MEDICAL MATERIALS RESEARCH

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Editorial

The Launch of Medical Materials Research

Yu Chen [1,2]

[1] Materdicine Lab, School of Life Sciences, Shanghai University, Shanghai 200444, China; chenyuedu@shu.edu.cn
[2] Shanghai Institute of Materdicine, Shanghai 200051, China
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1. Introduction

With advancements in materials science, the interdisciplinary integration of materials science and medicine has given rise to a new discipline, materials medicine (materdicine), which offers novel opportunities to address complex health problems. In the field of materdicine, researchers aim to develop advanced medical materials to accurately and thoroughly solve the identified clinical problems [1]. Rationally designed and engineered medical materials can surmount various limitations faced by traditional medicines, including low bioavailability, unsatisfactory therapeutic outcomes, poor targeting specificity, and systemic side effects [2]. For instance, early exploration in medical materials included the design and fabrication of polymer- and lipid-based delivery systems, which were beneficial for targeted and sustained delivery of drugs with enhanced chemotherapeutic efficiency [3]. Additionally, inspired by the fact that the "natural" nanoparticles (e.g., nanoscale lipids, proteins, carriers, and key biomacromolecules) can serve as delivery carriers and/or regulate relevant physiological functions within the organism, a myriad of nanoscale medical materials have been elaborated to meet clinical utilization requirements [4]. Meanwhile, inorganic, organic, and inorganic/organic hybrid materials possess unique physicochemical, structural and compositional properties at the micro-nanoscale. These materials have evolved into multifunctional medical materials for contrast-enhanced bioimaging thereby enhancing disease treatment, which has gathered widespread attention [5]. Furthermore, medical materials are subtly combined with diagnostic technologies and therapeutic modalities to achieve imaging-guided therapy and therapeutic monitoring, marking significant progress in materdicine field [6]. With the development of materdicine, medical materials in other applications encompass tissue engineering materials [7], biosensor materials [8], and antimicrobial materials [9], etc., all of which have been extensively studied.

In light of these advancements, there is a need for a dedicated platform that comprehensively addresses the issues at the intersection of materials science and medicine and facilitates interdisciplinary collaboration. We are delighted to introduce *Medical Materials Research*, a groundbreaking journal dedicated to advancing the field of medical materials, to fulfill this need. *Medical Materials Research* focuses on the synergy between material innovation and medical applications and seeks to offer a high-impact venue for the publication of original research, comprehensive reviews, and insightful perspectives/commentary on the latest trends in the field. We welcome contributions from around the world that reflect the diverse and dynamic nature of medical materials research. By fostering a collaborative and inclusive environment, we hope to accelerate the translation of medical materials from basic research into clinical implementations, ultimately improving patient outcomes and advancing global health.

2. Aims and Scope

2.1. Aims

Medical Materials Research is an international, interdisciplinary, peer-reviewed journal dedicated to pioneering material science innovations for a broad spectrum of medical applications, encompassing disease diagnosis and therapeutic interventions. Positioned as a leading journal within the domain of medical materials research, *Medical Materials Research* provides comprehensive coverage of both theoretical investigations and technological breakthroughs. Furthermore, the journal facilitates clinical translation and practical implementation of medical materials, thereby serving as a conduit between laboratory discoveries and clinical execution. *Medical Materials Research* cordially invites contributions of original full-length research articles, rapid communications, comprehensive reviews, and perspectives pertaining to the realm of medical materials research.

2.2. Scope

The scope of *Medical Materials Research* encompasses the following areas:

- Computational medical materials (e.g., organic, inorganic, organic/inorganic hybrid materials)
- Technological advancements in medical materials (e.g., novel fabrication methods, large-scale production, equipment innovation, technical standards)
- Clinical translation and practical clinical application of medical materials
- Medical materials for the tumor diagnosis and treatment
- Medical materials for tissue engineering (e.g., scaffolds, growth factors, tissue regeneration and repair)
- Medical materials for organ-specific treatments (e.g., brain, bone, tooth, liver, kidney, lung, heart, blood vessel, stomach, eye, ear)
- Medical materials for bio-imaging (e.g., fluorescence imaging, computed tomography, magnetic resonance imaging, positron emission tomography, ultrasound imaging)
- Medical materials for device innovation in the clinic (e.g., wearable technologies, diagnostic devices, microfluidics, BioMEMS, bioelectronics, biosensors, medical robots)
- Medical materials for antibacterial and antivirus application
- Medical materials for immunotherapy (e.g., vaccines, nanoengagers, immunostimulators)
- Nanomedicine, Nanobiotechnology and Nanobiomaterials
- Biological effects of medical materials (e.g., biocompatibility and biosafety, toxicity, biodegradation, excretion).

3. Outlook

Medical Materials Research aims to bridge the gap between materials science and medical applications, fostering scientific innovations that translate into tangible health benefits. It will serve as a premier platform for researchers, clinicians, and industry professionals to share their findings, insights, and developments in medical materials. In other words, *Medical Materials Research* is more than just a journal; it is a catalyst for innovation, a repository of knowledge, and comprises a community of forward-thinking professionals from diverse research fields. As we embark on this exciting journey, we look forward to your contributions, collaborations, and discoveries that will shape the future of medical materials and healthcare development.

Join us in this endeavor to push the boundaries of what is possible and redefine the intersection of materials science and medicine.

Conflicts of Interest: The author declares no conflict of interest.

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