

Open positions: Biochemical, Genetic, Metabolic, and Isotopic Constraints on an Ancient Thiobiosphere

We are looking for postdoctoral and doctoral colleagues to work on a collaborative project aimed at investigating thioester (bio)chemistry at the origins of life and its biological remnants thereafter. This project results from a recent NSF/NASA Ideas lab, and will operate under a collaborative atmosphere that spans a number of disciplines and institutions.

We will attempt to recover signals of the historical role of thioester (bio)chemistry through a combination of metabolic, phylogenetic, biochemical, and isotopic analyses. In particular, we will work backwards to reconstruct ancient thiochemistries from the systems biology of contemporary metabolisms, with a focus on the ancestral state reconstruction of critical enzymes. We will simultaneously examine pre-biological chemistries that can couple thioester formation and degradation to energy conservation. Finally, we will look for the presence of a thiobiosphere in deep time by integrating our metabolic, genetic, and biochemical results into bio-isotopic models for comparison with new measurements of C- and S-isotope patterns found in ancient rocks.

Opportunities to participate in this project are available at Boston University (1 PDF), University of Colorado Boulder (1 PhD), University of Arizona (1 PDF), Penn State (1 PhD), and the Blue Marble Space Institute of Science (1 PDF). Successful candidates will have the opportunity to travel among these institutions as well as the Earth-Life Science Institute (ELSI) at Tokyo Tech.

We are interested in hearing from potential candidates with experience in: phylogenetics, computational systems biology, anaerobic microbiology, biochemistry, and/or isotope geochemistry. We encourage collaborative applications if existing synergies can be demonstrated among interested candidates. For full consideration please send applications or inquiries to

thiobio-research@googlegroups.com

Include:

1. a cover letter outlining your interest in the project
2. a CV including the names and addresses of three references
3. (if applicable) a short note describing collaborative synergies with other co-applicants

For more information, please also feel free to contact:

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