GENE TRANSCRIPTION AND TRANSLATION OF MMPS, TIMPS, AND RECK DURING MOUSE ENDOCHONDRAL OSSIFICATION

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Our objective was to analyse the spatial-temporal distribution of MMP-2, MMP-9, TIMP-1, TIMP-2 and RECK, during mouse endochondral ossification. Femurs (n=5/period) were collected from foetuses and newborn and processed for immunohistochemistry, gelatin zymography, *in situ* hybridization and real-time PCR analysis. Chondrocytes were immunopositive for MMPs, RECK, and TIMPs during chondrocyte differentiation (E13). At the cartilaginous template (E14), the hypertrophic chondrocytes (HC) were immunostained for MMPs and RECK. RECK and TIMPs immunopositive cells were found in the perichondrium. At the vascular and cellular invasion (E15), MMPs, RECK and TIMPs were expressed by migrating cells from bone collar as well as by osteoclasts/chondroclasts close to the transverse septum. HC remained immunostained. From E16 to PN1, MMPs, TIMPs, and RECK were expressed by osteoblasts and HC in the growth plate and by cells in the perichondrium and periosteum. Zymographic analysis showed that MMPs were active during all periods, being highest at E19. The RECK mRNA pattern was similar to immunohistochemistry, detected during all periods, being highest at E20. Our results support that RECK is expressed by osteogenic and chondrogenic cells and that MMPs, TIMPs, and RECK are differentially expressed during mouse endochondral ossification.

Keywords: MMP, TIMP, RECK, and Endochondral Ossification.
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