



## **SPECIAL SEMINAR**

# **Principal Investigator Candidate Developmental and Stem Cell Epigenetics**

## **Dr. Rajee Rajakumar**

Department of Genetics  
Harvard Medical School  
Boston, MA

### **Title:**

**“From model organism to superorganism:  
epigenetics of development, reproduction, aging,  
and interorgan communication“**

**Thursday, January 31, 2019**

**3:00 p.m.**

### **Location:**

**Mount Sinai Hospital  
60 Murray Street, 3<sup>rd</sup> Floor, Room 203**

Rajendran Rajakumar did his Ph.D. in Biology at the McGill University with Ehab Abouheif, where he developed ants as a model system to investigate epigenetic mechanisms in the context of development and evolution. There he made discoveries connecting cell-signalling pathways with developmental epigenetic mechanisms in regulating environment-dependent quantitative growth. He further discovered that the hormonal reactivation of dormant developmental programs can induce extreme growth, and that rudimentary organs can serve novel interorgan communication roles. He then pursued a NSERC postdoctoral fellowship in the lab of Martin Cohn in the Dept. of Molecular Genetics and Microbiology at the University of Florida where he investigated the cellular and developmental genetics of the cartilaginous skeleton of sharks as well as the role of estrogen receptors in the development of sexually dimorphic organs. He is currently a CIHR postdoctoral fellow in the HHMI lab of Norbert Perrimon at Harvard Medical School, where he investigates interorgan communication related to reproduction in *Drosophila melanogaster*. His past and current work has been published in *Nature*, *Science*, *Nature Communications*, *PNAS*, and *PLoS Genetics*. His PhD dissertation received awards including the Cameron Award for best PhD in Canada from the Canadian Society of Zoology. His future work aims to establish ants (with the aid of *Drosophila*) as a major epigenetic model in understanding how DNA methylation, histone modifications, and miRNAs translate environmental conditions (ex: nutritional, social, stress) into inter-individual differences in longevity, reproduction, growth, and inter-organ communication, which will hopefully provide novel avenues for biomedical research.

**Host: Mei Zhen /Miguel Ramalho-Santos**