Sex & Bone

Position
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Research
Sexual dimorphism skeletal remodeling is well-established, although not completely understood. Recently, we have characterized two pathways with sex-specific influence on the skeleton. (1) Moderate fluctuations in Wnt signaling, a ubiquitous pathway with critical roles in bone formation and resorption, affect preferentially the female skeleton. (2) Deficiency in Krox20 in the monocytic/osteoclastic lineage results in a low bone mass phenotype in females only. The goal of my research group is to investigate the putative role of these pathways, as mediators of the sex-specific skeletal response to sex hormone signaling in osteoblasts (the bone forming cells) and in osteoclasts (the bone resorbing cells).

Publications

Figure 1: Low bone mass in Krox20-haploinsufficient females. μCT images of representative distal femoral trabecular bone of female and male Krox20+/+ (left) and Krox20+/− (right) mice.

Figure 2. Effect of haploinsufficiency in Lef1, a Wnt transcription factor. μCT analysis of the vertebral trabecular bone of female (left) and male (right) Lef1+/− (black) and Lef1−/− (white) mice. ARwt males have no functional AR, while ARtm females are carriers for the defective AR allele. Data represent mean±SEM, * = p<0.05. Note that only males carrying a functional AR are protected against Lef1 gene dosage.


Chapter


Grants

2012-2017 Israel Science Foundation (ISF) Grant