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Non-UV based early murine pre-osteoblastic cell ALP levels of anodized and annealed titanium surfaces

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Purpose: The aim of this study was to evaluate the initial adhesion morphology and alkaline phosphatase activity (ALP) of murine pre-osteoblastic MC3T3-E1 cells on anatase/rutile mixed-phase TiO₂ thin films with photo-catalytic activity that previously confirmed antibacterial properties.

Materials & Methods: Anatase/rutile mixed-phase TiO₂ thin films fabricated by anodization and annealing of cpTi were cultured by MC3T3-E1 to evaluate the initial cellular adhesion morphology and ALP activity *in vitro* under non-UV based conditions.

Results: MC3T3-E1 cells exhibited different morphological behaviors on anatase/rutile mixed-phase TiO₂ thin films. Anatase/rutile mixed-phase TiO₂ thin films presented similar ALP levels with cpTi surfaces and the control group after cell culture day 9.

Conclusion: Anodizing and annealing processes fabricate multifunctional surfaces on cpTi with improved initial osteogenic properties for implants under non-UV based conditions.

Biography

Sinem Yenyol has received her DMD from Istanbul University, Faculty of Dentistry (1999) and completed PhD degree in Oral Implantology from Istanbul University, Faculty of Dentistry, Department of Oral Implantology (2006). She has completed Visiting Scholarship in New York University College of Dentistry, Department of Biomaterials and Biomimetics (2007-2009). She is presently a Research Assistant in Istanbul University, Faculty of Dentistry, Department of Oral Implantology. She has published over 40 articles and translated a book into Turkish. She has presented many presentations on a variety of topics related to implant surface characteristics. She is an Editor in *Journal of Turkish Society of Oral Implantology* and a Member at Turkish Society of Oral Implantology.

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