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گواهی ثبت مقاله در سیویلیکا
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## عنوان مقاله:

In vitro and In vivo Investigation of poly(lactic acid)/hydroxyapatite nanoparticle scaffold containing nandrolone decanoate for the regeneration of critical-sized bone defects


## محل انتشار:

مجله علوم نانو, دوره 7, شماره 2 (سال: 1399)

تعداد صفحات اصل مقاله: 9



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## خلاصه مقاله:

Objective(s): Bone tissue engineering is aimed at the fabrication of bone graft to ameliorate bone defects without using autografts or allografts. Materials and Methods: In the present study, the coprecipitation method was used to prepare hydroxyapatite (HA) nanoparticles containing nandrolone. To do so, 12.5, 25, and 50 mg of nandrolone were loaded into poly(lactic acid) (PLA)/nano-HA, and the freeze casting method was used to fabricate porous scaffolds. The morphology, mechanical strength, wettability, porosity, degradation, blood compatibility, and cellular response of the scaffolds were evaluated using various tests. For further investigation, the developed scaffolds were incorporated into the rat calvaria defect model, and their effects on bone healing were evaluated. Results: The obtained results indicated that the fabricated scaffolds had the approximate porosity of 80% and compress strength of 6.5 MPa. Moreover, the prepared scaffolds had appropriate hydrophilicity, weight loss, and blood compatibility. Furthermore, the histopathological findings demonstrated that the defects filled with the PLA/nano-HA scaffolds containing 25 mg nandrolone healed better compared to the other study groups.Conclusion: Therefore, it was concluded that the scaffolds containing nandrolone could be used in bone regeneration.



## کلمات کلیدی:

Bone Healing, Freeze Casting Method, Hydroxyapatite, Nandrolone, Scaffold



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