

Stem Cell Reviews and Reports: Microenvironment and Extracellular Microvesicles Section

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That cells undergoing apoptosis release vesicles in the extracellular environment has been known for a long time. However, only in the past decade vesicles released from perfectly healthy cells emerged as vehicle for intercellular communication. This is a well preserved evolutionary mechanism in the three life kingdoms from protists, plants, fungi, invertebrates to vertebrates. In mammals this mechanism of inter-cellular communication has been involved in multiple biological, physiological, and pathological processes. Vesicles released from the endosomal compartment and/or from the cell surface known as exosomes and microvesicles respectively, may act as vehicles for exchange between cells of receptors/proteins, lipids and nucleic acids. The transfer of transcription factors mediated by vesicles may induce epigenetics and functional changes in the recipient cells. These extracellular vesicles are attracting substantial interest in the scientific community not only for their role in intercellular communication but also because they carry the signature of the cell of origin with a potential diagnostic application. In fact, extracellular vesicles are present in the biological fluids and their composition and content may underline physiological and pathological conditions. Extracellular vesicles are recognized as potential biomarkers in several in diseases including autoimmune, infectious, inflammatory, metabolic and neurodegenerative disorders and cancer. Stem/progenitor cell-derived extracellular vesicles emerged

as paracrine mediators of their action, highlighting potential exploitation of vesicles for therapeutic intervention. Moreover, engineered extracellular vesicles are expected to have applications in drug/miRNA/siRNA delivery.

The section on Microenvironment and Extracellular Vesicles provides a forum for the exchange of ideas and results from areas pertaining to the role of different types of vesicles in stem cell biology with particular attention to:

- The biogenesis of stem/progenitor cell-derived extracellular vesicles;
- The characterization of the molecular composition of extracellular vesicles;
- The mechanisms of extracellular vesicle cargo loading and delivery;
- The extracellular vesicle function in physiological and pathological conditions;
- The potential therapeutic application of native or engineered extracellular vesicles;
- The use of extracellular vesicles as biomarkers;
- The technological improvements in isolation, quantification and characterization of extracellular vesicles.

We are excited to hear about your opinion on the new structure of SCRR and future changes and look forward to receiving your high-quality contributions to our journal.

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