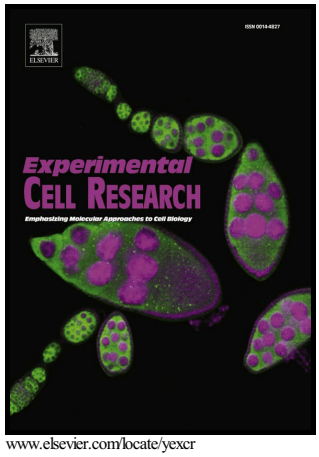

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Matrix mineralization controls gene expression in osteoblastic cells

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Abstract

Osteoblasts are adherent cells, and under physiological conditions they attach to both mineralized and non-mineralized osseous surfaces. However, how exactly osteoblasts respond to these different osseous surfaces is largely unknown. Our hypothesis was that the state of matrix mineralization provides a functional signal to osteoblasts. To assess the osteoblast response to mineralized compared to demineralized osseous surfaces, we developed and validated a novel tissue surface model. We demonstrated that with the exception of the absence of mineral, the mineralized and demineralized surfaces were similar in molecular composition as determined, for example, by collagen content and maturity. Subsequently we