Special Issue

Articular Cartilage Replacement Materials

Message from the Guest Editors

Articular cartilaginous tissue damages caused by trauma and various pathologies can induce the development of osteoarthritis. The prevalence of this disease has grown significantly with an increase in life expectancy and obesity. To overcome this problem, there are currently several approaches, from physiotherapy treatments and medication, to alleviate symptoms associated with the replacement of the damaged tissue, depending on its state. In a more invasive approach, the natural joint is completely removed and replaced with artificial materials (e.g. chrome–cobalt alloys, stainless steel, titanium alloys, ultrahigh-molecular-weight polyethylene, alumina, and delta ceramics). In this case, the area of damaged cartilage is replaced with natural cartilage from the patient or donor, or with an artificial material (usually a hydrogel due to its similarity with the cartilage). Reconstruction of natural tissue has also been attempted using the most varied scaffold structures. This Special Issue therefore aims to collate recent research work related to the development and performance of materials used for replacing natural articular cartilage.

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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