

BIOL 254: Non-Coding RNAs (miRNAs, lncRNAs, and circRNAs) and Exosomes: Biology and Diseases

This course will address the biology, function, and expression of non-coding RNAs, including microRNAs, long noncoding RNA, and circular RNAs. It will address exosomes in the light of these non-coding RNAs. The course will also highlight the involvement of non-coding RNAs and exosomes in human diseases as well as the potential treatment with RNA therapeutics. The objective of this course is to provide an overview of cutting-edge scientific knowledge to researchers who need to understand this fast-emerging field and who plan to investigate non-coding and exosomes. Classes will cover different aspects of non-coding RNAs and exosomes from the perspectives of molecular biology, their role in diseases and RNA therapeutic implications as well as reference databases for data mining. By the end of the course, students should be able to discuss basic science, the disease biology of non-coding RNAs and exosomes; students should also gain knowledge of technology approaches suitable for their research projects.

Learning Objectives

- Learn the basics and latest scientific findings in the field of non-coding RNAs, such as microRNAs, long noncoding RNA, and circular RNAs, and exosomes
- 1. MicroRNAs biogenesis and functions
- 2. Long non-coding RNAs biology and functions
- 3. Exosomes, microRNAs, and non-coding RNAs
- 4. Non-coding RNAs and Exosomes in Disease Biology » Microbiome » Immune responses » Stem cells

Credits: 1

Class Type: Graduate Course

Program: Biology, Genetics, and Medicine