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**A preliminary study in osteoinduction by a nano-crystalline hydroxyapatite in the mini pig**

Folia Histochem Cytobiol. 2010;48(4): 589 (589-596)

To test the probable osteoinductive properties of NanoBone®, a new highly non-sintered porous nano-crystalline hydroxyapatite bone substitute embedded into a silica gel matrix, granules were implanted subcutaneously and intramuscularly into the back region of 18 mini pigs. After periods of 5 and 10 weeks as well as 4 and 8 months, implantation sites were investigated using histological and histomorphometric procedures. Signs of early osteogenesis could already be detected after 5 weeks. The later periods were characterized by increasing membranous osteogenesis in and around the granules leading to the formation of bone-like structures showing periosteal and tendon-like structures with bone marrow and focal chondrogenesis. Bone formation was better in the subcutaneous than in the intramuscular implantation sites. This ectopic osteogenesis is discussed with regard to the nanoporosity and microporosity of the material, physico-chemical interactions at its surface, the differentiation of osteoblasts, the role of angiogenesis and the probable involvement of growth factors. The results of this preliminary study indicate that this biomaterial has osteoinductive potential and induces the formation of bone structures, mainly in subcutaneous adipose tissue in the pig.