

Special Issue

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

Message from the Guest Editor

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.

Guest Editor

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