

Special Issue on
Recent Advances in Biomaterials for Orthopedic and Dental Implants

CALL FOR PAPERS

The use of synthetic materials for implants in orthopedic and prosthodontics is widely used in hospitals and healthcare clinics to replicate the damaged tissue. Currently, the research in the area is largely focused on developing metallic, ceramic, polymer-based, and composites implants for orthopedic and dental applications with the aim of enhancing performance and safety. Unique properties of novel nanobiomaterials for orthopedic and dental applications have demonstrated several advantages with regard to the proteins controlling cellular function. Biomimetic nanocomposites are emerging biomaterials for orthopedic and dental application and tissue engineering. The major challenges in the development of synthetic biomaterials for orthopedic and dental implants are biocompatibility, durability, biostability, infection control, cellular response, cytotoxicity, surface modification, and low cost.

The design, fabrication, and evaluation of current and next-generation biomaterials for adverse physiological conditions are critical for safe and efficient implants and associated osseointegration. The aim of launching a special issue on the topic is to encourage researchers to publish original research articles and reviews on recent advances in fabrication and evaluation of implants for orthopedic and dental applications. We invite investigators in all fields to contribute high quality original research and review articles.

Potential topics include but are not limited to the following:

- ▶ Numerical modeling and simulation of orthopedic and dental implants
- ▶ Development and manufacturing of orthopedic and dental implants
- ▶ Characterization (chemical/physical) of orthopedic and dental implants
- ▶ Nanocomposite based materials
- ▶ Bioactive and biomimetic materials
- ▶ Biodegradable nanocomposites and hybrid biomaterials for bone regeneration
- ▶ Failure mechanism of orthopedic and dental implants
- ▶ Biological response of orthopedic and dental implants
- ▶ Mechanics of degradable and resorbable materials
- ▶ Mechanics of emerging metals, ceramics, polymers, composites, and adhesives
- ▶ Nanotechnology in implants
- ▶ Osseointegration around implant
- ▶ Mechanism of action of aseptic implant loosening in hip implants
- ▶ Synthesis and characterization of emerging biomaterials
- ▶ Results of clinical evaluations of orthopedic/dental materials

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/ijbm/rabod/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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