**Distribution of Mesenchymal Stromal Cell after intravenous administration in a rat model of multiorgan donation after circulatory death**

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**Introduction:**

Mesenchymal stromal cells (MSCs) are mesoderm-derived multipotent stromal cells that have an immunomodulatory and inflammatory properties potentially beneficial against renal ischemia/reperfusion injury. In order to further assess MSC-mediated ischemic preconditioning, we investigate the systemic distribution of MSCs within the body after i.v. administration in a rat model of multiorgan donation after circulatory death.

**Methods:**

Rat male bone marrow-derived MSCs, labeled with 8uM CM-Dil a lipophilic fluorescent dye, were infused through the femoral vein in a female rat model of DCD donors (n = 4) six hours before multi-organ retrieval. Control donors received normal saline (n = 2, 1 female / 1 male). Positive controls for *Sry* gene detection were obtained from MSC-derived genomic DNA. Organs (lung, kidney, liver) underwent gDNA extraction.

**Results:**

Real-time qPCR analysis (from 100ng of total gDNA) revealed no specific reaction in negative controls or saline-exposed livers and kidneys (Ct > 30). Positive (male) controls and lungs of female rats exposed to 1.5x106-labeled MSCs showed specific amplification reactions of *Sry* (Ct = 17.9 +/- 0.6 and Ct = 19.0 +/- 0.6, respectively). ImageJ analysis of fluorescent microphotographs indicated no positive signal in control samples nor in saline-exposed livers/kidneys. However, positive signals were observed in lungs of female rats infused with labeled MSCs (0.26% [0.11 – 0.66] of area).

**Conclusions:**

MSCs are essentially detectable in the lung parenchyma six hours after intravenous administration, with no signal in liver or kidneys.