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Title: Vital Role of Hydroxyapatite Particle Shape in Regulating the Porosity and Mechanical Properties of the Sintered Scaffolds

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Vital Role of Hydroxyapatite Particle Shape in Regulating the Porosity and Mechanical Properties of the Sintered Scaffolds

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The effect of particle shape on the porosity and compressive strength of porous hydroxyapatite (HA) scaffolds was investigated by sintering the mixture of rod-shaped HA (r-HA) and spherical HA (s-HA) with polyacrylamide used as the sacrificial template. It was found, for the first time, that addition of r-HA into s-HA could exponentially decrease the porosity of sintered HA scaffolds and enhance their compressive strength with the increase of r-HA content. The mechanism, according to the results from scanning electron microscopy and X-ray diffraction, lies in the restriction of s-HA to

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