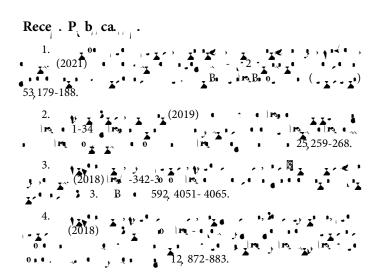# Preosteoblast-Enriched Lnc-Evf2 Facilitates Osteogenic Differentiation by Targeting Notch
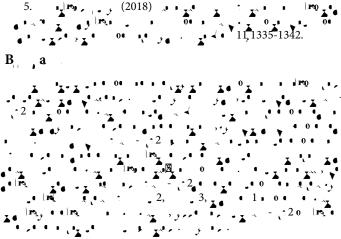
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Abstract

Ossification of ligaments (OL) and osteoporosis (OP) are multifactorial disorders without definitive clinical biomarkers. Long non-coding RNAs (lncRNAs) are known to involve in regulating pathogenesis. Here, we have identified a preosteoblast-enriched lnc-Evf2 that was overexpressed in ossified ligamentum favum (OLF) and down-expressed in OP. lnc-Evf2 is gradually upregulated during osteogenic induction, correlating with the enhanced expression of osteogenic marker genes and matrix mineralization. Moreover, knockdown of lnc-Evf2 significantly inhibits the expression of osteogenic differentiation markers and delays the osteoblastic mineralization process, indicating that this molecule is involved in osteogenesis. Mechanistically, we demonstrated that silencing of lnc-Evf2 decreases the protein level but not the mRNA levels of Notch2, Notch3, and Hes1, all of which correlate with ontogenesis. Taken together, our data demonstrate that lnc-Evf2 promotes osteogenic differentiation and bone formation through the Notch signaling, revealing that lnc-Evf2 may serve as a novel potential clinical target of OL and OP.

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