

Synthesis of Inorganic Nanostructure through Biomineralization Using Template with Immobilized Peptide

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Molecular biomimetics is an emerging field in which hybrid technologies are developed by using the tools of molecular biology and nanotechnology. Here, inorganic nanorods were prepared by the hybridized approach of nanoscaled template and biomineralization methods with enzyme-mimicked peptides. The enzyme-mimicked peptides containing functionality for the recognition and nucleation of CaCO_3 were immobilized inside the channel of the anodic aluminum oxide(AAO) template. Using this functionalized template, CaCO_3 nanorods were prepared whose structure was controlled. This nanorod formation is found to be driven by the function of designer peptides immobilized on the AAO surface. These results suggest that the artificially endowed biomimetic function would work for the controlled growth of nanorod.