World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:9, No:01, 2015

Cell Response on the Ti-15Mo Alloy Surface after Nanotubes Growth

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Abstract : In the present work, in vitro cytotoxicity was evaluated after nanotubes growth on Ti15Mo alloy surface. TiO2 nanotubes were obtained by anodizing technique at room temperature in an electrolyte with 0.25 %NH4F and glycerol at a constant anodic potential of 20 V for 24 hours. The morphology of nanotubes was observed by field emission scanning electron microscopy (FE-SEM; XL 30 FEG, Philips). Crystal structure was analyzed by wide-angle X-ray diffraction. A cell culture model using human fibroblast-like cells was used to study the effect of TiO2 nanotubes growth on the cytotoxicity of the Ti15Mo alloy for 1, 4 and 7 days culture period. The MTT assay was used to evaluate cell viability and cell adhesion was evaluated by scanning electron microscopy. Results show that Ti15Mo alloy with TiO2 nanotubes on surface is nontoxic and exhibit good interaction with surface.

Keywords : titanium alloys, TiO2 nanotubes, cell growth, Ti-15Mo alloy
Conference Title : ICBCN 2015 : International Conference on Biomaterials, Colloids and Nanomedicine
Conference Location : Paris, France
Conference Dates : January 23-24, 2015