

磷酸钙骨水泥大孔径多孔组织工程支架的制备及其纤维增强

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**摘要** 采用粒子溶出造孔法, 用棒状谷氨酸钠晶体作为造孔粒子, 制备磷酸钙骨水泥多孔支架, 研究了造孔粒子含量和多孔支架孔隙率之间的关系, 并加入甲壳素纤维来改善支架材料的力学性能. 结果表明, 支架材料的孔隙率可达(79.8±2.3)%, 孔隙直径100~600μm; 复合纤维后支架的强度提高了3~4倍, 断裂应变显著提高, 可作为非承重部位骨缺损修复的骨组织工程支架材料.

**关键词** [磷酸钙骨水泥](#) [组织工程支架](#) [纤维增强](#)

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## Preparation of Calcium Phosphate Cement Tissue Engineering Scaffold Reinforced with Chitin Fiber

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**Abstract** Macroporous calcium phosphate cement (CPC) scaffold was prepared by a salt-leaching method using water-dissoluble rod-shaped monosodium glutamate crystals as poregen. The relationship between the porosity and the amount of poregen was investigated. The results indicate that the porosity of CPC scaffold come up to (79.8±2.3)% with a pore size range of 100~600μm. Chitin fibers was incorporated to reinforce CPC scaffold. The compressive strength of the Chitin fibers reinforced CPC scaffold increases 3 to 4 times higher than that of the CPC scaffold without fibers and the strain of fracture increases remarkably. The scaffold material may be applied in the bone tissue engineering for repair of non-load bearing bone defects.

**Key words** [calcium phosphate cement](#) [tissue engineering scaffold](#) [fiber reinforcement](#)

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