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日　時: 2013 年 5 月 24 日(金) 18 時 00 分~19 時 00 分

場　所: 実習館 2 階 総合歯科医学研究所セミナールーム

演　者: **Dr. Willy Hofstetter**（Professor, University of Bern, Switzerland）

タイトル: PHYSIOLOGY & PATHOPHYSIOLOGY OF BONE REPAIR
（骨修復の病態生理学）

Bone repair is a complex biological process, with a sequence of distinct steps mimicking aspects of fetal bone development. Upon initiation of repair, an inflammatory reaction is followed, depending on the mechanical fixation of the repair site, by endochondral or membranous bone formation. The primary woven bone is subsequently remodeled and replaced by lamellar bone. The individual steps of bone repair are regulated by microenvironments consisting of local and systemic growth factors, of components of the extracellular matrix and of cells. Therapeutic interventions with biological effectors to improve bone repair require an understanding of the environment these agents are acting in, their effects being dependent on concentrations, amounts and site of action.

Inflammatory cytokines like Tumor Necrosis Factor-α and Interleukin-17 can stimulate the development of osteoclasts through a direct action on monocyte/ macrophage lineage cells. Simultaneously, through induction of the release of GM-CSF by mesenchymal cells, these factors support the formation of granulocyte – macrophage colony forming units and thus inhibit osteoclastogenesis. On the other hand, Bone Morphogenetic Proteins (BMP) are potent stimulators of bone formation, but these growth factors induce the synthesis of BMP – antagonists. As a consequence, therapeutic interventions may both encompass the exogenous application of the growth factors as well as the inhibition of the antagonists.

担当:硬組織疾患制御再建学講座　山下　照仁