BIOL 425: RNA Interference and CRISPR

RNA interference (RNAi) is the process of inhibition of gene expression by RNA molecules. The mechanism for RNAi in prokaryotes and eukaryotes was evolutionarily developed as defense against pathogen invasion. CRISPR, Clustered Regularly Interspaced Short Palindromic Repeats is a similar defensive mechanism found in certain bacteria. Detailed understanding of their molecular mechanism enabled adaptation of these as tools for down regulating specific gene expression in mammalian cells. This course is designed to provide a deeper understanding of RNA interference and CRISPR and their applications in different fields of biology.

Learning Objectives

- Understand the mechanism of RNA interference and CRISPR
- Learn different types of RNA interferences and study of gene function using RNAi
- Learn challenges in RNAi and CRISPR applications and adaptation to high throughput screens
- Learn computational approaches of high throughput RNAi/CRISPR screen data analysis
- Review of therapeutic applications of RNAi/CRISPR

Credits: 1
Class Type: Graduate Course
Prerequisites:
Basic understanding of molecular biology and cell biology.
Program: Biology, Genetics, and Medicine
Availability Fall 2021
Session Session B