



The Department of Ecology and Evolutionary Biology Spring 2018 Seminar Series

Genomics of parallel adaptations and speciation in repeated species flocks of cichlid fishes

Cichlid fishes are well-known for their extraordinary rapid divergence and conspicuous convergence in terms of coloration, body shape, and trophic morphologies - making them an excellent model for addressing questions about the genomics of convergent evolution. Analyses in a phylogenetic context suggests that there are certain biases in the repeated generation of adaptations. One of the most notable cases of parallelism among repeated cichlid species flocks including those of the three large East African radiations is the evolution of hypertrophied lips that are used for specialized feeding and also serve as a signal in sexual selection - a possible magic trait. In a multidisciplinary approach, using whole genome re-sequencing on hundreds of individuals, QTL mapping, population genomics, feeding performance, and mate-choice experiments we disentangle the genetic basis and the adaptive significance of hypertrophic lips in both African and Central American cichlids and found that the genetic architecture of hypertrophic lips differs strongly between both lineages of cichlids. Also, color patterns, such as stripes and bars, have evolved repeatedly in several adaptive radiations of cichlids. We identified the molecular mechanisms that led to the repeated evolution of this coloration pattern. The underlying mutations are not conserved across radiations suggesting independent evolution of different cis-regulatory modules that all result in similar phenotypes within very short evolutionary time spans.



**Join us in welcoming
Dr. Alex Meyer
University of Konstanz**

**Friday, March 23 2018
SERF 307 - 3:30 PM
Pre-talk Reception 3:00 PM
in Dabney 575**