

Monday, April 24, 2017
ORIGIN AND EVOLUTION OF LIFE: PREBIOTIC CHEMISTRY:
FUNCTIONAL BIOPOLYMERS I
1:30 p.m. Arizona Ballroom A-C

Chairs: Nicholas Hud
 Raghav Poudyal

- 1:30 p.m. Sahai N. Schoonen M. A. *
[*Constraining Phosphate, Magnesium and Calcium Concentrations for Prebiotic Synthesis and Self-Assembly of the Building Blocks of Life*](#) [#3098]
 We estimated element (P, Mg, Ca) concentration and pHs under a range of plausible early Earth conditions for biological and non-enzymatic biomolecule synthesis.
- 1:45 p.m. Burcar B. T. * Pasek M. Gull M. Cafferty B. J. Velasco F. Hud N. V. Menor-Salvan C.
[*Phosphorylation and Oligomerization of Nucleosides in a Urea-Rich Eutectic Solvent Using Mineral and Free Phosphate Sources*](#) [#3597]
 Prebiotically viable phosphorylation and oligomerization of nucleosides in a urea-rich eutectic solvent with moderate heating using mineral and free phosphates.
- 2:00 p.m. Adam Z. R. * Fahrenbach A. Hongo Y. Cleaves H. J. II Yi R. Yoda I. Aono M.
[*Production and Concentration of Water-Alternative Solvents on the Prebiotic Earth*](#) [#3279]
 We report the conversion of aqueous acetonitrile and HCN into formamide, acetamide, succinonitrile, and other compounds by γ -irradiation.
- 2:15 p.m. Yerabolu J. R. * Liotta C. L. Krishnamurthy R.
[*Anchimeric Assisted Spontaneous Hydrolysis of Cyanohydrins: Implications for Cyanide Mediated Chemistries*](#) [#3167]
 Neighboring group effect and the pH dependence of the hydrolysis of cyano group in the cyanide-mediated prebiotic chemistry will be discussed.
- 2:30 p.m. Evans A. C. * Kading J. S.
[*Prebiotic Flow Syntheses of Chiral Nucleoside Precursors*](#) [#3583]
 This work focuses on how continuous processing approaches can be combined with supramolecular chiral influences to generate prebiotic asymmetry.
- 2:45 p.m. Menor-Salvan C. * Fialho D. Hud N. V.
[*Urea: A Key Prebiotic Reagent in the Origin of Nucleic Acids*](#) [#3342]
 Model prebiotic reactions are increasingly pointing to urea as a key precursor of relevant bases and catalyst for the origin of nucleic acids.
- 3:00 p.m. Rapf R. J. * Perkins R. J. Vaida V.
[*Formation and Self-Assembly of Oligomeric Lipids by Aqueous Photochemistry of Alkyl Oxoacids*](#) [#3316]
 The generation of multi-tailed lipids from the aqueous phase photochemistry of a class of oxoacids and their subsequent self-assembly will be discussed.
- 3:15 p.m. McKee A. D. * Bennett C. J. Saydjari A. Hud N. V. Krishnamurthy R. Orlando T. M.
[*Mineral Interactions with Ester-Mediated Amide Bond Forming Systems: Prebiotic Depsipeptides*](#) [#3174]
 Investigation of various mineral substrates within a mixed hydroxy/amino acid system offers a new look into their potential role in proto-polypeptide formation.
- 3:30 p.m. Mast C. Möller F. Lanzmich S. Keil L. Braun D. *
[*Early Life in Rock Pores Driven by Thermal Forces?*](#) [#3029]
 Non-equilibrium micro-system experiments reveal how thermal gradients can drive replication and selection of genetic molecules towards increasing complexity.
- 3:45 p.m. *Coffee Break*