

**06-007**

**Development of Bilayer Membranes of PLGA/HAp/b-TCP for Guided Bone Regeneration**

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Membranes are usually utilized for bone anatomical reconstruction, with variable compositions and structures, assisting on the prevention of fibroblast infiltration. However, the mechanical properties and bone regenerative capacity of the available membranes must to be improved. To achieve this goal, this study aimed to develop bilayer membranes with a dense layer (dry phase inversion) of PLGA (poly(lactic-co-glycolic acid)):HAp (hydroxyapatite) - 95:05 (wt.%) - and an electrospun layer of PLGA and HAp:b-TCP (b-tricalcium phosphate) with ratios of 60:40, 70:30 and 85:15 (wt.%). Results showed that the dense layer had adequate pore sizes to prevent fibroblast infiltration while allowing nutrient permeation. There was a 128.4% increase of  $E'$  when comparing bilayer to dense membranes and of 52.9% in comparison to electrospun membranes. The insertion of calcium phosphates resulted in better attachment and migration of osteoblasts. Taken together, the results show proper morphology, mechanical behavior and bone regenerative capacity, all indicatives of the potential of PLGA/HAp/b-TCP bilayer membranes on bone reconstruction.