

Leptin-induced Osteogenic Differentiation and Heterotopic Ossification of Achilles Tendon in TDSCs Inhibited by Rapamycin, an Inhibitor of mTORC1 Signaling Pathway

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ABSTRACT Present investigation estimated that osteogenic separation and Achilles tendon solidification (HO) stifled by rapamycin may be initiated by leptin evoked tendon stem cells (TDSCs). To demonstrate this, rodent TDSCs was separated and refined for osteogenesis and articulation of alkaline phosphatase (ALP), Runt related interpretation factor 2 (Runx2), osteogenic related translation factor (OSX) and Osteocalcin (OCN) was identified by qRT-PCR after TDSCs L4 treatment with leptin. Articulations of Runx2, OSX, leptin and PS6, the downstream markers of mTORC1 were distinguished by Western Blot and immunohistochemical method. Expression of osteogenic factors ALP, OSX, Runx2, OCN mRNA, Runx2, OSX, and mTORC1 signaling pathways of PS6K1 and PS6 expanded altogether with the expansion of leptin focus in vitro, and PS6K1, PS6 protein, protein, and rapamycin were essentially higher in the leptin group. Rapamycin, an inhibitor of mTORC1 signaling pathway, can viably repress osteogenic separation and heterotopic solidification of TDSCs in Achilles tendon instigated by leptin.