

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

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