

Special Issue

Novel Osteogenic Molecules and Delivery Methods for Bone Regeneration

Message from the Guest Editors

A growing aging population at an increased risk of fall-induced bone fractures, often combined with impaired bone healing and higher fracture risk due to osteoporosis and diabetes, in addition to the currently inevitable loosening of prosthetic implants over time, necessitates adequate bone regeneration strategies. Current treatment options are associated with high morbidity or deficient efficacy. Osteogenic molecules, especially bone morphogenetic proteins, have been shown to promote bone regeneration, but rapid protein degradation impedes their efficacy and safety due to the high-dosage requirement. Therefore, there is an urgent need for improved molecules with stronger osteogenic properties and/or enhanced delivery of such molecules. New therapy options, such as viral and non-viral gene transfer including nano technology, mRNA technology and gene-enhanced cell therapy, might offer much needed improvement of the current treatment options by enhancing the efficiency of current and novel osteogenic molecules.

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Deadline for manuscript submissions

closed (28 February 2023)



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 8.1
Indexed in PubMed



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Molecular Sciences*
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