



Beyond Compatibility: Unraveling the Molecular Dynamics of Biomaterial-Host Interactions

Guest Editor:

Dr. Samuel J Lin

Division of Plastic Surgery, Beth
Israel Deaconess Medical Center,
Harvard Medical School, Boston,
MA 02215, USA

Deadline for manuscript
submissions:

closed (20 May 2024)

Message from the Guest Editor

Dear Colleagues,

Biomaterials, including bioactive ceramics, polymers, silk, and composites, have long been used in a multitude of medical applications, from implants to drug delivery platforms and regenerative medicine. While these materials have been widely acknowledged for their biocompatibility and bioactivity, the complex interplay between the biomaterials and host biological systems at the molecular level remains largely unexplored. Biomaterial–host interaction is a critical determinant in the successful integration of these materials into the body, affecting everything from tissue regeneration to the risk of infection and inflammation. Furthermore, with the escalating problem of antibiotic resistance worldwide, it is essential to move beyond the simplistic paradigm of mere biocompatibility and delve into the molecular dynamics that underlie these interactions.

This Special Issue invites cutting-edge research papers and comprehensive reviews from materials scientists, biomedical engineers, cell biologists, biochemists, and clinicians who are at the forefront of this intriguing research frontier.





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Editor-in-Chief

Prof. Dr. Maurizio Battino

Department of
Odontostomatologic and
Specialized Clinical Sciences,
Sez-Biochimica, Faculty of
Medicine, Università Politecnica
delle Marche, Via Ranieri 65,
60100 Ancona, Italy

Message from the Editor-in-Chief

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