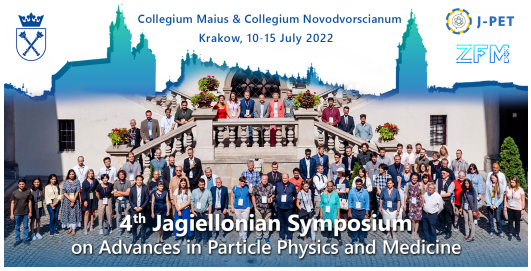

Contribution ID: **214** Type: **talk**

Invited talk: Molecular imaging of human stem/progenitor cells for pro-regenerative purposese

Monday, 11 July 2022 11:05 (20 minutes)

We have used human stem/progenitor cells of myogenic origin (with mostly CD56+, desmin-positive characteristics) either alone or together with mesenchymal stem cells (MSC) to be applied in the mouse post-infarction heart model (immunocmpromise SCID mice) when tracking them in situ in medium and long-term imaging system. In order to differentiate between myoblasts anbd MSC/s we have used two types of bioluminescent markers (firefly liciferase versus nanoluc) with two different molecular promoters incorporated to the stem cells while delivering the cells intramyocardially to post-infarcted heart using four variants of cellular therapies. We have found by bioluminescent imaging that in a group of mice with post-infarcted heart the highest signal was obtained when myoblasts were applied together with MSC/s vs myoblasts alone ($p<0.0001$). This could be a promising strategy for pro-regenerative future clinical trials.For a long cell imaging we additionally used [18F}-FHBG PET/CT model when applying stem cells with molecular double promoter/reporter sequence that could either link flushed 18F isotopes with FDG (fluorodeoxyglucose) for cell viability. In vivo PET/CT and MRI revealed precise measurement of reporter probes signaling incorporated into the cells for as long as 6 weeks of monitoring.

Publication agreement (CC BY 4.0)

Presenter: Prof. KURPISZ; INSTITUTE OF HUMAN GENETICS, POLISH ACADEMY OF SCIENCES, POLAND, Maciej

Session Classification: Session 2