

**Friday, July 21, 2017**  
**EVOLUTION: THE DRIVING FORCE FOR EVOLUTION**  
**AT THE CHEMICAL AND BIOLOGICAL STAGES**  
**8:30 a.m. Price Center Theatre**

**Chair: Irene Chen**

8:30 a.m. Pascal R. Pross A. \*

[\*A Roadmap Toward Synthetic Protolife\*](#) [#4151]

In this lecture it will be argued that a strategy for the synthesis of protolife requires the characterization of the physicochemical state of life's primordial beginnings, not just its material composition.

8:50 a.m. Petrie K. L. \* Meyer J. R.

[\*Bypassing Evolutionary Roadblocks: Phenotypic Diversity in Isogenic Population Bridges Tradeoff in Evolution of a New Function\*](#) [#4080]

A novel mechanism of innovation bridges fitness valleys by violating the one gene-one phenotype dogma. Protein products of a single gene partition into populations, some of which carry out a new function and some the old, avoiding tradeoffs.

9:10 a.m. Fujishima K. \* Greenberg D. Kobayashi A. Kuruma Y. Mizuuchi R.  
Rothchild L. J. Ditzler M. A.

[\*In Vitro RNA-Peptide Co-Evolution System for Screening ATP-Binding RNP\*](#) [#4218]

Understanding the historical trajectories of the co-evolution of RNA and proteins to RNA-protein complexes (RNPs) using ATP-binding function as a selective pressure.