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**Intra-myocardial homing of adult stem cells: glandular vs. mesenchymal stem cells**

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**Background:** Applying stem cell therapy in a failing myocardium, the dimension of an intra-myocardial cell homing is significant. Thus a comparison of the homing potential between glandular (GSCs) and mesenchymal stem cells (MSCs) was performed within the myocardium of a big animal model.

**Methods:** In African Bore Goats the intramyocardial homing and the engraftment of glandular stem cells and MSCs (CD133⁺) were evaluated. Glandular stem cells were characterized by red PKH26 respectively green PKH67 (MSCs) makers. After a left lateral thoracotomy and exposure of the left heart ventricle a mix of one million of each cell type was injected into three locations of the goat's myocardium of the left ventricle. Myocardial samples were taken after one resp. three hours, others were harvested 6 weeks after injection (n=5). Frozen tissue slices were generated and examined for the marked cells.

**Results:** Using a mix of an intra-myocardial injection of GSCs and MSCs, solely in MSCs (green) a significant cell migration into the surrounding myocardium (n=3) was observed, more expressed after 3 hours than after one hour. Additionally within 5 goats with three intra-myocardial injections in each after 6 weeks nearly all GSCs remained within the myocardium while the MSCs disappeared almost completely. Within the frozen myocardial slices 98% of the marked stem cells were identified as GSCs (red) but just 2% as green MSCs. (P≤0,05)

**Conclusion:** Due to a 98% homing of GSCs combined with the ability developing cardiomyocyte like cells, glandular stem cells might become a very promising treatment option in the therapy of a failing myocardium.