

Bone Morphogenetic Proteins: From Local to Systemic Therapeutics

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Tissue engineering is gaining interest as it is applied for regeneration of organs to attain their lost function. Although resorbable scaffolds and progenitor cell types are required principles to engineer a functional tissue locally, the inductive signal is a prerequisite to trigger the growth and differentiation of responding cells in space and time. Bone morphogenetic proteins (BMPs), also called growth and differentiation factors (GDFs), originally identified from bone have been successfully used to regenerate the bone in humans. Most recent preclinical data suggests that BMPs have a potential to provide protection against inflammation and fibrosis in acute and chronic injury of parenchymal tissues when applied systemically to sustain the function of kidney and liver. The application of BMPs from a local to systemic utility is a rapidly growing field, gaining interest among researchers and biotech entrepreneurs.

In this volume, we summarize the advances made on the local and systemic use of BMPs including chapters covering the regulation of BMP-signalling pathways, biological actions of BMPs in bone, cartilage and teeth, as well as clinical applications and potential systemic use of BMPs for tissues beyond bone.

This volume is of interest to researchers from immunology, cell biology, biochemistry, and clinicians from orthopedics and dentistry, as well as to research managers from biotech and pharmaceutical companies.

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