

Regeneration of Bone and Articular Cartilage Role of Bone Morphogenetic Proteins



Professor

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Chairman: Kohei Miyazono
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Date

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Venue

Akio Suzuki Memorial Hall
(M&D Tower 2F)

Abstract

Among the numerous tissues in the human body bone has a high potential for regeneration. This was first recognized by Hippocrates in Greece over 24 centuries ago. The molecular basis of bone regeneration was established nearly thirty years ago by the isolation, purification and cloning of the Bone Morphogenetic Proteins (BMPs). The aim of this lecture is to describe the discovery of BMPs and its application in the clinic and associated challenges in Orthopaedic Surgery and in Dentistry and Oral and Craniofacial Surgery. The bones and joints are critical for human locomotion. The articular cartilage in the joints is adjacent to the subchondral bone and is weak in its regenerative potential compared to bone. The minimal regeneration in the articular cartilage may be in part due to the avascular nature of this tissue and is a major challenge in orthopaedic surgery and therefore presents a unique opportunity in research. The current approaches to regeneration of articular cartilage is based on morphogenetic signals, stem cells and scaffolds of extracellular matrix for tissue engineering of joints. The surface of the articular cartilage is critical for lubrication of joints and research in several laboratories may lead to the design of a total knee joint.

Contact

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