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Hydrothermal growth of whitlockite coating on β-tricalcium phosphate surfaces for enhancing bone repair potential

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In this study, we developed a simple approach for the controllable growth of whitlockite (WH) on a β-tricalcium phosphate surface and investigated its cell viability *via* CCK-8, its live-dead staining and its alkaline phosphatase activity. Herein, WH with controllable morphologies was prepared by regulating the hydrothermal reaction conditions. The results of scanning electron microscopy, X-ray diffraction and X-ray photoelectron spectroscopy indicated that pure hexagonal plates of WH were prepared successfully. *In vitro* cell experiments showed that WH possessed excellent biocompatibility and effectively promoted the adhesion and proliferation of mouse bone mesenchymal stem cells. The osteogenesis of the WH was also enhanced. The obtained WH was expected to be utilized for promising applications as implantable block materials for bone repair.