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POS-31 - Characterization and evaluation of femtosecond laser-induced periodic surface structure with different periodicities on titanium to improve osseointegration of dental and orthopedic implants

Wednesday 31 May 2017 18:10 (2 minutes)

The aim of this study was to investigate the effect of femtosecond Laser Induced Periodic Surface Structures (LIPSS) with different periodicities in the range of 300 nm to 800 nm on osteoblast-like cells (i.e., Saos-2, osteosarcoma) growth on titanium. Femtosecond pulses from Yb:KGW laser source were used to synthesize LIPSS on titanium at fundamental wavelength of 1030 nm with a pulse duration of 350 fs at a repetition rate of 1 kHz. Scanning electron microscopy and x-ray photoelectron spectroscopy were used to characterize the surface topography and chemical composition of LIPSS on titanium, respectively. The results of in vitro study of Saos-2 cell metabolism on LIPSS with different periodicities on titanium are presented in this work.

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