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**RESEARCH OF INDUCED PLURIPOTENT STEM CELLS FUSED WITH CARDIAC MYOCYTE**

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**Objective** Construction fusion cell of induced pluripotent stem cells with Cardiac myocyte in vitro, initial probe bionomics of fusion cell.

**Methods** iPSc come from mouse which Oct-4 by GFP transgenes and mouse neonate Cardiac myocyte were fused by polyethylene glycol (PEG-4000), thus establishing cell-cell fusion pattern. Fusion cell growth was morphological and changed information was observed during the development. Alkaline phosphatase dyeing. Identified fusion cell and expressed of stem cell and Cardiac myocyte specificity protein were detected by immunofluorescence. Chromosome karyotype analysis was conducted to investigate whether nuclear fusion took place, and its level.

**Results** Polyethylene glycol (PEG-4000) can mediate fusion between induced pluripotent stem cells and Cardiac myocyte. Starting occurrence colony-like morphology at 4 days after fusion. iPSc and fusion cell visualisation purple and black after AKP dyeing, iPSc and fusion cell AKP masculine rate in 2 days, 3 days and 4 days, respectively 95%, 93%, 98%, 91%, and 83%, 74%, 79%, 68%. There was a significant difference in AKP masculine rate among two cells simultaneously ( $p < 0.05$ ). In the beginning, fusion cell showed iPSc characteristics, Oct-4 expressed to be masculine, while cTnT did not. In 7d after fusion, fusion cells also showed Cardiac myocyte characteristics, all Oct-4 and cTnT expressed were masculine. More than 80% fusion cells had 76 to 80 chromosomes. Conclusions The fusion cell of diploid iPSc and diploid Cardiac myocyte, possess two parent cells characteristics, representing bidirectional reprogramming.