

Genomic Conflicts and the Molecular Basis of Speciation

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Abstract

Speciation, the process by which one species splits into two, involves the evolution of reproductive isolating barriers such as the sterility or inviability of hybrids between previously interbreeding populations. Even in his masterpiece "On The Origin of Species", Darwin could find no satisfactory solution to the apparent paradox of why natural selection would tolerate the onset of genetic barriers such as hybrid sterility and inviability that diminish the prospect of successful reproduction and, therefore, termed this problem the "mystery of mysteries". The studies of the cellular and developmental anomalies in inter-species hybrids provide surprising insights into the otherwise hidden evolutionary conflicts that ultimately shape the architecture of our genomes, cells and species. Here, I describe the key developments that are rapidly changing our understanding of the molecular basis of speciation, and the problems that still remain unsolved.



About the Speaker

RESEARCH INTERESTS: speciation; selfish genetic elements; molecular arms races.

EDUCATION AND TRAINING

2008-2013 Postdoctoral fellow (Basic Science); Advisor: Harmit S. Malik
Fred Hutchinson Cancer Research Center, Seattle, WA.

2002-2008 Ph.D. (Biology); Advisors: H. Allen Orr and James D. Fry
University of Rochester, Rochester, NY.

1997-2000 B.Sc. (Microbiology) University of Pune, India.

PROFESSIONAL APPOINTMENTS

2013-present Assistant Professor, Department of Biology, University of Utah.

HONORS

2019 Faculty Fostering Undergraduate Research Award, University of Utah.

2019 Faculty Recognition Award, University of Utah.

2016 Pew Biomedical Scholar, Class of 2016.

2014 Finalist, March of Dimes Basil O' Connor Award.

2014 Finalist, NIH Director's New Innovator Award.

2013 Mario R. Capecchi Endowed Chair in Biology, University of Utah.

2009 Howard Hughes Medical Institute fellow of the Life Sciences Research Foundation (LSRF).

2009 Harold M. Weintraub Award, an international award for outstanding achievements during graduate studies.

2009 Outstanding Dissertation Award in the Natural Sciences, University of Rochester, Rochester, NY.

2009 Finalist, Larry Sandler Memorial Award for the most outstanding dissertation in Drosophila research; Genetics Society of America.