

XXI INTERNATIONAL SCHOOL OF ASTROBIOLOGY
"JOSEP COMAS I SOLÀ"
Origins to Organisms: Understanding Life's Beginnings

UIMP, Palacio de la Magdalena, 39005 Santander, Spain
7-11 July 2025

Sponsors

Centro de Astrobiología
NASA
ESA Academy
INTA

Directors

Britney E. Schmidt
Astronomy and Earth & Atmospheric Science
Cornell University, USA

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Organization

José A. Caballero
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Monday 7 July

10:00 Welcome lectures

Britney E. Schmidt
Cornell University, USA
Víctor Parro
Centro de Astrobiología, Spain

11:30 Prebiotic geological settings on Earth and in the Solar System

Laurie Barge
[Scientific Society for Astrobiology](#), USA

15:30 On the origins of ribonucleotides and information transfer: Understanding molecular predisposition

Matthew Powner
University College London, UK

Tuesday 8 July

09:00 Field trip

Excursion to Neocueva y Museo de Altamira and Cueva El Soplao (whole day)

Wednesday 9 July

10:00 Proto-metabolic reactions in early Earth environments

Laurie Barge

Scientific Society for Astrobiology, USA

11:30 The Astrobiology of energy metabolism: early Earth and possibilities on other worlds

Greg Fournier

Department of Earth, Atmospheric and Planetary Sciences, MIT, USA

15:30 From amino acids to peptides and proteins

Klára Hlouchová

Univerzita Karlova, Czech Republic

17:30 From nitriles to biology's functional molecules: A systems chemical analysis of the roots of biology

Matthew Powner

University College London, UK

Thursday 10 July

10:00 Peptide/proteins-nucleic acid interactions: compartmentalization and specialization

Klára Hlouchová

Univerzita Karlova, Czech Republic

11:30 The first cellular lineages, LUCA and the origin of Earth's biosphere

Greg Fournier

Department of Earth, Atmospheric and Planetary Sciences, MIT, USA

15:30 Workshop on *Life Beyond Biochemistry (LBB)*

Juan Pérez Mercader

Harvard University, USA

17:00 Actividad cultural abierta al público:

Sintetizando vida artificial en el laboratorio

Juan Pérez Mercader

Harvard University, USA

Friday 11 July

10:00 Students presentations

11:30 Synthesis + diplomas

12:00 Adjourn