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Behavior of osteoblast-like cells on fibronectin or BMP-2 immobilized surface

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ABSTRACT

Property modification of an implant surface is known to influence the behavior of cells surrounding implant material. This study examined the osteogenic cell behavior on protein immobilized surface in vitro. Following plasma surface modification, fibronectin or bone morphogenetic protein-2 (BMP-2) was immobilized. The number of cells adhering to fibronectin-immobilized surface increased after 1 and 2 h of incubation compared with non-immobilized surface. Alkaline phosphatase activity and osteocalcin mRNA expression of the osteogenic cells on the BMP-2 immobilized surface was greater than that on the non-immobilized surface. This study demonstrated that protein can be immobilized to a polystyrene surface after treatment with O_2 plasma and that the osteogenic cells surrounding a biomaterial can be controlled by the immobilization of protein to the biomaterial.

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