

Tentative Outline

Special Thematic Issue for Current Molecular Medicine

Title of Thematic Issue

Exosomes: functions and application as diagnostic markers and drug delivery systems

Guest Editor:

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Aims & Scope:

Exosomes are secreted bi-lipid membrane nanovesicle of endosomal origin, with diameters of 30-150 nm. They are enriched for proteins, lipids, and RNAs, including mRNAs and miRNAs, of their parent cells. The bi-lipid membrane can protect the proteins and RNAs from degradation. Thus, exosomes can deliver these components to both local and remote recipient cells to influence their physiologic functions, and thereby are important mediator for intercellular communication. Exosomes are secreted by all cell types and are present in body fluids such as blood, urine, and breast milk.

The research work on exosomes are explosively increasing in recent years. Exosomes have been implicated in important physiological and pathological processes including antigen presentation, genetic exchange, immune responses, angiogenesis, inflammation, tumor metastasis, and spreading of pathogens or oncogenes. The number of circulating exosomes and the components within them are modified when diseases occur, and the changes can be measured as biomarkers. In addition, exosomes are also natural carriers of functional RNA and proteins and can be harnessed as nanoparticle vehicles for drug or gene delivery to facilitate gene and cell therapy.

In this special issue, contributions are encouraged to investigate into the physiological and pathological roles of exosomes and their potential applications as diagnostic markers as well as drug delivery systems.

We hope that this special issue focusing on exosomes will provide new insights into molecular mechanism of their biological functions as well as the current trends of their potential clinical application.

Subtopics:

Mesenchymal stem cell derived exosomes

Biological functions of exosomes

Exosomes: novel biomarkers for clinical diagnosis

Engineering exosomes as drug carriers

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