Cardiogenesis-related gene expression during adipose mesenchymal stem cells differentiating into cardiomyocyte

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The mesenchymal stem cells from Wistar rats adipose tissue was separated and cultured. The passage 3 cells were treated with 10 μ mmol/L 5-Azacytidine for 24 h, and cultured *in vitro* for 1, 2, 3 weeks, then cardiomyocyte protein and cardiogenesis-related gene were detected by immunohistochemical staining. After 1 week, the cells were found to express BMP2, after 2 week, the cells were found to express α -sacromeric actin, Cx43, Nkx2.5, GATA-4 were expressed in the cells and the BMP2 was expressed more, the 5 proteins (α -sacromeric actin, Cx43, BMP2, Nkx2.5, GATA-4) were expressed more in the cells after 3 week, but the α -skeletal myosin was not expressed at all times. The result showed that during differentiating into cardiomyocyte *in vitro*, there was close relation among the adipose tissue mesenchymal stem cells, cardiogenesis-related genes expression, culturing time and differentiation effect, and there was a few same path between cardiomyocyte differentiation *in vitro* and cardiac muscle development.

Keywords: adipose tissue, mesenchymal stem cells, cardiomyocyte, cardiac muscle development

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