Understanding the role of nano-topography on the surface of a bone-implant

This review by Walboomers and co-authors discusses the interaction of cells with the nano-topographical features of bone implants. The review also details the characterisation of implant surfaces and their manufacture.

(Biomater. Sci., 2012, DOI: 10.1039/c2bm00032f, Advance article)

Titanium dioxide nanoparticle-entrapped polyion complex micelles generate singlet oxygen in the cells by ultrasound irradiation for sonodynamic therapy

The main cytotoxic agent in photodynamic therapy is believed to be the reactive oxygen species $^{1}O_{2}$ which is used to treat cancerous diseases. In this paper, Harada and co-workers investigate the generation of reactive oxygen species using sonication of TiO$_2$ nanoparticles. They first synthesised TiO$_2$ nanoparticle-entrapped micelles with a core-shell structure. The nanoparticles were able to generate reactive oxygen species by sonication when inside the micelles. The frequently of sonication was appropriate for clinical situations, thus they has the potential to be used in sonodynamic therapy.

(Biomater. Sci., 2012, DOI: 10.1039/c2bm00066k, Advance article)

A progressive approach on inactivation of bacteria using silver-titania nanoparticles

The antibacterial properties of silver compounds have long been known. In this paper by Li, Luo and Bashir, Ag-decorated TiO$_2$ nanoparticles were prepared by a colloidal chemistry method. The nanoparticles were coincubated with model microbes, that are found in water, to investigate their biocidal effectiveness. The bactericidal mechanism was also investigated with a focus on the role of the microbial outer membrane.

(Biomater. Sci., 2012, DOI: 10.1039/c2bm00010e, Advance article)

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1. **Prof. Dr. Wafa Abdel-Fattah** says: September 27, 2012 at 12:23 am

Happy to go through this new moon in the biomaterials world, soon I will submit one of our latest results on functionalizing bioactive TAV coating

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