

# Just add water: Mitochondrial activity and biogenesis during resurrection of *Haberlea rhodopensis*

Aneta Ivanova<sup>A,B</sup>, Brendan O'Leary<sup>C</sup>, Santiago Signorelli<sup>D</sup>, Denis Falconet<sup>E</sup>, Daniela Moyankova<sup>B</sup>, James Whelan<sup>F</sup>, Dimitar Djilianov<sup>B</sup>, and Monika W. Murcha<sup>A</sup>

<sup>A</sup> School of Molecular Sciences, The University of Western Australia, 35 Stirling Highway, Crawley, Perth WA, 6009 Australia

<sup>B</sup> AgroBioInstitute, Agricultural Academy, 8 Dragan Tzankov Blvd., 1164 Sofia Bulgaria

<sup>C</sup> Saskatoon Research and Development Centre, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon SK, K1A 0C5 Canada

<sup>D</sup> Department of Plant Biology, School of Agriculture, Universidad de la República, E. Garzón 780, Sayago, 12900 Montevideo Uruguay

<sup>E</sup> Cell and Plant Physiology Laboratory, CNRS, CEA, INRAE, IRIG, Université Grenoble Alpes, 38054 Grenoble France

<sup>F</sup> Department of Animal, Plant and Soil Science, School of Life Science, The ARC Centre of Excellence in Plant Energy Biology, La Trobe University, Bundoora 3086 VIC, Australia

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**Oral**

**Abstract**

**Abstract:** *Haberlea rhodopensis* is a resurrection plant that can survive extremely long periods of desiccation of up to 2 years and can resume normal cellular function almost immediately upon hydration. Resurrection plants are valuable tools to study the underlying mechanisms that plants utilise to confer desiccation and drought tolerance and it has been shown that resurrection plants have evolved various specialised and unique molecular mechanisms to minimize cellular damage during the desiccation process and be able to maintain cellular integrity and function for a rapid recovery. Plant mitochondria play an essential role in energy production, carbon and nitrogen metabolism and play critical roles linked to photosynthesis and in response to oxidative and environmental stresses. The role that the mitochondria play during the desiccation and resurrection of these plants has not yet been studied. I will present our recent research findings that highlight the unique role that mitochondria play during these processes and surprisingly, we have found that mitochondrial composition is maintained during desiccation. Furthermore, mitochondrial specific alternative respiratory pathways are activated during desiccation which minimises ROS damage, allows for a rapid recovery and provides an energy advantage upon rehydration.