



Case #487

“Cell-Kro” Priming of Cardiac Stem Cells to Promote Graft Success and Cardiac Regeneration

No treatments that preserve or replace damaged tissue after myocardial infarction (MI) currently exist and poor graft success is a common problem after cultured cell transplantation into injured tissues. Cell grafts after ischemic injury, such as MI, are especially inefficient due to low adhesion to host tissue, low cell survival rates and low levels of migration. “Cell-Kro” is a CTGF and insulin combo that was identified by the Spees lab as a primer for cultured stem cell (CSC) grafts. Short term incubation of CSCs in Cell-Kro prior to transplantation into a rat model of MI promoted robust, sub-epicardial engraftment, survival and migration of CSC derivatives one week after MI and one-month studies showed rebuilt blood vessels and a lack of remodeling. Cell-Kro is a powerful tool that remarkably promotes graft success and lasting cell replacement.

Applications:

- CSC grafts for cardiovascular tissue repair post-MI.
- May also be useful in peripheral artery disease and stroke.

Advantages:

- Defined, peptide-based CSC primer.
- Improved cardiac regeneration.
- Promotes vascular protection and repair.
- Quick pre-incubation time (30 minutes).
- Priming of cells occurs outside of the patient, simplifying regulatory hurdles.

Intellectual Property and Development Status:

US Patent 9,707,271; US Non-Provisional Application US20180140671A1;
EP Patent Application EP2964330A4
Looking for both licensing and start-up collaboration partners.

References:

Priming with ligands secreted by human stromal progenitor cells promotes grafts of cardiac stem/progenitor cells after myocardial infarction. Iso Y *et al* PMC3966427

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