BIOL 550: Introduction to Extracellular Vesicles

There is an increased interest in purifying, identifying and engineering extracellular vesicles for both research and therapeutic benefits. Until now, there is no single method that can give the maximum yield with high purity level needed for mass production. There are numerous methodologies available to isolate and analyse these vesicles. This course aims to provide the basic understanding of extracellular vesicles (EV) a term that includes exosomes, microvesicles, oncosomes, and many others. It will introduce participants to the basics, pros and cons of different methods implemented in the purification, quantification, and validation/characterization of extracellular vesicles. It covers areas such as EV biogenesis, cargo, and different release and uptake mechanisms. Also, the course will touch base on the different research and therapeutic strategies used to understand the role of these vesicles in health and disease. The course is divided into 7 weeks.

Learning Objectives

After course completion, participants will be introduced to the best available resources and guidelines for methods used for purification and characterization/identification of extracellular vesicles. They should be able to:

- Describe the basic concepts for the different isolation and characterization techniques and how these techniques are used in the EV field.
- Describe the biogenesis, release and uptake mechanisms of EV.
- Communicate the pros and cons of the different isolation, quantification, and characterization methods.

Credits: 2
Class Type: Graduate Course
Program: Biology, Genetics, and Medicine
Availability Fall 2021
Session Session B