

**Molecular imaging of myogenic stem/progenitor cells with [<sup>18</sup>F]-FHBG PET/CT system in SCID mice model of post-infarction heart.**

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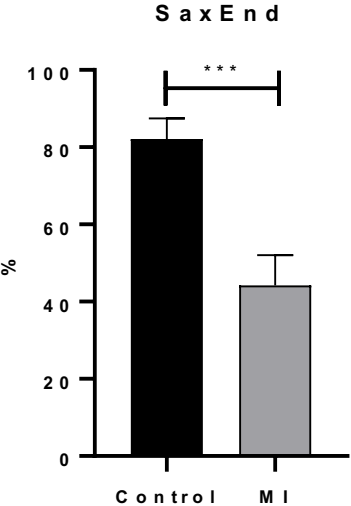
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**Supplementary Fig. S1** Comparison of SAX/END in control and post-infarction mice

Measurements were taken before induction of myocardial infarction and 17 days after the formation of the post-infarction scar, and p-values are shown as the mean  $\pm$  SD; \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.



**Supplementary Fig. S2** Functional and metabolic heart characteristics

Standard uptake values of all four groups of mice. SUVs are given as mean +/- SD.

Mice	%iD/g	
	SUV	SD
Control(-)	14,45	0,92
MI(-)	15,48	0,8
MI(+)	16,60	1,33
Control/saline	26,24	1,67

**Supplementary Fig. S3** Cellular huSkMDS/PCs EF1-HSV-TK [<sup>18</sup>F]-FHBG PET Imaging

Standard uptake values of two groups of mice. SUVs are shown as the mean +/- SD for heart, kidney, lung, liver, and bladder.

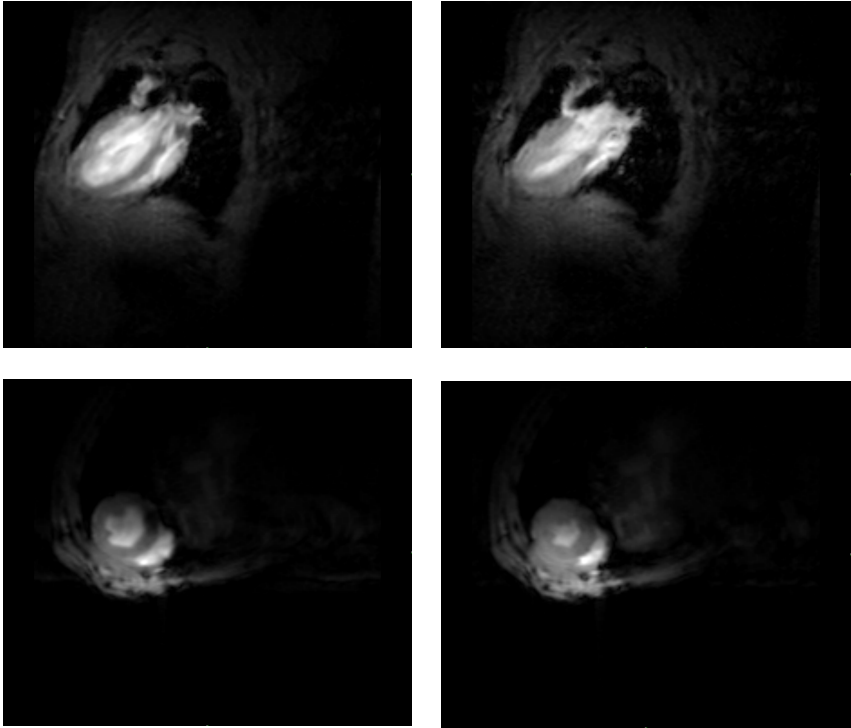
Mice	Day	Heart		Kidneys		Liver		Lungs		Bladder	
		SUV	SD	SUV	SD	SUV	SD	SUV	SD	SUV	SD
Control(+)	Day 14	7,95	0,51	1,39	0,75	0,63	0,77	0,40	0,13	438,43	36,64
	Day 33	5,97	0,35	1,01	0,65	0,44	0,48	0,33	0,25	270,65	25,72
MI(+)	Day 14	6,13	0,69	1,15	0,55	0,42	0,37	0,37	0,19	287,73	33,24
	Day 33	5,94	0,44	0,83	0,42	0,36	0,20	0,29	0,09	119,77	10,04

**Supplementary Fig. S4** Metabolic heart activity (viability) measured through glucose uptake

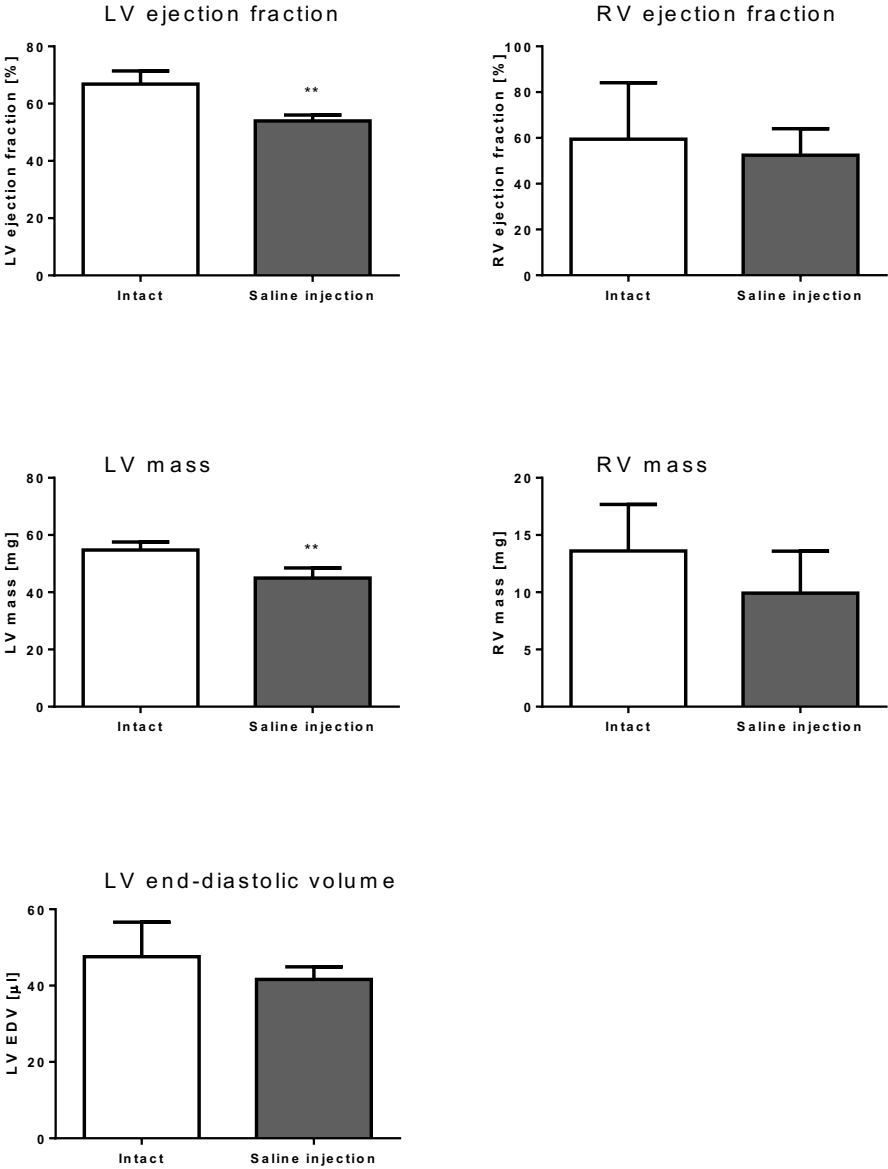
Standard uptake values for dual cardiac viability PET imaging in of two groups of mice. SUVs are shown as the mean +/- SD.

Mice	Day	%iD/g	
		SUV	SD
Control(-)	Day 7	14,17	0,87
	Day 40	18,92	1,06
MI(+)	Day 7	16,60	1,38
	Day 40	15,44	1,14

**Supplementary Fig. S5** Representative images of end-diastolic and end-systolic volumes from the short and long axes of mice intracardially injected with saline.

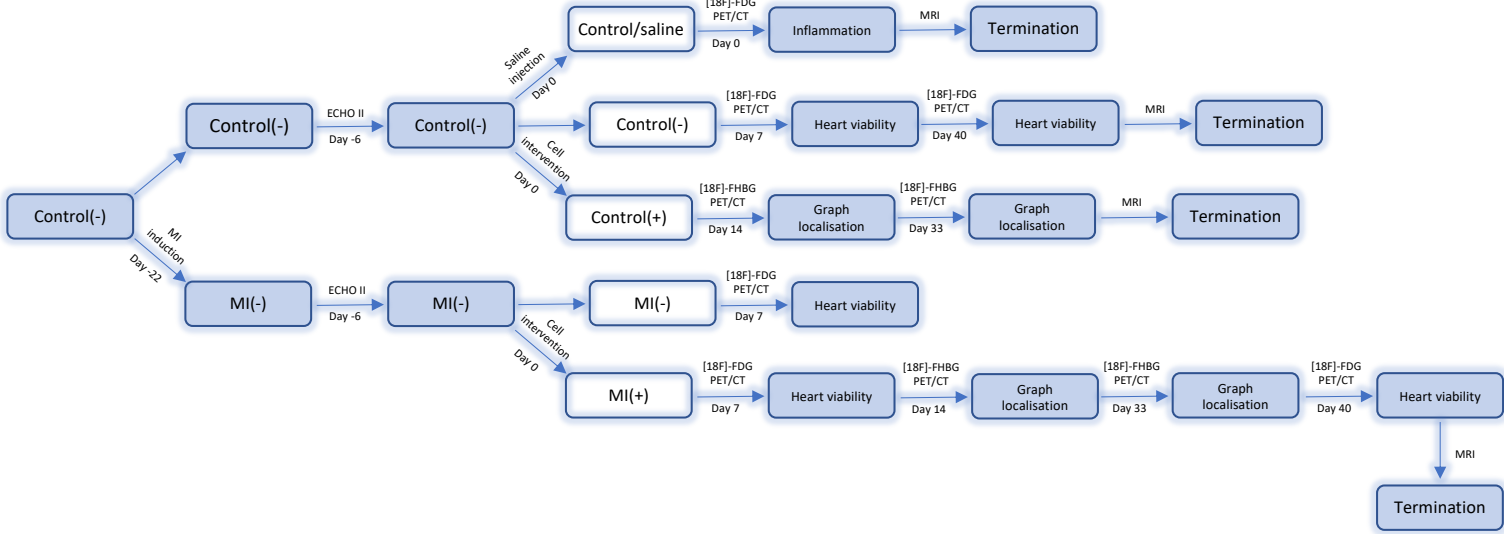


**Supplementary Fig. S6** Haemodynamic analysis of intact control hearts and after saline administration. The results are shown as the mean +/- SD; \* p <0.05; \*\* p <0.01 Mann-Whitney U test.



**Supplementary Fig. S7** Experimental design

The graph shows all stages of the experimental procedures included in the study of the post-infarction mouse model with huSkMDS/PC EF1-HSV-TK interventions.



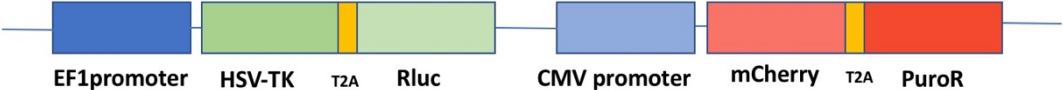


**Supplementary Table S1** Primary and secondary antibodies used for immunofluorescence

Antibody	Manufacturer	Characteristics	Dilution
mouse anti-desmin	Abcam	Myogenic	1:200
mouse anti-heavy chain myosin	Cambridge (UK)	markers	1:400
anti-mouse Alexa Fluor 488	Abcam Cambridge (UK)	Fluorochrome conjugated secondary antibody	1:500

**Supplementary Fig. S8** Construction of lentiviral vector

EF1-HSV-TK-*renluc*-CMV-*mCherry*-*PuroR*: *Renilla luciferase* (Renluc) and thymidine kinase (HSV-TK) expression is controlled by constitutively expressed promoter, elongation factor 1 (EF1), mCMV constitutive promoter controls expression of mCherry and puromycin resistance (*PuroR*).



**Supplementary Fig. S9** Quality control of [<sup>18</sup>F]-FHBG (RadioHPLC). Chromatogram: 1 - fluorine-18, 2 - [<sup>18</sup>F]-FHBG.

