(Si-HA) over the behaviour of the human osteoblast-like cell (SaOS-2) line. Pulsed laser deposition (PLD) was the selected technique to deposit the coatings over titanium substrates. Diatomaceous earth and SiO_2, together with commercial hydroxyapatite were respectively the silicon and HA sources used to produce the Si-HA coatings. HA coatings with 0% of silicon were used as control of the experiment. The Si-HA thin films were characterized by Fourier Transform Infrared Spectroscopy (FTIR) demonstrating the efficient transfer of Si to the HA structure in the form of SiO_4^{4-} groups. The *in vitro* cell culture was established with three-dimensional titanium discs covered with Si-HA bioactive ceramic coatings. Cell attachment, proliferation and their osteoblastic activity was followed up to 7 days respectively by, Scanning Electron Microscopy (SEM), DNA and alkaline phosphatase (ALP) quantification. The SEM analysis demonstrated the similar adhesion behaviour of the cells on the tested materials and the maintenance of the typical osteoblastic morphology along the time of culture. The Si-HA coatings did not evidence any type of cytotoxic behaviour when compared with commercial HA coatings, although the proliferation rate was enhanced on the commercial HA from day 3 to day 7 of culture. In what concerns the osteoblastic activity no significant changes were observed for the tested culture times.

This work was supported by the UE-Interreg IIIA (SP1.P151/03) Proteus Project and Ministerio de Educación y Ciencia (MAT 2004-0291).

(OP 249) Silicon—Hydroxyapatite Bioactive Coatings (Si-HA) from Diatomaceous Earth and SiO2. Study of Adhesion and Proliferation of Osteoblast-Like Cells

M. López-Álvarez[1], E.L. Solla[1], P. González[1], J. Serra[1], B. León[1], A.P. Marques[2,3], R.L. Reis[2,3]

[1]Department of Applied Physics. E.T.S.I. Industriales. University of Vigo. Spain
[2]3B's Research Group—Biomaterials, Biodegradables and Biomimetics. University of Minho, Campus de Gualtar, 4710-057, Braga. Portugal.
[3]IBB—Institute for Biotechnology and Bioengineering, Braga. Portugal

The aim of this study consisted of investigating the influence of bioactive ceramic coatings of silicon substituted hydroxyapatite