

# Photopolymerisable Scaffolds for Osteomyelitis Bone Defects

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**Abstract.** Tissue engineering is the method of replicating tissue by using principles of engineering, medicine and physical sciences [1]. Recently, this area of research has received extensive investigation in the literature for bone regeneration. Bone has the ability to repair itself, however; the rate and amount of repair is dependent on the actual size of the defect [2]. Defects of a size that will not heal during a human's lifetime have been defined as critical size defects [3]; these defects will not regenerate without a bone graft or bone substitution. Osteomyelitis is an acute or chronic bone infection where the bone is replaced by puss. To overcome this infection a bone graft substitute are required to repair the defect.

Hydrogels are a key group of biomaterials that have recently come to the forefront of tissue engineering research. They have been utilised to support and assist restoration of a range of tissues, such as bone, cartilage, vessels and skin. In the current study, hydrogels synthesised using these materials have been reported to exert a minimal toxicological response and can be modified to be either bio-inert or biocompatible [4].