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Tracking of Immune Cells with Multi-modal Imaging System

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Molecular imaging is a fast growing biomedical research that allows the visual representation, characterization and quantification of biological processes at the cellular and subcellular levels within intact living organisms. In vivo tracking of cells is an indispensable technology for development and optimization of cell therapy for replacement or renewal of damaged or diseased tissue using transplanted cells, often autologous cells. With outstanding advantages of molecular imaging, the imaging approach is most commonly applied for in vivo monitoring of immune cells in order to assess viability of administered cells with therapeutic efficacy in preclinical small animal models and its biological role in microenvironments of various diseases. In this review, a general overview of multimodal molecular imaging is provided and our recent works of in vivo cell tracking using multimodal molecular imaging are introduced.

Keywords: Immune cells, Tracking, Multi-modal, Molecular imaging