Mesoscale bioactive 3D electrospun scaffold for bone repair (Technion)

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The present invention relates to a 3D cubic mesoscale electrospun fibrous scaffold, suitable for implantation in defective bone. The new technology offers nanoscale fibers (PCL) with embedded hydroxyapatite (HA) particles. The combination of electrospun fibers at the nanometric scale and larger mesoscale HA particles imitates the natural structure of bone matrix. This mesoscale scaffold, combined with ceramics and growth factors, constitutes the optimal scaffold to support proliferation and osteogenic differentiation as well as vascularization. It provides a promising surgical tool for bone tissue engineering for many clinical aspects of orthopedic, cranio-maxillofacial and dental applications.

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