



Materials and their biomedical applications

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Abstract

Materials science and engineering provides the foundation for the development of new biomaterials and knowledges in biological and clinical sciences are essential for the successful biomaterials development. This article gives a concise presentation of the fundamentals of materials science and engineering and introduces basic concepts in biomaterials science. It further provides examples of materials applications in the medical field, including orthopedics, dentistry, cardiovascular, reconstructive plastic surgery and controlled release. Biomaterials for existing medical devices such as bioelectrodes and biosensors and for future endeavors such as cancer theranostics, bioprinting and organs-on-chip are also discussed.

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