

題名:Grafted Collagen on the Titanium surfaces using Glow Discharge

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摘要:To improve the bioactivity of titanium surfaces, glow discharge was used to facilitate collagen grafting on titanium disks. Titanium test specimens were pre-treated by glow discharge fed with a mixture of argon and allylamine (AA) gases. Treated titanium disks were then grafted with type I collagen using glutaraldehyde (GA) as a crosslinking agent. The surfaces of collagen-grafted titanium disks were evaluated using scanning electron microscopy-energy dispersive spectroscopy (SEM-EDS) and X-ray photoelectron spectroscopy (XPS). MG-63 osteoblast-like cells were cultured on the grafted titanium surfaces to examine the effect of collagen grafting in terms of cell morphology. Our results demonstrated that collagen component elements could be detected on the titanium surfaces. Morphology of the cells on the surfaces of collagen-grafted titanium disks indicated differentiation. These findings showed that type I collagen could be successfully grafted onto titanium surfaces using glow discharge technology, with enhanced biofunctionality demonstrated on osteoblastic cells.