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[\[Image PDF \(503K\)\]](#) [\[References\]](#)**Gene expression monitoring in osteoblasts on titanium coated with fibronectin-derived peptide**[Nobuyuki YAMAMICHI](#)<sup>1)</sup>, [Kamolpan PUGDEE](#)<sup>1)</sup>, [Wei-Jen CHANG](#)<sup>2)</sup>, [Sheng-Yang LEE](#)<sup>2)</sup>, [Masao YOSHINARI](#)<sup>3)</sup>, [Tohru HAYAKAWA](#)<sup>4)5)</sup> and [Yoshimitsu ABIKO](#)<sup>1)5)</sup>

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**Abstract:**

Enhanced adhesion and migration of osteoblastic cells on titanium (Ti) surface is believed to increase the success rate of implant therapy. A GRGDSP peptide derived from fibronectin was coated on Ti surfaces using a tresyl chloride activation technique, and then MC3T3-E1 osteoblastic cells were cultured on the Ti surfaces. After 15 days, total RNA was isolated from the cells and gene expression level were analyzed by Affymetrix GeneChip system. The expression levels of many genes in MC3T3-E1 cells cultured on GRGDSP-coated Ti surface were altered when compared to uncoated Ti. In particular, the elevated mRNA levels of bone sialoprotein (BSP) and osteocalcin (OC) were successfully confirmed by reverse transcription-polymerase chain reaction (RT-PCR) and real-time PCR. In light of the results obtained, GRGDSP-coated Ti presented the potential of evolving into a useful biomaterial for successful implant therapy.

**Key words:**[Osteoblast](#), [RGD peptide](#), [GeneChip](#)

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