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## Synthesis and Synchrotron characterisation of novel dual-template of hydroxyapatite scaffolds with controlled size porous distribution

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### ABSTRACT

Hydroxyapatite (HAP) scaffolds with a hierarchical porous architecture were prepared by a new dual-template (corn starch and cetyltrimethylammonium bromide (CTAB) surfactant) used to cast HAP nanoparticles and development scaffolds with size hierarchical porous distribution. The Powder X-Ray diffraction (XRD) results showed that only the HAP crystalline phase is present in the samples after calcination; the Scanning Electron Microscopy (SEM) combined with Small Angle (SAXS) and Ultra-Small Angle X-ray Scattering (USAXS) techniques showed that the porous arrangement is promoted by needle-like HAP nanoparticles, and that the pore size distributions depend on the drip-order of the calcium and the phosphate solutions during the template preparation stage.

Keywords: Biomaterials; Nanoparticles; Porous materials.

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