Special Issue

Advances in Fracture Healing Research

Message from the Guest Editor

Bone fracture and the resulting immobility during convalescence is a health condition almost everyone has to face at some point in their lives. Although there is a continuous refinement of surgical techniques and optimization of bone fixation methods, 10–15% of fractured long bones show delayed healing or even non-union. Thus, delays are often realized at a late stage. Basic research in this field is challenging: Each bone in the human body has a unique tissue architecture affecting its biomechanical properties. The vascularization of the tissue is irregular and defines the different cell niches within the bone, which not only harbors bone-forming and bone-resorbing cells, chondrocytes, and adipocytes but also serves as a reservoir for immune cells. All these cell types interact with each other and thus should be represented in the model systems used when investigating fracture healing. Addressing all these issues can only be done using in vivo models, which despite all advantages also have limitations. Thus, there are a continuous attempts to develop complex in vitro models displaying different phases of fracture healing.

Guest Editor

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