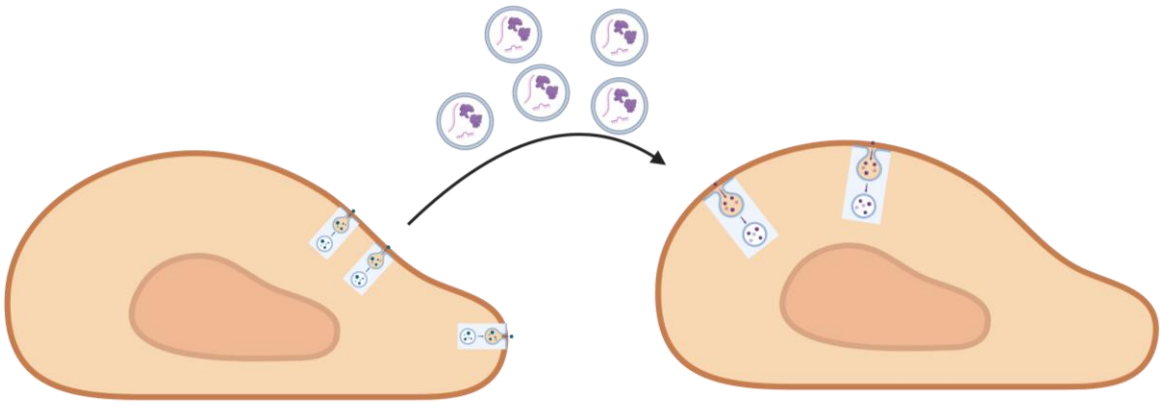
Exosomes in aortic diseases

Exosomes are small extracellular vesicles that play important roles in intercellular communication and various biological processes. These vesicles are secreted by a wide range of cell types, including cells of the immune system, stem cells, and cancer cells, among others. Exosomes contain a variety of molecules, including proteins, nucleic acids (such as RNA and DNA), lipids, and other bioactive molecules.

Exosomes are formed within cells through a process involving the inward budding of the endosomal membrane. This creates intracellular vesicles known as multivesicular bodies (MVBs). When MVBs fuse with the cell's plasma membrane, they release their contents into the extracellular space as exosomes. Exosomes serve as vehicles for transferring information between cells. They can transport molecules like proteins and genetic material from one cell to another, influencing the recipient cell's behavior and function. This communication can be both local and long-distance, and it's thought to be important in various physiological and pathological processes. Exosomes contain a diverse cargo of molecules, including various types of RNA (messenger RNA, microRNA, and other non-coding RNAs), proteins, lipids, and even DNA. The specific cargo carried by exosomes can vary depending on the cell type, physiological conditions, and other factors.

The Aortic Lesions research group aims to further understand the role of exosomes in aortic disease and is investigating this in various experimental approaches.



Exosomes are small, membrane-bound vesicles that are released by cells into the extracellular environment. They play a crucial role in cell-to-cell communication and the transfer of various molecules, such as proteins, nucleic acids (RNA and DNA), lipids, and metabolites, between cells. Exosomes are involved in various physiological processes, including immune response modulation, tissue repair, and development, as well as pathological conditions like cancer and neurodegenerative diseases. The role of exosomes in abdominal aortic aneurysm (AAA) remains yet to be investigated. The Research Group Aortic Lesions aims to understand the role of exosomes in the pathogenesis of AAA disease. (Created with BioRender).