History, Mechanisms and Functions of RNA Silencing (3 units)
Bi 23 Section 06-11

Organizational Meeting: Wednesday, March 30th, at 4 PM in Braun 151

Instructor: Dubravka Pezic, Ph.D., x4297 email: dubravka@caltech.edu

Course Description:

RNA silencing has emerged in the last decade as an important paradigm and has shed new light on our understanding of gene expression and regulation. Small RNAs (siRNAs, miRNAs and piRNAs) are capable of recognizing target nucleic acids by complementary base-pairing, to orchestrate development, combat viruses, and guard the integrity of the genome. They regulate gene expression on all levels, from chromatin structure to translational regulation, in all five kingdoms of life. The central mechanism is deeply conserved, but silencing processing take on many different flavors in different organisms, making them additionally interesting. RNA silencing also contributes to laboratory research and biotechnology in general, by providing us a technique to knock-down genes. It also offers many possibilities for development of gene-specific therapeutics.