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## **The influence of transforming growth factor [beta]1 on the development of embryonic mouse long bones**

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### **ABSTRACT**

Transforming growth factor [beta] (TGF-[beta]) is an important regulator of bone metabolism, and is found in large quantities in embryonic and adult bone tissue. The influence of TGF-[beta]1 on chondro-osteogenesis was studied. In organ cultures of developing long bone rudiments of embryonic mice, growth and development of the various cartilaginous and osseous compartments were investigated by morphometric analysis and autoradiography after [<sup>2</sup>H]-thymidine labelling. TGF-[beta]1 (1 ng/ml) inhibited both chondrogenesis and osteogenesis, and also inhibited matrix calcification. The effect was greatest in cell populations with the highest proliferation rate. It was noticed that the bone collar formation was inhibited. This may be due to an inhibition of osteoblast proliferation or differentiation, but it seems more likely to be an inhibition of the manufacture of matrix substance. These data suggest that TGF-[beta] may be an important regulator of embryonic bone development.

Pages 237-243

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