

Spatiotemporal Imaging Tools for Studying The Role of Exosomes

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Abstract

Exosomes are a type of small extracellular vesicles (EVs) actively secreted from cells. Exosomes are distinct from other types of EVs by their size and biogenesis mechanisms, which are endosome-originated. They mediate cell-cell communication in both autocrine and paracrine manners via their bioactive protein, nucleic acid, and lipid cargoes. Recently, the mechanisms how exosomes mediate cell-cell communication and regulate cellular physiology and behavior have been investigated by using live imaging techniques visualizing the spatial and temporal dynamics of exosome secretion and interactions with cells. Here, I introduce spatiotemporal imaging tools for studying the role of exosomes and discuss the role of exosomes in cell migration.

Bio

Bong Hwan Sung, Ph.D., is Research Associate Professor in the Department of Cell & Developmental Biology, Vanderbilt University School of Medicine.

He got a Ph.D. from the Department of Life Science, Gwangju Institute of Science and Technology, Gwangju, Republic of Korea advised by Dr. Woo Keun Song. He studied cellular signaling of focal adhesion proteins and extracellular matrix proteins and cell migration in a graduate school.

Then, he joined Alissa Weaver's lab at Vanderbilt University School of Medicine as a postdoctoral fellow, where he focused on how cortactin promotes cancer cell migration by recycling an ECM protein, fibronectin. This study led him to the field of extracellular vesicles research with experience in Cell Biology providing a new perspective of cell adhesions and migration and extracellular matrix assembly regulated by exosome secretion and with a strong interest in biogenesis and cargo delivery of exosomes to manage cancer cell migration, tumor microenvironment, and cancer severity.

He has been recognized by extracellular vesicle research societies by chairing sessions and giving talks in international symposia. Also, he has been serving as the vice president and then the president of Nashville Chapter in Korean-American Scientists and Engineers Association since 2014.

