

ISE2023 Chicago Sept 10 – 15, 2023
Field Museum, Chicago IL

Sept 10th

6 PM – 10 PM Welcome reception and registration

Sept 11th

Session chair: Felix Grewe

8:30 AM **Julian Siggers** (President of Field Museum)

Welcome address

8:40 AM **Peter Kroth** (President of ISE)

40 years of Endocytobiology

Session 1

Session chair: Marion Eisenhut

8:45 AM **Anna Karnkowska** (Kacper Maciszewski, Naoji Yubuki, Moe Maruyama, Yuichiro Kashiyama, Patrick Keeling, Vladimir Hampl, Brian Leander)

Opening lecture: Secondary plastids evolution or there and back again

9:15 AM **Erin Chille** (Tomithy Stephens, Deeksha Misri, Emma Strand, Hollie Putnam, Debashish Bhattacharya)

Genotype dominates genome-wide transcriptomic response to stress in two Hawaiian coral species

9:30 AM **Daisuke Yamagishi** (Ryo Onuma, Yuu Ishii, Yayoi Inui, Sachihiko Matsunaga, Shin-ya Miyagishia, Shnichiro Maruyama)

Differential responses to symbionts and non-symbionts by photosymbiotic amoeba

9:45 AM **Vladimír Hampl** (Sebastian C. Treitli, Pavla Hanouskova, Vladimír Benes, Andreas Brune, Ivan Cepicka)

Hydrogenotrophic methanogenesis is the key process in the obligately syntrophic consortium of *Pelomyxa schiedti*

10:00 AM **Andrew Roger** (Jon Jerström-Hultqvist, Lucie Gallot-Lavallée, Dayana Salas-Leiva, Bruce Curtis, Courtney W. Stairs, John M. Archibald, Andrew J. Roger)

An anaerobic amoeba that harbours deltaproteobacterial symbionts in a symbiosome

Coffee Break

Session 2

Session chair: Sergio Muñoz-Gómez

11:00 AM **Daniel Sloan**

Determinants of mutation rates and heteroplasmy levels in plant mitochondria and plastids

11:30 AM **Sven Gould**

On the possible origin of the protist blueprint from a syncytial ancestor

11:45 AM **Parth K. Raval** (Alexander I MacLeod, Carolina García García, Sven B. Gould)

Endosymbiotic organelles and the global greening

12:00 PM **Maria Lozano Wuiles** (Parth K. Raval, Sven B. Gould)

The evolution of a machinery REcording a FRIENDLY endosymbiont volume

12:15 PM **Carolina Garcia Garcia** (Parth K. Ravel, Michael Knopp, Sven B. Gould)

Dual targeting to endosymbiotic organelles: New or old?

Lunch break

Session 3 Gordon and Betty Moore Foundation special symposium: endosymbionts to organelles

Session chair: Debashish Bhattacharya

2:00 PM **Eva Nowack**

Organellogenesis events in progress – Lessons learned from protist endosymbiosis

2:30 PM **Arthur Grossman** (Victoria Calatrava, Timothy Stephens, Debashish Bhattacharya)

Green *Paulinella*: from endosymbiont to organelle

3:00 PM **Sabeeha Merchant**

View of algal lifestyles through genomics and systems biology

3:30 PM **Yixian Zheng** (Minjie Hu)

Analyses of endosymbiotic cells in the soft coral *Xenia* and *Hydra viridissima*

Coffee break

Session 4

Session chair: Ugo Cenci

4:45 PM **Anay Kumar Maurya** (Jorge Morales, Georg Ehret, Gereon Poschmann, Eva Nowack)

Evolution of a host-derived endosymbiont division machinery in the trypanosomatid *Angomonas deanei*

5:00 PM **Jana Pilátová** (Peter Mojzes, Miroslav Oborník, Tomás Pánek, Ivan Cepicka, Anna Dukhovny, Judith Berman)

5:15 PM **Vijaya Geetha Gonepogu** (Jana Pilátová, Ales Tomcala, Tomás Skalicky, Peter Mojzes, Miroslav Oborník, Ansgar Gruber)

Cellular responses to presence and absence of nitrogen in *Chromera velia*

5:30 PM **Dorsaf Ennaceur** (Vijaya Geetha Gonepogu, Ayush Sharma, Miroslav Oborník, Ansgar Gruber)

Candidate transport proteins for guanine in *Chromera velia*

5:45 PM **Brittany Sphrecher** (Huan Zhang, Senjie Line, Nathan Shaner)

Investigating dinoflagellate native green fluorescence

September 12th

Session 5

Session chair: Sven Gould

8:30 AM **Adrian Reyes-Prieto**

What are the mechanisms underlying the disparate plastome architecture evolution in *Chlamydomonas adales* after the loss of photosynthesis?

9:00 AM

Jeremy Wideman

Drifting around: The evolution of organelle gene content

9:15 AM

Ugo Cenci

Forward genetic approach to decipher starch metabolism in *Chromera velia*

9:30 AM

Lea Fermont (Ugo Cenci, Malika Chabi, Steven Ball, Carherine Tirtiaux, Jitka Richtová)

Identification of key enzymes for starch synthesis in chromerids and *Apicomplexa*

9:45 AM

Ayush Sharma (Shun-Min Yang, Ansgar Gruber, Miroslav Obornik)

Agrobacterium mediated transformation of *Chromera velia*

10:00 AM

Melissa Misir (Justus Niemeyer, Frederik Sommer, Michael Schroda)

Identification of the chloroplast CDJ5 proxime by proximity labeling with TurboID in *Chlamydomonas reinhardtii*

Coffee break

Session 6

Grainger Bioinformatics Center special symposium: n diversity of symbioses

Session chair: Felix Grewe

11:00 AM

Irene Newton

Mi casa es su casa: how an intercellular symbiont manipulates host biology

11:30 AM

Luiz Felipe de Almeida Benites (Timothy G. Stephens, Julia Van Etten, Timeeka James, Timothy R. McDermott, Debashish Bhattacharya)

Hot spring viruses associated with red algae microbial mats

12:00 PM

Debashish Bhattacharya (Timothy G. Stephens, Erin Chile, Shrinivas Nandi, Katherine Dougan, Cheong Xin Chan)

The role of coral algal symbionts in holobiont biology and evolution

Lunch break

ISE members meeting

Session 7

Grainger Bioinformatics Center special symposium: n diversity of symbioses

Session chair: Felix Grewe

2:00 PM

Sonia Cruz (Paulo Cartaxana)

Sacoglossa sea slugs: getting away with stolen chloroplasts

2:30 PM

Hwan Su Yoon (Seung In Park, Chung Hyun Cho, Robert A Andersen)

Revised classification of the *Cyanodiophyceae*

3:00 PM

John Burns (Baptiste Genot, Joost Daniels, Vera Nikitashina, Georg Poehner, Ryan Kerney, Solange Duhamel)

Green eggs, green bodies: Multiple interactions in a vertebrate-alga symbiosis

Coffee break, group picture and poster session

Session 8

Session chair: Meredith Doellman

4:45 PM

Marion Eisenhut (Mara Reis, Fabian Brandenburg, Michael Knopp, Andrea Bräutigam, Sven Gould)

Coevolution of UPF0016 manganese transporters and internalized oxygen-evolving complex

5:15 PM **Josephin Laskowski** (Yang Gao, Mark Aurel Schöttler, Reimo Zoschke)
How the small non-essential PsaJ subunit facilitates PSI assembly

5:30 PM **Dongseok Kim**
Genomic analysis provides insight into phycobilisome evolution in *Porphyridium*

5:45 PM **Shu-Min Yang** (Ansgar Gruber, Katerina Jiroutová, Richard Dorrell, Miroslav Oborník)

Localization, evolution and regulation of heme biosynthesis in diatoms

Dinner

Panel discussion: Symbiosis in a changing world, lessons from dying corals

Session 9

Session chair: Senje Lin

8:30 AM **Jeff Mower**
Recurrent cooption of cytochrome *c* maturation systems in plants and algae

9:00 AM **Julia Van Etten** (Timothy G. Stephens, Erin Chille, Debashish Bhattacharya)
Diverse fates of adaptive HGTs drive genome evolution in extremophilic red algae

9:15 AM **Shrinivas Nandi** (Tomothy G. Stephens, Erin Xhille, Debashish Bhattacharya)
A holo-proteosome model of coral-algal dysbiosis

9:30 AM **Shahed Uddin Ahmed Shazib** (Sergio A. Munoz-Gómez, Martin Kreutz, Thilo Bauer, Sebastian Hess)

The evolution of a purple-and-green photosymbiosis and further insights into the phylogeny of the ciliate genus *Pseudobleparisma*

9:45 AM **Hideaki Mizobata** (Kenji Tomita, Ryo Yonezawa, Kentaro Hayashi, Shigeharu Kinoshita, Kazutoshi Yoshitae, Shuichi Asakawa)

The highly developed symbiotic system between the solar-powered nudibranch *Pteraeolidia semperi* and symbiodiniacean algae

10:00 AM **Norico Yamada** (Brittany N. Sprecher, Jochen M. Buck, Loraine Ropella, Annette Ramsperger, Peter G. Kroth)

Usability of the EGFP expression tool in kleptoplasty and endosymbiosis studies

Coffee break

Session 10

Session chair: Andrew Roger

11:00 AM **Timothy Stephens** (Victoria Calatraca, Arwa Gabr, Arthur R. Grossman, Debashish Bhattacharya)

Exploring the origin and evolution of primary plastids using *Paulinella* as a model system

11:15 AM **Duckhyun Lhee** (Jin Young Kim, Hwan Su Yoon)
Investigating redox regulation in *Paulinella* plastids using redox proteomics

11:30 AM **Todd Widhelm** (Haydn Notario, Zahra Jablonsky, Erica Hong, Heaven Wade,

- Dylan Maddox, Steve Goodman, H. Thorsten Lumbsch)
 Metagenomic explorations of Madagascar's lichens: Understanding mycobiont and photobiont diversity and symbiont flexibility using metagenomic barcoding
- 11:45 AM **Meredith Doellman** (Yukun Sun, Thrsten Lumbsch, Felix Grewe)
 Do we need sex? Insights into the consequences of losing sexual reproduction at the genomic level
- 12:00 PM **Imke Schmitt**
 Elevation is a driver of differentiation in the lichen symbiosis
- Lunch
 Museum visit
 Session 11 Miescher-Ishida prize
 Session chair: Peter Kroth
- 5:00 PM **Ute Vothknecht**
 From tocopherol to protein import to endosymbiosis – a scientific life evolving around chloroplasts
- 5:20 PM **Peter Kroth**
 Miescher-Ishida prize presentation
- 5:30 PM **Jürgen Soll**
 Chloroplast development and differentiation
- 6:00 PM Walk to East Atrium
 Congress dinner
- Session 12
 Session chair: Ansgar Gruber
- 8:30 AM **Sally Mackenzie** (Isaac Dopp, Ha Eun Jeh, Alenka Hafner, Kardik Kundariya, Robersy Sanchez)
 Sensory plastid-mediated adaptive epigenetic reprogramming in plants
- 9:00 AM **Oren Osterseztzer-Biran**
 Plant mitochondria RNA metabolism as a key regulatory step in the biogenesis of the OXPHOS system
- 9:15 AM **Senjie Lin**
 Comparative metatranscriptomic analyses illuminate molecular basis of coral-dinoflagellate symbiosis and bleaching
- 9:30 AM **Martin Lohr**
 The evolution of algal carotenoid biosynthesis during the endosymbiotic spread of plastids
- 9:45 AM **Sergio Munoz-Gómez**
 The cost of complexity in cell evolution
- 10:00 AM **Sergio López-Madrigal** (William C. Hamilton, Osvaldo Marinotti, Jonathan H. Massey, Irene L.G. Newton)
 Are ankyrin-repeat proteins the resetta stone for *Wolbachia*/ host molecular crosstalk?

Coffee break

Session 13

Session chair: Peter Kroth

- 11:00 AM **Yoshiharu Y. Yamamoto**
Synergetic activation of Arabidopsis ELIP2 expression by high light and cold stress
- 11:30 AM **Ralf Oelmüller**
Cell wall integrity signaling
- 11:45 AM **Kwang Poo Chang**
Experimental biology of trypanosome-endosymbiont and -parasite for tumor immunotherapy
- 12:00 PM **Peter Kroth**
Announcements of prize winners and concluding remarks, farewell
- End of conference