

**Construction of osteoblast-specific multicomposite artificial extracellular matrix based on mussel adhesive protein**

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The current paradigm of tissue engineering has not only focused on designing structurally and characteristically similar biomaterials to the extracellular matrix (ECM), but also considered for controlling various cell behaviors. In this aspect, design and construction of artificial extracellular matrix (ECM) is very important issue in tissue engineering fields to mimic the real ECM for tissue repair. Recently, we reported artificial ECM mimics based on fusion of mussel adhesive protein (MAP) with the biofunctional ECM peptides to facilitate use as efficient cell and tissue-friendly biomaterials. Here, we easily constructed osteogenic multicomponent artificial ECM through simple combination of several artificial ECM mimics. Diverse cell behaviors such as adhesion, proliferation, and differentiation on artificial ECM mimic mixture-coated surfaces were investigated for osteoblast cell line. We found that multicomponent artificial ECM mimics showed superior abilities on cells to single component ECM mimics. Thus, multicomponent artificial ECM based on biofunctional peptide-conjugated MAP can be successfully applied in bone tissue engineering.