

Thursday, April 27, 2017
ORIGIN AND EVOLUTION OF LIFE: EVOLUTION/GENETICS:
EXPERIMENTAL MICROBIAL EVOLUTION
1:30 p.m. Arizona Ballroom E-G

Chairs: Shelley Copley
 Frank Rosenzweig

- 1:30 p.m. Copley S. D. * Kershner J. P. Kristofich J. Yu McLoughlin S. Kim J. Morgenthaler A. Ebmeier C. C. Old W. M.
[*E. coli and S. enterica Take Different Evolutionary Trajectories when Subjected to the Same Selective Pressure.*](#) [#3748]
 Different mutations increase the growth rate of E. coli and S. enterica when fitness is limited by a weak-link enzyme required for two essential functions.
- 1:45 p.m. Turner C. B. * Cooper V. S.
[*Ghost of Communities Past: Extinct Community Member Shapes Evolutionary Outcomes*](#) [#3480]
 Experimentally evolved communities with and without a transient community member which went extinct differed in community composition and evolutionary outcomes.
- 2:00 p.m. Wing B. A. * Pellerin A. P. Singh J. Collins R. E.
[*Sulfur Isotope Fractionation is a Phenotypic Trait that Responds to Evolutionary Adaptation*](#) [#3752]
 Dissimilatory sulfate reduction generates a characteristic stable isotope phenotype that responds to experimental evolutionary adaptation.
- 2:15 p.m. Sherlock G. * Herissant L. Yuan D. Humphrey P. Johnson M. Agarwala A. Fisher D. S. Desai M. Petrov D. A.
[*The Joint Distribution of Fitness Effects for Beneficial Mutations*](#) [#3097]
 We have isolated beneficial yeast mutants from 12 experimental conditions, and remeasured the fitness of each lineage under all 12 conditions.
- 2:30 p.m. Eghbal M. M. * Sprouffske K. Dartey J. Garcia A. Hyun M. Sniegowski P. D.
[*Evolutionary Instability of Genomic Mutation Rate in Rapidly Adapting Asexual Mutator Escherichia Coli Populations: An Experimental Study Under both Hard Selection and Soft Selection*](#) [#3179]
 Asexual mutators under repeated hard selection are enriched for hypermutators; however, under long-term soft selection, they exhibit mutation rate polymorphism.
- 2:45 p.m. Plesa A. Garmendia E. Kacar B. *
[*Adaptive Laboratory Evolution Elucidates Ancient Protein Behavior Through Extant Population Level Evolutionary Dynamics*](#) [#3258]
 We investigated the evolutionary adaptation of E. coli population harboring ancient Elongation Factor-Tu (EF-Tu) genes.
- 3:00 p.m. Tamer Y. T. Toprak E. *
[*Mapping Epistasis in Evolution of Dihydrofolate Reductase*](#) [#3631]
 We quantify epistatic interactions that drive evolution of E. coli dihydrofolate reductase (DHFR) in the presence of its inhibitor (trimethoprim).
- 3:15 p.m. Petrie K. L. * Meyer J. M.
[*Phenotypic Stochasticity: A New Mode of Evolutionary Innovation*](#) [#3757]
 Experiments demonstrate a new mechanism of evolutionary innovation that bypasses tradeoffs associated with novel functions emerging from existing proteins.
- 3:30 p.m. Smith E. Rosenzweig F. * Dunn B. Wenger J. Sherlock G. Copley S. D.
[*Sweet are the Uses of Adversity: Insights into the Origin and Fate of New Genes*](#) [#3751]
 Whole-genome sequencing and population sequencing of microbes during adaptation have revolutionized studies of adaptive evolution.
- 3:45 p.m. *Coffee Break*