exploring the Interactive Dynamics Between Soybean Root Microbial Communities and the Incidence of SDS **Halil Polat** Southern Illinois University Carbondale

**534B** Testing the role of a subtilase family in spherule formation and virulence of *Coccidioides* **Elena Ochoa** UCSF

**535B** Genetic transformation of the frog–killing chytrid fungus *Batrachochytrium dendrobatidis* **Stephanie Brody** University of Massachusetts Amherst

**536B** Biosystematics and temperature adaptation in the enigmatic *Lulworthiales* **Teppo Rämä** UiT The Arctic University of Norway

**537B** Genomic insights into recurrent vulvovaginal candidiasis **Abdul–Rahman Adamu Bukari** University of Manitoba

**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

**548C** Genome evolution and diversification in the genus *Cercospora*: Integrative insights from

phylogenomics and comparative genomics **Pedro Santos** Louisiana State University

**549C** Core set of genes in *Ashbya gossypii* and *Saccharomyces cerevisiae* **Fred Dietrich** Duke University

**550C** Phylogenetic diversity of phyllosphere yeasts in *Populus trichocarpa* **Maria–Jose Romero–Jimenez** Oregon State University

**551C** Leveraging strain heterogeneity within the nonpathogenic fungus *Aspergillus fischeri* to highlight factors associated with virulence **Thomas Sauters** Vanderbilt University

**552C** Comparative mitogenomic analysis of *Rhizoctonia* spp. anastomosis groups **Alejandro Rojas** Michigan State University

**553C** Microbiome of North American Ash for Biocontrol of Emerald Ash Borer **Claire Yager** Cornell University

## Gene regulation

**554A** Deciphering binding specificities of transcription factors of the oomycete *Phytophthora infestans* uncovers conserved and divergent evolutionary patterns and helps predict function **Nguyen Vo** University of California, Riverside

**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)

**557A** Transcriptional rewiring of sulfur metabolism in *Candida albicans* **Anagha Menon Chepppanakozhummal Thazhathidam** Université de Montréal

**558A** Codon usage variation, selection, and evolution in a fungal subphylum **Abigail LaBella** University of North Carolina at Charlotte

**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

**563A** Modification of transcriptional factor ACE3 enhances protein production in Trichoderma reesei in the absence of cellulase gene inducer **Yun Luo** IFF

**564A** Lipid rafts in *Schizophyllum commune* – insights in localization and composition **Berit Porsche** Friedrich Schiller University

**565A** Genetic and regulatory complexity in fungal primary carbon metabolism **Ronald de Vries** Westerdijk Fungal Biodiversity Institute

**566A** Role of the *osaA* gene in *Aspergillus fumigatus* development, secondary metabolism and virulence **Apoorva Dabholkar** Northern Illinois University

**567A** Feedback–dictated discovery of non–specific binding transcription factors in *Trichoderma reesei* **Xiaoyun Su** Chinese Academy of Agricultural Sciences

**568A** Phytochromes in *Aspergillus fumigatus*: Light, stress and virulence **Reinhard Fischer** Karlsruhe Institute of Technology (KIT)

**569A** A multidisciplinary, cross–species approach to understanding woody plant declines: similarities between Kiwifruit Vine Decline Syndrome (KVDS) and Apple Replant Disease (ARD) **Micol Guaschino** University of Torino

**570A** Screening system based on growth defects due to unscheduled *brlA* expression to identify genes involved in the functional regulation of transcription factors in *Aspergilli* **Katsuya Gomi** Tohoku University

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

**572A** Altered histone acetylation, genome organization, and facultative heterochromatin in histone deacetylase mutants of *Neurospora crassa* **Farh Kaddar** University of Colorado Colorado Springs

**573A** *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

**574A** Type 2C Protein Phosphatases MoPtc5 and MoPtc7 Are Crucial for Multiple Stress Tolerance, Conidiogenesis and Pathogenesis **Jules Biregeya** Fujian Agriculture and Forestry University

**575A** Mutations in core PRC2 components reveal targeting mechanism of H3K27me3 to sub– telomeric chromatin in *Fusarium graminearum* **Allyson Erlendson** Oregon State University

**576B** The influence of light on the bioluminescence–related transcripts from the Neonothopanus gardneri mycelium **Bianca Nóbrega** Geisel School of Medicine, Dartmouth

**577B** The COMPASS complex regulates morphogenesis and virulence through histone crosstalk in the fungal pathogen *Cryptococcus neoformans* **Youbao Zhao** Henan Agricultural University

**578B** Physiological role of a phospholipase D–encoding gene *pla–7* in growth and regulation of the lignocellulolytic response in *Neurospora crassa* **Lina Qin** College of Life Sciences, Fujian Normal University

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

**580B** Light sensing in mushroom–forming fungi: The White Collar regulatory network of *Schizophyllum commune* **Peter Jan Vonk** Utrecht University

**581B** Enrichment of *Magnaporthe oryzae* infected barley cells using Fluorescence Activated Cell Sorting (FACS) for transcriptome analysis **Louisa Wirtz** Molecular Plant Physiology, RWTH Aachen

**582B** Insight into the adaptation mechanisms of high hydrostatic pressure in physiology and metabolism of hadal fungi from the deepest ocean sediment **Xi Yu** Shanghai Ocean University

**583B** Fruiting body specific *sc4* hydrophobin gene plays a role in *Schizophyllum commune* hyphal attachment to structured glass surfaces **Evans Osahon Iyamu** Institute of Microbiology Friedrich Schiller University

**584B** Determine the role of an uncharacterized gene for its potential role in uniparental mitochondrial inheritance in *Cryptococcus neoformans* **Anuja Warrier** University of Georgia

**585B** Unveiling GRAsp, An Online Tool for the Exploration of Gene Regulatory Networks in *Aspergillus fumigatus* to Gain Insights into Growth, Development, and Pathogenicity **Cristobal Carrera Carriel** University of Wisconsin–Madison

**586B** Unveiling Novel Players in Polycomb–Mediated Gene Repression using Neurospora crassa **Rochelle Yap** University of Georgia Athens

**587B** On the mechanism of RNAi–mediated silencing of repetitive DNA in *Cryptococcus neoformans* **Sheng Sun** Duke University Medical Center

**588B** Ryp transcription factors link temperature sensing and morphogenesis in *Histoplasma* **Anna Morrison** UCSF

**589B** Regulation of sugar metabolism under abiotic stress in various yeasts and filamentous fungi **Elisabeth Tamayo** Technical University of Munich

**590B** Identification of Intertwined Catabolic Pathways in an Oleaginous Yeast **Joshua Kerkaert** Cornell University

**591B** Natural variation in the hyphal/biofilm regulatory network of *Candida albicans* **Eunsoo Do** University of Georgia

**592B** A Case for the Kinases: A Role for CKI in Temperature Compensation of the *Neurospora crassa* Circadian Clock **Elizabeth–Lauren Stevenson** Dartmouth College

**593B** Post–transcriptional control of fungal cell wall synthesis by Ssd1 and co–operating RNA–binding proteins **Edward Wallace** The University of Edinburgh

**594B** Functional analysis of genes induced during the aerial hyphae collapse leading to perithecium formation in *Fusarium graminearum* **Sung–Hwan Yun** Soonchunhyang Univ

**595B** Investigating the role of chromatin dynamics in *Histoplasma* morphogenesis **Nebat Ali** UCSF

**596B** Exploring RNA thermosensors that drive development and virulence in thermally dimorphic fungal pathogens **Murat Can Kalem** University of California San Francisco

**597B** Predicting culture conditions for secondary metabolite production based on binding targets of biosynthetic gene cluster–specific transcription factors **Fan Lu** University of Macau

**598B** The effects of phase separation on chromatin modifications, transcriptional regulation and virulence in the human fungal pathogen *Candida albicans* **Qing Lan** University of Macau

**599B** Transcription factor ManS regulates mannanase gene expression in *Aspergillus nidulans* **Haruno Watanabe** Mie University

**600C** Study on environmental responses and peptidase genes transcriptional regulation in *Aspergillus oryzae* PrtR **Rika Numamzawa** Tokyo Univercity of Agriculture and Technology

**601C** Srr1, a conserved transcription factor regulates postmeiotic spore morphogenesis and ballistospory in mushroom–forming fungi **Zhihao Hou** HUN–REN Biological Research Centre Szeged

**602C** 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)

**603C** Understanding the mechanisms that regulate H3K27me3 in the model fungi *Neurospora crassa* **Felicia Ebot Ojong** The University of Georgia

**604C** Clade–wide exploration of fungal sRNAs reveals hints of conservation **Nathan Johnson** Universidad Mayor

**605C** A conserved oxylipin alarm blocks the fungicidal effects of echinocandins in pathogenic aspergilli **Dante Calise** University of Wisconsin – Madison

**606C** Hdp2 is the central transcriptional regulator during the early stage of plant infection of *Ustilago maydis* **Joerg Kaemper** Karlsruhe Institute of Technology

**607C** Methylation of H3K36 and H3K27 mediated by ASH1 and PRC2 co–defines heterochromatin in Magnaporthe oryzae **Aidan McVey** Kansas State University

**608C** Translational regulation by inositol through a deeply conserved fungal upstream open reading frame **Matthew Sachs** Texas A&M Univ

**609C** Functional characterization of polyketide synthase (PKS) gene PKS5 in *Fusarium oxysporum* f. sp. *vasinfectum* race 4 **Yi Zhou** Texas A&M

**610C** Roles for phosphatases in Neurospora growth and circadian rhythmicity **Adrienne Mehalow** Geisel School of Medicine at Dartmouth

**611C** Chromatin structural changes alter *cyp51A* expression in TR34–containing mutant strains of *Aspergillus fumigatus* **Scott Moye–Rowley** UNIVERSITY OF IOWA, COLLEGE OF MEDICINE

**612C** The transcription factor Ndt80 is a negative regulator of virulence in *Aspergillus fumigatus* **Vijendra Arya** University of Iowa

**613C** Exploring Microbial Interactions in the Context of Antimicrobial Compounds **Hanna Roucka** University of Georgia

**614C** Investigating the role of long non–coding RNA *afu–182* in azole response in opportunistic pathogen *Aspergillus fumigatus* **Nava Poudyal** Clemson University

**615C** Functional Characterization of a lncRNA in Stress Response and Pathogenesis of *Aspergillus fumigatus* **Ritu Devkota** Clemson University

**616C** Bacterium Acts as Toxin Sponge to Protect Partner Fungus from Phenazine Assault **Alyssia Gonzalez** University of Georgia

**617C** Plant–fungal reciprocity of gene expression patterns in the maize–*Cochliobolus heterostrophus* interaction **Benjamin Horwitz** Technion – IIT

**618C** Unraveling crosstalk between Hog1 and general translation control in *Cryptococcus neoformans.* **David Goich** University at Buffalo

**619C** 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

**620C** Argonaute proteins are important for RIPping in *Fusarium graminearum* **Zeyi Wang** Purdue University

**621C** Determining the components and activity of DNA repair pathways in *Magnaporthe oryzae* **Tomas McAnany** Kansas State University

**622C** DYRK–family kinases regulate *Candida albicans* morphogenesis and virulence through the Ras1/PKA pathway **Jessie MacAlpine** University of Toronto

## Pathogenic and mutalistic interactions

**623A** Genomic Insights into *Fusarium graminearum*: Dual RNA Sequencing for Pathogenicity Gene and Fungicide Target Discovery **Erika Kroll** Rothamsted Research

**624A** Polymorphisms, host immune response, and clinical outcomes: Investigating clinical isolates of *Cryptococcus neoformans* **Perry Kezh** University of Minnesota

**625A** The nematode–trapping fungus *Arthrobotrys flagrans* small–secreted protein NipA interferes with cuticle integrity in *Caenorhabditis elegans* **Jennifer Emser** Karlsruhe Institute of Technology

**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

**629A** Deletion of core septin gene *aspB* in *Aspergillus fumigatus* results in fungicidal activity of caspofungin **Rebecca Busch** Southern Illinois University

**630A** Spores of arbuscular mycorrhizal fungi host surprisingly diverse communities of endobacteria **Olga Lastovetsky** University College Dublin

**631A** Viro–Fungal Tag–Team: Aspergillus dsRNA virus drives fungal fitness and pathogenicity in the mammalian host **Neta Shlezinger** The Hebrew University

**632A** Airway epithelial cells as a novel intracellular host reservoir for *Cryptococcus* spores **Sebastien Ortiz** University of Manchester

**633A** Morphotype–specific fungal factors drive uptake and clearance of *Aspergillus fumigatus* by airway epithelial cells **Sebastien Ortiz** University of Manchester

**634A** Identification and functional characterization of *Fusarium graminearum* effectors **Nicholas Rhoades** USDA

**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

**638A** Lichtheimia corymbifera as model system for mucormycosis **Kerstin Voigt** University of Jena

**639A** An acidophilic fungus is integral to prey digestion in a carnivorous plant **Pei–Feng Sun** Academic Sinica

**640A** A G–alpha protein mediates the interaction between *Aspergillus fumigatus* and *Pseudomonas aeruginosa* during biofilm formation **Gustavo Goldman** Universidade de Sao Paulo

**641A** Polishing a pathogen: Annotation of a hybrid genome assembly reveals putative virulence and pathogenicity factors of *Calonectria* sp. 134–2022, a novel pathogen of *Baptisia australis*. **Fiona Harrigian** USDA–ARS

**642A** *An N–glycosylated effector rescues pectin methylesterase enhancing Ustilago maydis virulence* **Chibbhi Kumarasamy Bhaskar** Institute of Plant and Microbial Biology, Academia Sinica

**643A** Avc1 regulates adaptation to high $CO_2$ levels in the human fungal pathogen *Cryptococcus neoformans* **Benjamin Chadwick** University of Georgia

**644A** Investigating the immunogenicity of capsule and mannoprotein in a novel heat killed *Cryptococcus neoformans* vaccination model **Samantha Avina** Rutgers University

**645A** 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

**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

**649A** 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

**650A** Characterization of gene expression in *Peronospora effusa* and spinach during resistant and susceptible race–cultivar interactions **Steve Klosterman** USDA–ARS

**651A** Large–scale deletions and secondary metabolite changes caused by recent Helitron activity in the clonal Tropical Race 4 lineage of *Fusarium* infecting banana **Jelmer Dijkstra** Wageningen University and Research

**652A** Genome of endophytic *Fusarium oxysporum* from the strawberry root microbiome lacks common virulence factors **Samantha Gebben–Hernandez** USDA–ARS

**653A** Do fungal terpenoids volatiles structure the mycosphere? **Erika Kothe** Friedrich Schiller University

**654A** Uncovering putative secreted DNases as virulence factors in *Fusarium oxysporum* f. sp. *vasinfectum* **Miranda Otero** Auburn University

**655A** Using *Nicotiana benthamiana* to understand non–host resistance against *Zymoseptoria tritici* **Abdelrahman Mohammad** University of Birmingham

**656A** Fungal small molecules modulate *Fusarium verticillioides* transcription **Daren Brown** USDA–ARS

**657A** *Candida albicans* biofilm formation through the lens of natural variation **Katharina Goerlich** University of Georgia

**658A** 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

**659A** Mycorrhizal fungi drive plant uptake of the antioxidant ergothioneine from soil and contribute to crop nutritional content **Wade Heller** USDA–ARS, NEA, ERRC

**660A** Eukaryotic metagenome–assembled genomes recovered from seagrass leaves include a novel chytrid in the order Lobulomycetales **Cassandra Ettinger** University of California, Riverside

**661A** Soybean frogeye leaf spot: Its control using a potent antifungal peptide **Ambika Pokhrel** Donald Danforth Plant Science Center

**662A** Protein–protein networks in an integrated barley–powdery mildew interactome **Roger Wise** USDA–ARS / Iowa State University

**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

**669A** Diversity in DNA–binding effectors across endofungal *Mycetohabitans* spp. supports variable functionality **Morgan Carter** UNC Charlotte

**670A** A dual–function G–protein coupled receptor activates mitochondria and reprograms fungal cells to form adhesive traps for nematode hunting **Xiaodi Hu** Karlsruhe Institute of Technology

**671A** FLO1 proteins and CDAs mediate nematode egg attachment and infection by *Pochonia chlamydosporia*. **Carla Mariel Berosich** University of Alicante

**672A** 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

**673B** Interactions between Polyextremotolerant Fungi and Photoautotrophs are Enhanced by Excreted Melanin **Erin Carr** University of Nebraska–Lincoln

**674B** Insights into establishment and maintenance of lichen communities through structural bioinformatics and synthetic microbial consortia **Florian Altegoer** Heinrich–Heine University

**675B** The Pec effector complex of *Ustilago maydis* interferes with carbohydrate metabolism in maize **Yoon Joo Lee** University of Cologne

**676B** LPMO (–like) proteins and their role for *Cryptococcus neoformans* growth and virulence **Corinna Probst** Duke University, School of Medicine

**677B** *Baf* against the wall: elucidating mechanisms of oxygen–driven adaptations in the human fungal pathogen *Aspergillus fumigatus* **Angus Johnson** Dartmouth College

**678B** Herbicides as fungicides: Targeting heme biosynthesis in the maize pathogen *Ustilago maydis* **Djihane Damoo** University of British Columbia

**679B** Defining the Genetic Mechanisms of a Dissemination Prone Morphotype of *Cryptococcus neoformans* **Christian Moreau** University of Utah

**680B** Back to the roots: A powerful plant–fungus interaction system **Hannes Winter** Christian–Albrechts–Universität

**681B** The phosphorylation landscape of infection–related development by the rice blast fungus **Frank Menke** The Sainsbury laboratory

**682B** Knottins are a new family of secreted virulence factors that are required for the virulence of the intracellular fungal pathogen *Histoplasma capsulatum* **Rosa Rodriguez** UC San Francisco

**683B** Genomic signature of host specialization in the anthracnose pathogen *Colletotrichum lupini* **Riccardo Baroncelli** University of Bologna

**684B** The characterization of antifungal resistance in pathogenic Candida to improve development of resistance biomarkers and species identification. **Karolina Czajka** NOSM University

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

**686B** Phosphate limitation remodels the cell wall to influence caspofungin tolerance, capsule attachment and titan cell formation in *Cryptococcus neoformans* **Xianya Qu** Michael Smith Laboratories, University of British Columbia

**687B** Metabolic Plasticity Contributes to Structure and Function of *Aspergillus fumigatus* Biofilms **Katie Quinn** Dartmouth College

**688B** Atpenin A5 – Elucidating the function of a succinate dehydrogenase inhibitor produced by the poplar pathogen *Sphaerulina musiva* **Cole Sawyer** University of Tennessee Knoxville

**689B** Nutrient competition drives dynamic interactions between pioneering pyrophilous fungi **Monika Fischer** University of California, Berkeley

**690B** The role of mycotoxins in governing interactions between the maize colonists, *Aspergillus flavus* and *Fusarium verticillioides* **Tim Satterlee** USDA–ARS

**691B** The Kynurenine Pathway Contributes to Iron uptake and Virulence in *Cryptococcus Neoformans* **Christopher Lee** University of British Columiba

**692B** Glutathione metabolism impacts fungal virulence by modulating the redox environment **Braydon Black** University of British Columbia

**693B** Surprising strain–specific molecular determinants of *Aspergillus fumigatus* pathogenicity revealed by new cancer small molecule therapies **Katherine Doss** Dartmouth College

**694B** Quiescence in Candida albicans: defining the morphological, physiological and gene expression properties of an environmental tolerance induction mechanism **Ozan Imir** New York University

**695B** Impaired Carbon Catabolite Repression pathway is associated with a decrease of virulence during infection in *Sclerotinia sclerotiorum.* **Shantala Mounichetty** LIPME

**696B** Identification of secreted proteins from *Fusarium solani* f. sp. *phalaenopsis*, the pathogen causes leaf yellows of moth orchids **Wei–Chin Tsao** National Chung Hsing University

**697B** Toward identification of host cell–death inducing genes in an NLR–dependent manner in *Colletotrichum higginsianum* **Katsuma Yonehara** RIKEN, The University of Tokyo

**698B** Inducing Novel Endosymbioses by Bacterial Implantation into Fungi **Thomas Gassler** Institute of Microbiology, ETH Zurich

**699B** Updating the *Zea mays* root infection cycle of *Colletotrichum graminicola* **Anina Rudolph** Georg–August University Göttingen, Institute of Microbiology and Genetics

**700B** Misregulation of a secreted glucanase negatively affects virulence of the wheat pathogen *Zymoseptoria tritici* **Andrea Sánchez–Vallet** Universidad Politécnica de Madrid

**701B** Characterization of *Podospora anserina* glycolipid transfer protein HET–C and of its involvement in the response to antagonistic *Serratia* bacterial species **Asen Daskalov** ImmunoConcEpT, CNRS UMR5164

**702B** Critical Roles of Extended *O*–Mannosylation in Interaction with Host Cells and Functional Characterization of Mannoproteins in *Cryptococcus neoformans* **Eun Jung Thak** Chung Ang University

**703B** Zymoseptoria tritici effector interactions with plant PR–proteins **Elisha Thynne** Christian–Albrechts University

**704B** Fine root endophytes form a unique type of symbiosis with plants **Sebastian Schornack** University of Cambridge

**705B** Tracing host–specificity in *Magnaporthe oryzae* pathotype *Triticum*: Loss of a lineage–specific gene affects virulence rather than defines host range **Florencia Casanova** RWTH Aachen University

**706B** Unconventional suppression of plant defence responses by the signal peptide peptidase Spp1 in the *Ustilago maydis* – maize interaction **Nora Marie Kühne** Georg–August–University Goettingen

**707B** A putative UDP–galactose transporter is a direct UPR–target crucial for stress resistance and virulence of *Ustilago maydis* **Anja Katharina Sieven** Georg–August–University Goettingen

**708B** *Colletotrichum scovillei* orchestrates LysM effectors CsLysM1 and CsLysM2 to suppress defense response of chili pepper **Yu–Nung Yen** National Chung Hsing University

**709B** Diversity and phenotypes of fungi recovered from animals at a large veterinary diagnostic laboratory **Steven Harris** Iowa State University

**710B** Exploring host compatibility in *Fusarium oxysporum*–cucurbit interactions through ECC1 effector analysis **Babette Vlieger** University of Amsterdam

**711B** Regulators and downstream genes involved in the defense of the mushroom–forming fungus *Schizophyllum commune* against its competitors **Robin Ohm** Utrecht University

**712B** Functional characterization of the Target of Rapamycin signalling pathway during *Magnaporthe oryzae* infection–related development **Matthew Wengler** The Sainsbury Laboratory

**713B** Identification and characterization of effectors VR1 and VR2 in the *Pyrenophora teres* f. *teres*–barley interaction **Michele Malvestiti** USDA–ARS Edward T. Schafer Agri Res Ctr

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

**715B** Nutrient transport upregulation across five clades of *Candida auris* in the novel thermo–relevant Arabian Killifish embryo infection mode **Hugh Gifford** University of Exeter Center for Medical Mycology

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

**717B** Biparental and natural population genetics identify *Pyrenophora teres* f. *teres* loci associated with a broadly effective barley resistance **Ryan Skiba** USDA–ARS

**718B** Mechanisms of Infection and Response of the Fungal Wheat Pathogen *Zymoseptoria tritici* during Compatible, Incompatible and Non–Host Interactions **Sandra Gomez** Purdue University

**719B** The plant hormone, strigolactone, inhibits the yeast phosphate transporter, Pho84, by regulating transporter localisation **James Bradley** The University of Toronto

**720C** Mycorrhiza–driven mechanisms shaping the niche of pathogenic plant–interacting fungi **Stephanie Heupel** Karlsruhe Institute of Technology

**721C** 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 Scienes JKIP

**722C** Finding function through form: predicting effector function in the blast fungus through structural homology **Angus Bucknell** The Sainsbury Laboratory

**723C** Exploring strain–specific differential gene essentiality in *Candida albicans* through an innovative inducible CRISPRi system **Lauren Wensing** University of Guelph

**724C** Mining the *Penicillium expansum* genome for virulence genes: using forward and reverse genetics approaches to identify novel loci mediating blue mold decay of apple fruit **Dianiris Luciano–Rosario** USDA–ARS

**725C** A novel broad range effector from *Fusarium oxysporum* is able to induce cell death hijacking plant immune system **Andrea Doddi** University of Rome "La Sapienza"

**726C** A matter of life and death: characterizing the innate immune response of the mucoromycete *Rhizopus microsporus* to the antagonistically perceived *Mycetohabitans* bacterium **Delia Tota** Cornell University

**727C** The role of cell wall remodeling in innate immunity of early divergent Mucoromycotina fungi **Hana Barrett** Cornell University

**728C** Screening for *Fusarium* effectors that play a role during root rot infection on dry bean **Rubylyn Infante** North Dakota State University

**729C** Training a pathogen: uncovering the evolutionary mechanisms of host adaptation in *Cryptococcus neoformans* **Zoe Hilbert** Boston College

**730C** *Macrophomina phaseolina* expresses distinct waves of effectors and carbohydrate active enzymes during different stages of infection under high temperature **Christine Jade Ermita** University of California, Davis

**731C** One signal, two kingdoms: Decoding interkingdom plant signals in fungi **Shelley Lumba** University of Toronto

**732C** Investigating mitochondrial targeted proteins (MTPs) and their potential contribution in the recent outbreak of *Fusarium* wilt of banana **Joni Rey Campilan** University of Massachusetts, Amherst

**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 endohyphal 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 mutulaistic 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

**759C** The effect of *Candida albicans* ENA family P–type ATPases on pH maintenance and virulence **Jennifer Tenor** Duke University School Of Medicine

**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 muhlenbergii* **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

**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 Caorlina, 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–repentis* 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 *Myceliopthora thermophila* **Olusola 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 **Ine–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*

*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 Aboukhaddour** Agriculture and Agri–Food Canada

**811C** Genomic Insights into the Population Structure and Reproductive Strategies of the rice pathogen *Cercospora janseana* **Jacob Searight** 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* **Martí Morera** DTU

**823B** Signal Peptide Engineering in Filamentous Fungi driven by lab automation and AI **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 Sørensen** 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 Hossain** 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 Amphotericin 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 *Cryphonectria parasitica* in response to hypovirus CHV1 **Yo–Han Ko** Jeonbuk National Univ

**849C** Effect of double–stranded RNAs on antifungal activity of *Trichoderma harzianum* **Jeesun Chun** Jeonbuk National University

**850C** Fungi and humidity dynamics **Jan Dijksterhuis** Westerdijk Fungal Biodiversity Institute

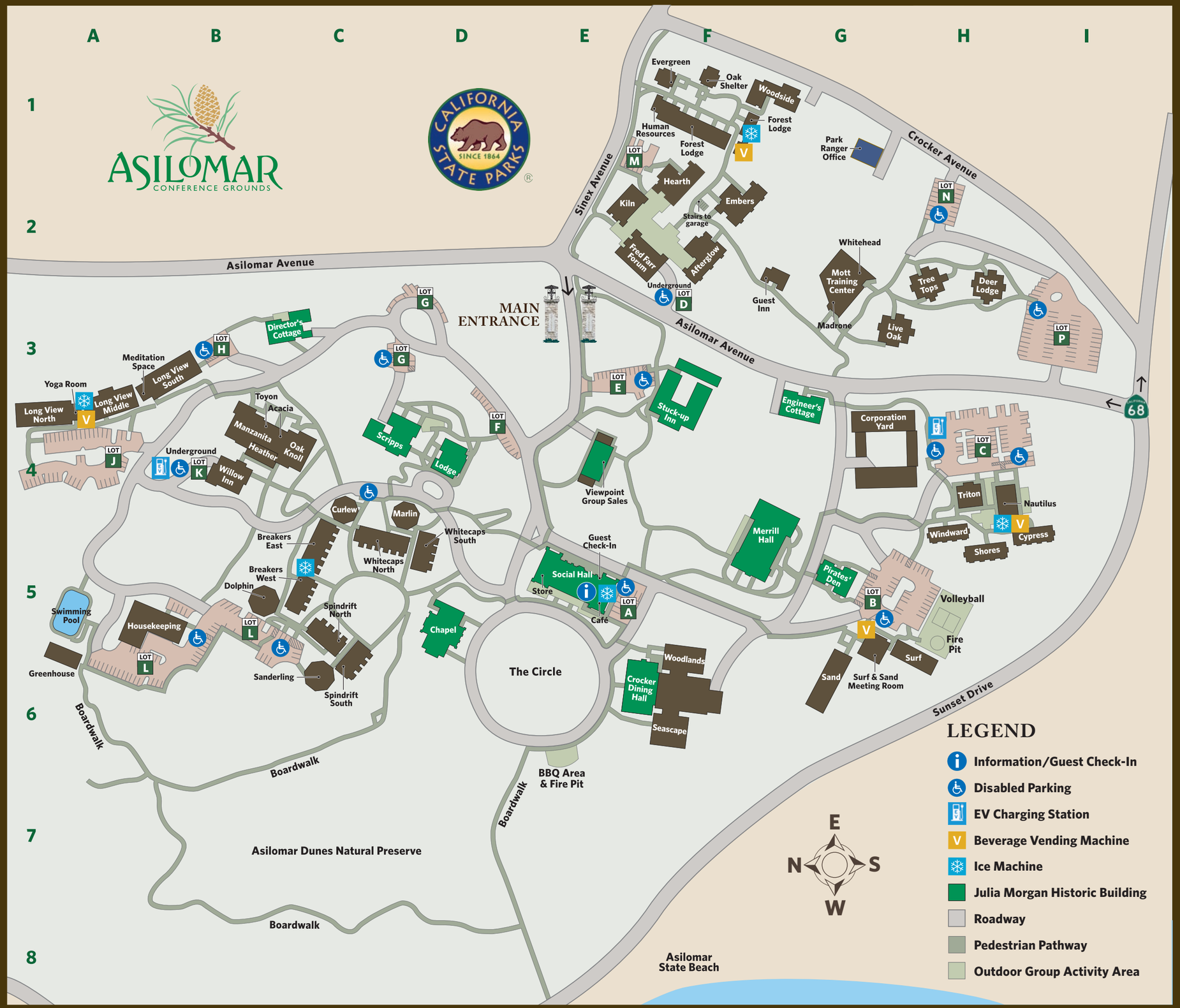
**851C** Immune Mechanism of Intramuscular Vaccination against Cryptococcosis **Yu Zhang** Rutgers University

**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




## LODGING

| | |
|---|---|
| **Afterglow**<br>Rooms 1301-1312 | F2 |
| **Breakers East**<br>Rooms 821-832 | C5 |
| **Breakers West**<br>Rooms 833-840 | C5 |
| **Cypress**<br>Rooms 717-724 | H5 |
| **Deer Lodge**<br>Rooms 1121-1130 | H3 |
| **Director's Cottage** | C3 |
| **Embers**<br>Rooms 1313-1324 | F2 |
| **Engineer's Cottage** | G3 |
| **Forest Lodge**<br>Rooms 1202-1211 | F1 |
| **Guest Inn**<br>Rooms 901-903 | F2 |
| **Hearth**<br>Rooms 1325-1336 | F1 |
| **Live Oak**<br>Rooms 1101-1110 | G3 |
| **Lodge**<br>Rooms 201-218 | D4 |
| **Long View North**<br>Rooms 101-110 | A3 |
| **Long View Middle**<br>Rooms 111-120 | A3 |
| **Long View South**<br>Rooms 121-130 | A3 |
| **Manzanita**<br>Rooms 1001-1012 | B4 |
| **Oak Knoll**<br>Rooms 1013-1024 | C4 |
| **Pirates' Den**<br>Rooms 501-510 | G5 |
| **Sand**<br>Rooms 605-610 | G6 |
| **Scripps**<br>Rooms 301-323 | D4 |
| **Shores**<br>Rooms 709-716 | H5 |
| **Spindrift North**<br>Rooms 849-856 | C5 |
| **Spindrift South**<br>Rooms 841-848 | C6 |
| **Stuck-up Inn**<br>Rooms 401-414 | F4 |
| **Surf**<br>Rooms 601-604 | H6 |
| **Tree Tops**<br>Rooms 1111-1120 | H3 |
| **Whitecaps North**<br>Rooms 809-820 | C5 |
| **Whitecaps South**<br>Rooms 801-808 | D5 |
| **Willow Inn**<br>Rooms 1025-1036 | B4 |
| **Windward**<br>Rooms 701-708 | H5 |
| **Woodside**<br>Rooms 1212-1223 | G1 |

## MEETING ROOMS

| | |
|---|---|
| Acacia | B4 |
| Chapel Auditorium | D5 |
| Curlew | C4 |
| Dolphin | C5 |
| Evergreen | F1 |
| Fred Farr Forum | E2 |
| Heather | C4 |
| Kiln | E2 |
| Madrone | G3 |
| Manzanita I & II | B4 |
| Marlin | D4 |
| Merrill Hall | G4 |
| Nautilus | H4 |
| Oak Knoll I & II | C4 |
| Oak Shelter | F1 |
| Sanderling | C6 |
| Scripps | D4 |
| Surf & Sand | G5 |
| Toyon | B4 |
| Triton | H4 |
| Willow I & II | B4 |
| Whitehead | G3 |

## OTHER

| | |
|---|---|
| BBQ Area | E6 |
| Crocker Dining Hall | F6 |
| Fire Pits | E6/H5 |
| Guest Check-In | E5 |
| Hearst Social Hall | E5 |
| Human Resources | F1 |
| Meditation Space | A3 |
| Mott Training Center | G2 |
| Park Ranger Office | G1 |
| Park Store | E5 |
| Phoebe's Café | E5 |
| Seascape | F6 |
| Swimming Pool | A5 |
| Group Sales | E4 |
| Viewpoint | E4 |
| Volleyball Court | H5 |
| Woodlands | F5 |
| Yoga Room | A3 |

## PARKING LOTS

| | |
|---|---|
| Parking Lot A | E5 |
| Parking Lot B | G5 |
| Parking Lot C | H4 |
| Parking Lot D | F2 |
| Parking Lot E | E3 |
| Parking Lot F | D4 |
| Parking Lot G | D3 |
| Parking Lot H | B3 |
| Parking Lot J | A4 |
| Parking Lot K | B4 |
| Parking Lot L | B5 |
| Parking Lot M | E2 |
| Parking Lot N | H2 |
| Parking Lot P | I3 |