308-032 Nanotubes of TiO2 on Ti-30Ta alloy using ammonium fluoride electrolyte
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Studies have shown strong correlations between anodized metals with the production of highly biomimetic nanoscale topographies. This kind of the surface plays important rules on cellular response. The nanotube formation interface exhibits a higher degree of oxidation, as well as improved biocompatibility [1]. The diameter and length of the nanotube are affected by electrolyte composition, applied potential and time of the oxidation [2]. In this study, the self-ordered formation of nanotubular oxide layers on Ti–30Ta alloy was investigated. The anodization process was realized in an electrolyte solution containing 0.2M NH4F and glycerol at 30V for 7, 8, 9 and 10 hours [3]. The nanotube layer was annealed in an oxygen ambient furnace at 530 ºC (5º C/min) for 1 hour. The Ti-30Ta alloy surface were investigated using scanning electron microscopy (SEM) and X-ray diffractometer (XRD). The results indicated that the anodization process on Ti-30Ta alloy was highly influenced by time duration. The time influenced the shape and amount of the nanotuber formation.