

Biomaterials Translational

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生物材料转化电子杂志(英文)

Volume 3 Issue 4 December 2022

Additive Layer Manufacturing
Improve dermal adhesion and revascularisation

H₂S-Releasing Biomaterials
Incorporate H₂S donors into biomaterials

Osteoarthritis Animal Models
Use for biomaterial-assisted osteochondral regeneration

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To promote cardioprotection and wound healing, many hydrogen sulfide (H₂S)-releasing biomaterials have been developed that can deliver H₂S molecules, showing as bright silhouettes in the cover illustration, to fine tune the physiological concentrations of H₂S in vivo. This is highlighted by Jingyu Fan et al. in their review article on page 250.

Cover image: by Florence R. Wang

Biomaterials Translational is an international journal publishing research at the interface of translational medicine, biomaterials science and engineering. The journal publishes original, high-quality, peer-reviewed papers including original research articles, reviews, viewpoints and comments. Translational medicine is an interdisciplinary field that applies emerging new technologies and sciences to the prevention, diagnosis and treatment of human disease, with a particular focus on animal disease models in the application of biomaterials for treatments. Thus, the journal highlights breakthrough discoveries in basic science and clinical application of biomaterials, as well as other significant findings related to the translation of biomaterials.

The scope of the journal covers a wide range of physical, biological and chemical sciences that underpin the design of biomaterials and the clinical disciplines in which they are used.

Original articles will be considered for publication within, but not limited to, the following domains:

- Investigation of human biology and pathogenesis of diseases with potential applications of biomaterials in treatment
- Synthesis, characterization and biomedical potential of metallic, ceramic, polymeric, composite and hybrid biomaterials
- Physical, chemical, biological, pharmaceutical and toxicological features of biomaterials
- Drug and gene delivery system design, with a focus on its application to disease conditions
- Short-term and long-term biocompatibility of biomaterials
- *In vivo* disease models and the biology of the host response in application of novel biomaterials
- Biomaterials design for modern diagnosis and therapeutic clinical practice (bioimaging, biosensing, biotherapy)
- Stem cell-biomaterial-based tissue engineering

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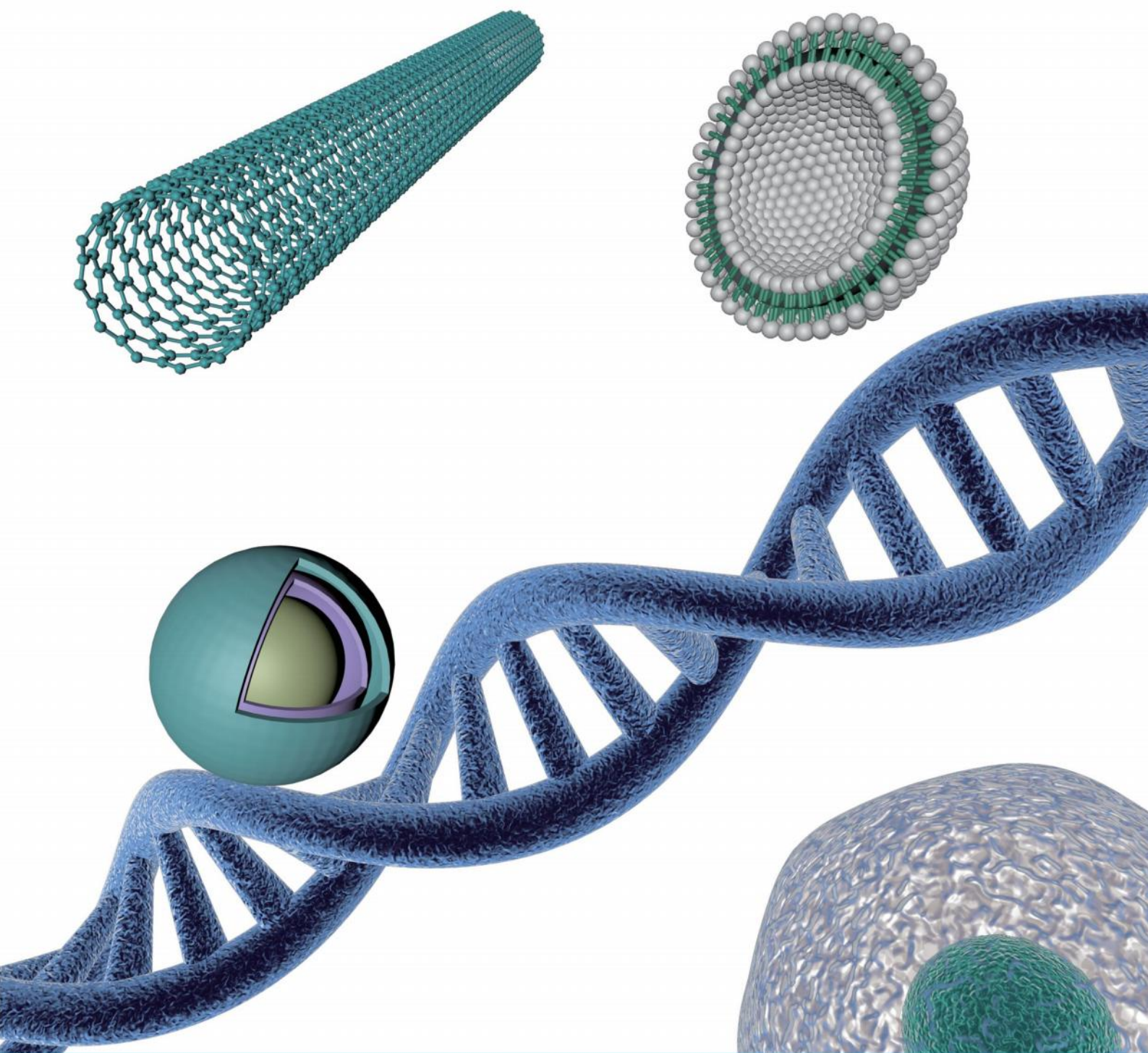
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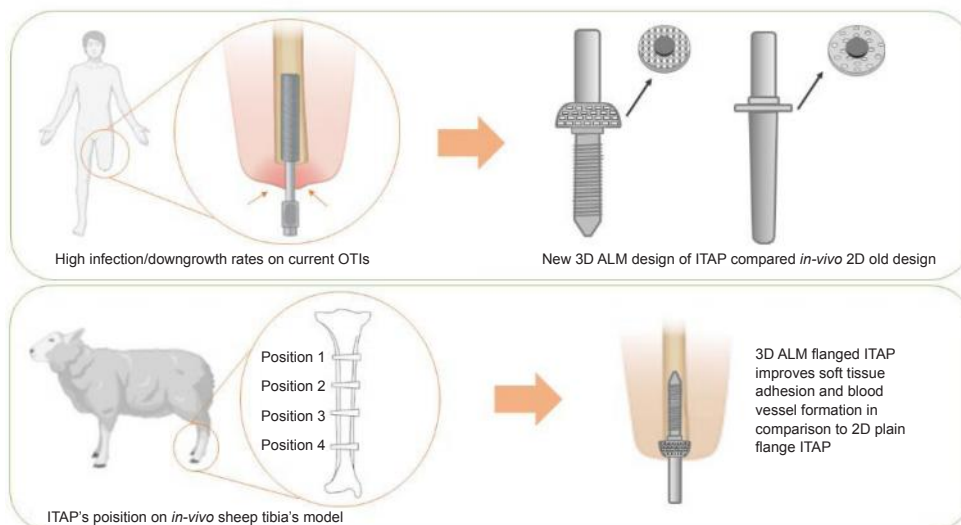
240 Engineered exosomes for future gene-editing therapy

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243 Optimising soft tissue in-growth *in vivo* in additive layer manufactured osseointegrated transcutaneous implants

Elena Giusto, Gordon Blunn, Roberta Ferro de Godoy, Chaozong Liu, Catherine Pendegrass

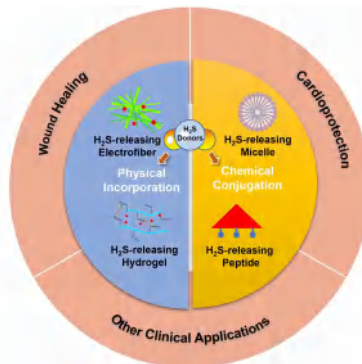


The current osseointegrated transcutaneous implant design has a high rate of infection and soft tissue downgrowth. A three-dimensional additive layer manufacturing (3D ALM) flange design has been compared *in-vivo* to a bi-dimensional one, resulting in an improvement of soft tissue adhesion and blood vessel formation.

REVIEWS

250 Recent development of hydrogen sulfide-releasing biomaterials as novel therapies: a narrative review

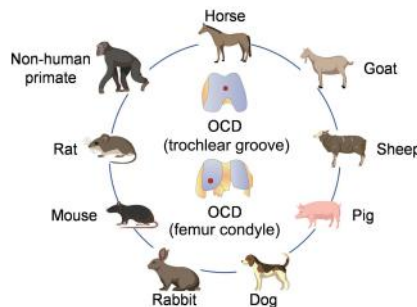
Jingyu Fan, Elizabeth Pung, Yuan Lin, Qian Wang



Two main strategies could be applied in fabrication of hydrogen sulfide (H₂S)-releasing biomaterials, namely, through physical incorporation or chemical conjugation, based on different needs and various environment in treatment, leading to desired H₂S-releasing profiles and corresponding material properties for different applications.

264 Osteoarthritis animal models for biomaterial-assisted osteochondral regeneration

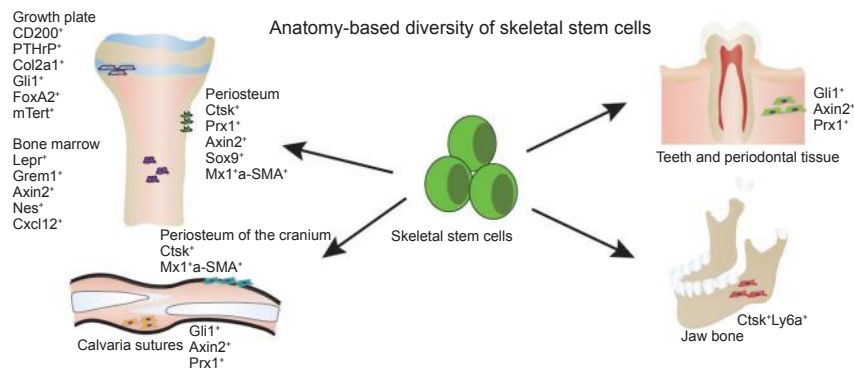
Yi Wang, Yangyang Chen, Yulong Wei



Understanding the characteristics of various osteochondral defect (OCD) models is critical for the study of biomaterial-assisted osteochondral repair. This review aims to elaborate the advantages, the limitations, the surgical procedures, and the novel biomaterial applications that promote OCD repair in different species.

280 New perspective of skeletal stem cells

Guixin Yuan, Zan Li, Xixi Lin, Na Li, Ren Xu



Spatial distributions of skeletal stem cells (SSCs) are currently found in the growth plate, periosteum, and bone marrow of long bones, as well as in craniofacial bones. At present, SSCs can be distinguished by various cell surface markers, and this group of cells mainly contributes to the process of bone regeneration and bone repair. Furthermore, several signalling pathways have also been shown to regulate the SSC niche.