Special Issue

Smart Implants

Message from the Guest Editors

Dear colleagues, Smart implants are medical implantable devices which have one or more sensors, some intelligence (typically electronics) to judge the sensory input and decide on a response, and finally a part realizing a smart response. Many novel smart implant applications are receiving attention at present: tiny neural probes, smart drug delivery systems, flexible retinal implants, etc. Several trends are obvious: Smart implants should have a wide functionality; be small, preferably allowing for minimally invasive implantation; be biomimetic to reduce the foreign body reaction upon implantation; etc. Lots of challenges still remain, resulting in interesting scientific activities with promising contributions to enable the fabrication of smart implants. With this Special Issue, we want to give room to research papers, short communications, and review articles that focus on solving remaining issues regarding the fabrication of future smart implants, such as novel miniaturized implantable sensors, new approaches to realize miniaturized hermetic implant encapsulations, polymer-based flexible smart implants, approaches to improve biostability or biomimetics of an implant, etc.

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