

Figure S1. The selective cell killing of hSSTR2⁺ ESCs after ¹⁷⁷Lu-DOTATATE administration was confirmed by Hoechst staining. (A) hSSTR2⁺ and hNIS⁺ ESCs were exposed for one hour to either 4.8MBq of ¹⁷⁷Lu-DOTATATE or PBS. Cells were fixed before and 1, 2, 4 and 6 days after ¹⁷⁷Lu-DOTATATE or PBS exposure. Representative Hoechst images of the hSSTR2⁺ ESCs demonstrated a decrease in the amount of nuclei in ¹⁷⁷Lu-DOTATATE exposed hSSTR2⁺ ESCs over time with a recovery at day 4, while an increase was seen in the untreated group (scale bar: 400 μm). (B) Quantification of the amount of nuclei demonstrated a significant reduction on day 1 and 2 post ¹⁷⁷Lu-DOTATATE exposure compared to the untreated group (****p<0.0001). (C) Representative Hoechst images of hNIS⁺ ESCs showed a gradual increase in the amount of nuclei over time in both the untreated and the ¹⁷⁷Lu-DOTATATE treated group (scale bar: 400 μm). (D) Quantification of the number of nuclei showed no significantly difference between the ¹⁷⁷Lu-DOTATATE or untreated group

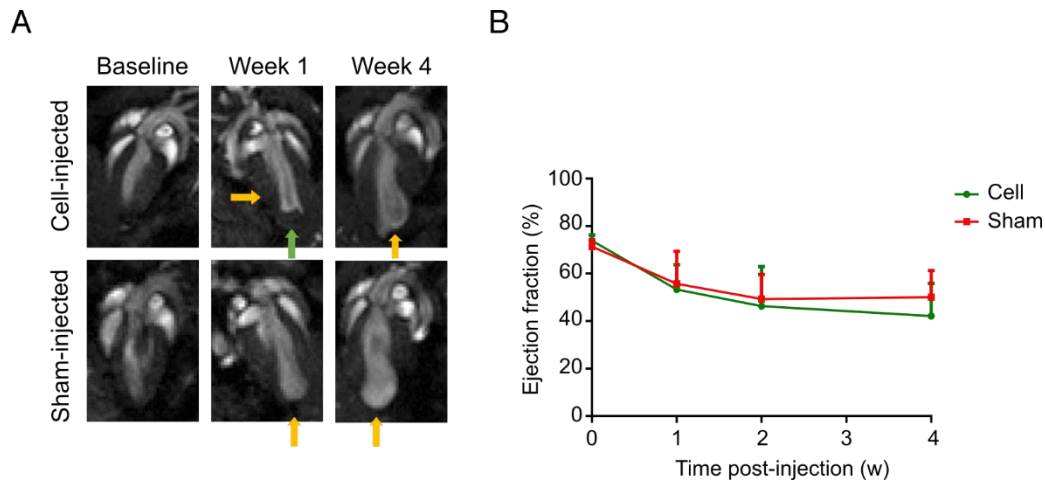


Figure S2. Absence of therapeutic effect on LVEF in MI mouse model injected with hSSTR2⁺ ESC-derived CMs. (A) Representative four-chamber MRI images of cell- and sham-injected animals. Before MI, thick left ventricular wall muscles were shown in both groups. After permanent ligation of the LAD, loss of ventricular wall thickness combined with an akinetic region in the heart could be observed (indicated by yellow arrow). At one week post-injection, signs of thicker ventricular wall were present in the cell-injected group (indicated by green arrow). However, these did not persist over time. **(B)** Quantification of LVEF indicated a significant and progressive reduction in LVEF over time in both groups. No differences in LVEF between both cell- and sham-injected groups could be observed.