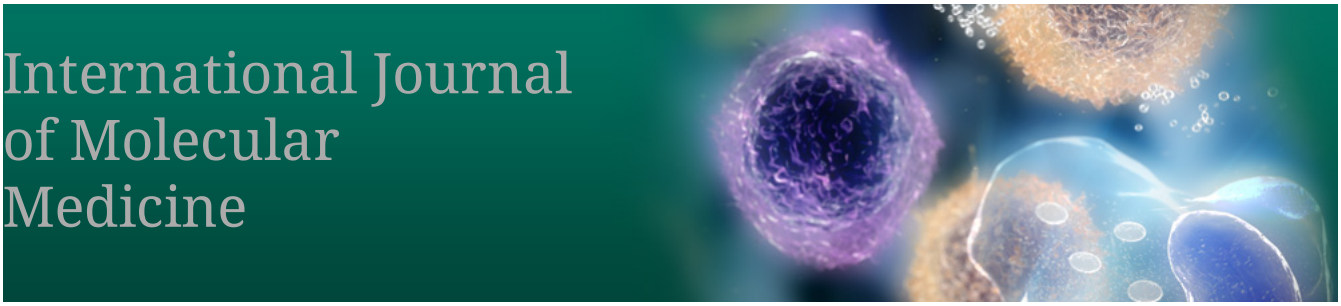

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Isolation, culture and biological characteristics of multipotent porcine tendon-derived stem cells

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Abstract

Tendon-derived stem cells (TDSCs), a postulated multi-potential stem cell population, play significant role in the postnatal replenishment of tendon injuries. However, the majority of experimental materials were obtained from horse, rat, human and rabbit, but rarely from pig. In this research, 1-day-old pig was chosen as experimental sample source to isolate and culture TDSCs in vitro. Specific markers of TDSCs were then characterized by immunofluorescence and reverse transcription polymerase chain reaction (RT-PCR) assays. The results showed that TDSCs could be expanded for 11 passages in vitro. The expression of specific markers, such as collagen Ⅰ, collagen Ⅲ, α-smooth muscle actin (α-SMA), CD105 and CD90 were observed by immunofluorescence and RT-PCR. TDSCs were induced to differentiate into adipocytes, osteoblasts and chondrocytes, respectively. These results suggest that TDSCs isolated from porcine tendon exhibit the characteristics of multipotent stem cells. TDSCs, therefore, may be potential candidates for cellular transplantation therapy and tissue engineering in tendon injuries.

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