EMBO *Workshop*

# New shores in land plant evolution

20 – 23 June 2018 | Lisbon, Portugal

## ORGANIZERS

**Jörg Becker**
Instituto Gulbenkian de Ciência, PT

**Fred Berger**
Gregor Mendel Institute, AT

## SPEAKERS

**Takashi Araki**
Kyoto University, JP

**Magdalena Bezanilla**
Dartmouth College, US

**John Bowman**
Monash University, AU

**Charles Delwiche**
University of Maryland, US

**Liam Dolan**
University of Oxford, UK

**José Feijó**
University of Maryland, US

**Jill Harrison**
University of Bristol, UK

**Mitsuyasu Hasebe**
National Institute for Basic Biology, JP

**Jim Haseloff**
University of Cambridge, UK

**Hans Kerp**
University of Münster, DE

**Takayuki Kohchi**
Kyoto University, JP

**Fay-Wei Li**
Cornell University, US

**Nir Ohad**
Tel Aviv University, IL

**Silvia Pressel**
Natural History Museum London, UK

**Stefan Rensing**
Philipps-University Marburg, DE

**Keiko Sakakibara**
Rikkyo University, JP

**Eva Sundberg**
Swedish University of Agricultural Sciences, SE

**Takashi Ueda**
National Institute for Basic Biology, JP

**Alexandra Worden**
Monterey Bay Aquarium Research Institute, US

**Sabine Zachgo**
University of Osnabrück, DE

**Ueli Grossniklaus**
University of Zürich, CH

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# New shores in land plant evolution
## 20 – 23 June 2018
## Fundação Calouste Gulbenkian, Lisbon

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Poster session II --P-56

## First data on the effects of ultraviolet radiation on phenolic compounds in the model hornwort Anthoceros agrestis

Javier Martínez-Abaigar, Gonzalo Soriano, María-Ángeles Del-Castillo-Alonso, Encarnación Núñez-Olivera, Laura Monforte

*Universidad de La Rioja, Facultad de Ciencia y Tecnología, Madre de Dios 53, 26006 Logroño (La Rioja), Spain*

Hornworts are the least species-rich bryophyte lineage, but represent a key group to understand the evolution of plants because, together with the remaining bryophyte lineages (mosses and liverworts), they constitute the first “true” plants colonizing the terrestrial environment. The responses of hornworts to ultraviolet (UV) radiation are unknown, but they may help infer how primitive bryophytes coped with UV upon land colonization. In this context, our aim was to show the first data on the effects of UV radiation on phenolic UV-absorbing compounds (UVACs) in the emerging model hornwort Anthoceros agrestis. Thalli of 52 days age were exposed to photosynthetically active radiation (PAR) alone (P regime) and to a combination of PAR + UV-A + UV-B radiation (PAB regime) for 21 days, using equivalent-to-ambient UV doses. At the end of the culture period, we measured the bulk levels and individual contents of phenolic UVACs, differentiating in both cases the UVACs located in the methanol-soluble (mainly vacuolar) and -insoluble (cell wall-bound) fractions (SUVACs and IUVACs, respectively). Three soluble and one insoluble compounds were identified, among which the soluble rosmarinic and anthocerotonic acids are not present in any other bryophyte lineage. The bulk levels of SUVACs were higher than those of IUVACs, a physiological trait more typical of liverworts than of mosses. All the variables measured showed an increasing (although non-significant) trend under the PAB regime. Further research using higher UV levels and younger more UV-responsive thalli should be conducted to more reliably establish the UV reactiveness of A. agrestis.

Thursday, 21 June 2018
16:30 - 18:30
Poster presentation