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### **How Close the Exosome therapy is to Us?**

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Extracellular vesicles released from cells are known to be involved in the maintenance of homeostasis, regulation of immune function, and intracellular signaling. Since the extracellular vesicle contains various clinical information, it has recently been used for diagnosis of diseases by showing its role as a biomarker for various diseases. In addition, various proteins, DNA, genes, etc. released from the endoplasmic reticulum cause various diseases, so the development of therapeutic agents to suppress them is being studied. Exosomes, a subtype of extracellular vesicles, are cell-derived lipid bilayer membrane nano-sized particles, which contain various bioactive molecules, such as mRNA, miRNA, non-coding RNA, proteins, and lipids. Exosomes play an important role in cell-to-cell communication, by transferring information from host cells to recipient cells. The endoplasmic reticulum derived from stem cells has the ability to improve tissue damage and repair abnormal tissue damage by promoting angiogenesis and tubular cell proliferation as well as improving cell death, inflammation, and fibrosis. is being presented. Currently, exosomes have been spotlighted as diagnostic biomarkers and therapeutic agents in various diseases. Recent advances in biomedical engineering technology have made it possible to control the components of exosomes with various biological functions, and the endoplasmic reticulum is being used as a promising drug delivery tool. This lecture will briefly introduce the role of the ER in various diseases, including kidney disease, and the role of the ER as a drug delivery tool.