

CELL PROLIFERATION AND DNA DAMAGE INDUCED TITANIUM PLASMA TREATED SURFACE

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The interactions between cells and implant materials are determined by the surface structure and composition of material. In the past years, titanium has proved its superiority over other implant materials in many clinical applications. Most of titanium particles biocompatibility has been tested. The aim of this work was to access the biocompatibility of titanium plasma treated surface by proliferation assay, counting the pre-osteoblastic cells on Neubauer chamber. As genotoxicity of titanium surfaces remains controversial, we have evaluated DNA damage by Comet assay, which detects mostly DNA breakage, with CHO-K1 (Chinese hamster ovary) cells. For these, both type of cells were cultured in the presence of titanium plasma treated or untreated surface. An increase in the cell proliferation was detected only in treated plasma surface. Nevertheless, the genotoxic activity, was observed only in untreated surface. Together, these results suggest that titanium plasma treated surface can be useful for clinical application. Furthermore, additional genotoxicity studies may be done.