



LUDWIG-  
MAXIMILIANS-  
UNIVERSITÄT  
MÜNCHEN

CAS<sup>LMU</sup> CENTER FOR ADVANCED STUDIES  
RESEARCH GROUPS



## Molecular Origins of Life

11 and 12 October 2018

International Conference organized by Prof. Dr. Dieter Braun

### Thursday, 11 October 2018

#### Session A

- 08:30 - 8:55      **Job Boekhoven** (TU Munich)  
Self-selection of dissipative assemblies from primitive chemical reaction networks
- 8:55 - 9:20      **Irene Chen** (UC Santa Barbara)  
Fitness landscapes of RNA
- 9:20 - 9:45      **Dora Tang** (MPI for Cellular Molecular Biology and Genetics)  
Synthetic cellular models for probing the origin of life
- 9:45 - 10:05      Discussion
- 10:05 - 10:35      Coffee break

#### Session B

- 10:35 - 11:00      **Clemens Richert** (University of Stuttgart)  
Enzyme-free replication of genetic sequences
- 11:00 - 11:25      **Phil Holliger** (MRC Laboratory of Molecular Biology)  
Replicating RNA with RNA
- 11:25 - 11:50      **Niles Lehman** (Portland State University)  
Scrambling to build the RNA world
- 11:50 - 12:10      Discussion
- 12:10 - 13:30      Lunch break

#### Session C

- 13:30 - 13:55      **François Guyot** (Museum National d'Histoire Naturelle, Paris)  
Emergence of organized geochemical systems in the early earth

- 13:55 - 14:20 **Christof Mast** (LMU Munich)  
Physical non-equilibria as driving force and habitat for the origin of life
- 14:20 - 14:45 **André Estevez-Torres** (ESPCI Paris & Sorbonne Université)  
Synthesis of spatio-temporal structures with DNA molecular programs
- 14:45 - 15:05 Discussion
- 15:05 - 15:35 Coffee break with poster session
- 15:35 - 16:35 Poster session

#### **Session D**

- 16:35 - 17:00 **Andrei Lupas** (MPI for Developmental Biology)  
Ribosomal proteins as documents of the transition from unstructured polypeptides to folded proteins
- 17:00 - 17:25 **Sijbren Otto** (University of Groningen)  
Can we synthesize life in the lab? How chemistry may become biology
- 17:25 - 17:50 **Laurie Barge** (California Institute of Technology)  
Simulating prebiotic chemistry in hydrothermal systems on early earth and ocean worlds
- 17:50 - 18:10 Discussion
- 18:10 End

#### **Friday, 12 October 2018**

##### **Session E**

- 08:30 - 8:55 **Dimitar Sasselov** (Harvard University)  
Stellar uv light and the origins of life
- 8:55 - 9:20 **Cornelia Meinert** (Université Nice Sophia Antipolis)  
The asymmetry of life
- 9:20 - 9:45 **Stephen Mojzsis** (University of Colorado)  
Onset of late accretion to the inner solar system – consequences for the first habitats
- 9:45 - 10:05 Discussion
- 10:05 - 10:35 Coffee break

##### **Session F**

- 10:35 - 11:00 **Matt Powner** (University College London)  
On the divergent synthesis of purine and pyrimidine nucleosides

11:00 - 11:25 **Saidul Islam** (University College London)  
Prebiotic selection and assembly of proteinogenic peptides and ribonucleotides

11:25 - 11:50 **Thomas Carell** (LMU Munich)  
The prebiotic origin of RNA building blocks on early earth

11:50 - 12:10 Discussion

12:10 - 13:40 Lunch break

### Session G

13:40 - 14:05 **Matthew Pasek** (University of South Florida)  
Disequilibrium polyphosphate formation from phosphorus redox

14:05 - 14:30 **Sheref Mansy** (University of Trento)  
The emergence of iron-sulfur catalysts

14:30 - 14:55 **Shawn McGlynn** (ELSI of Tokyo Institute of Technology)  
How much can we learn about ancient cells from sequence analysis?

14:55 - 15:15 Discussion

15:15 - 15:45 coffee break

### Session H

15:45 - 16:10 **Robert Pascal** (Princeton University)  
How chemical kinetics can become a driving force for life self-organization

16:10 - 16:35 **Moritz Kreysing** (MPI of Molecular Cell Biology and Genetics)  
Ribozyme reactions in the presence of uncharged and charged co-polymers

16:35 - 17:00 **Frank Postberg** (University of Heidelberg)  
The subsurface ocean of Enceladus: a habitable place in our solar system

17:00 - 17:20 Discussion

17:20 **Closing of the Conference**

**Venue:**  
Literaturhaus München  
Salvatorplatz 1  
80333 München

