

SOX9 keeps growth plates and articular cartilage healthy by inhibiting chondrocyte dedifferentiation/osteoblastic redifferentiation.

Haseeb A, Kc R, Angelozzi M, de Charleroy C ... Pellegrino da Silva R, Pacifici M, Qin L, Lefebvre V. 

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Recommended  



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Sox9 is a master chondrogenic transcription factor required for embryonic chondrogenesis. Although it has been reported to be down-regulated in osteoarthritis and heterozygously inactivated in campomelic dysplasia, a severe skeletal dysplasia characterized by small stature and kyphoscoliosis (1-6), its postnatal role remains unclear. Haseeb et al. (7) investigated the role of Sox9 in postnatal growth plate activity and articular cartilage homeostasis using inducible, conditional mouse deletion models and transcriptome profiling approaches. Their study indicates that SOX9 is involved in the maintenance of growth plates open after birth. In addition, it shows that SOX9 protects adult articular cartilage from osteoarthritic changes by preventing chondrocyte dedifferentiation into skeletogenic progenitors and consequent re-differentiation into osteoblasts. These insights into the process of chondrocyte plasticity and its molecular regulation will contribute to elucidating the pathogenetic mechanisms underlying the phenotypic manifestations of different genetic and acquired skeletal diseases.

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Disclosures

None declared

Notes:

This evaluation has been transferred from Alessandro Corsi to Mara Riminucci.