

Special Issue

Inflammatory Tissue Reactions to Biomaterials

Message from the Guest Editors

The regulatory role of the immune system in maintaining tissue homeostasis and restoring its functionality, when disturbed due to trauma or injury, has become evident in recent years. The polarization of macrophages—one of the main constituents of the immune system—into the pro-inflammatory or anti-inflammatory phenotype has great repercussions for cellular crosstalk, as well as the subsequent processes needed for proper tissue regeneration, such as angiogenesis. In certain scenarios, the damaged tissue requires the placement of both natural and synthetic biomaterials to facilitate the healing process. The immune response of the host organism to the biomaterial, which is of an exogenous nature, might determine its fate, leading either to active regeneration or its failure. Therefore, various strategies have been employed, such as the modification of structural/chemical features or the incorporation of bioactive molecules, to tune the interplay with the immune cells.

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