

Special Issue Reprint

Surface Engineering of Biomaterials

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Acceptance or rejection of implanted biomaterials is strongly dependent on an appropriate bio-interface between the biomaterial and its surrounding tissue. Given the fact that most bulk materials only provide mechanical stability for the implant and may not interact with tissues and fluids in vivo, surface modification and engineering of biomaterials plays a significant role towards addressing major clinical unmet challenges. Increasing data showed that altering surface properties including physiochemical, topographical, and mechanical characteristics, is a promising approach to tackle these problems. Surface engineering of biomaterials could influence the subsequent tissue and cellular events such as protein adsorption, cellular recolonization, adhesion, proliferation, migration, and the inflammatory response. Moreover, it could be based on mimicking the complex cell structure and environment or hierarchical nature of the bone. In this case, the design of nano/micrometer patterns and morphologies with control over their properties has been receiving the attention of biomaterial scientists due to the promising results for the relevant biomedical applications. This Special Issue presents original research papers that report on the current state-of-the-art in surface engineering of biomaterials, particularly implants and biomedical devices.

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