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**TITLE:** Human Fibroblast / Keratinocyte De-differentiation into Human Cardiomyocytes in Tissue culture.

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**ABSTRACT BODY:** Somatic Cell De-differentiation provides an emerging strategy to produce embryo-independent pluripotent stem cells from somatic tissue. Induced pluripotent stem cells (iPC) demonstrate aptitude for de novo cardiac differentiation, yet their potential for heart disease therapy has not been tested. In this study, human fibroblasts/ keratinocytes were transduced utilizing non-viral mechanisms with human stemness factors OCT3/4, SOX2, and c-MYC converted into an embryonic stem cell-like phenotype and demonstrated by their ability to spontaneously assimilate into preimplantation host morula via diploid aggregation, unique to pluripotent cells. The iPCs were differentiated into normal heart tissue. The genetic and protein profiles of the differentiated cardiac patterning were comparable to normal human cardiac tissue. Human Fibroblasts / Keratinocytes De-differentiation with human stemness factors may provide an alternative potential to repair acute myocardial infarction, or in the understanding of novel drug discovery potential for heart disease.

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