

Biom mineralization of Calcium Carbonate Nanostructures in the Peptide-Immobilized Templates

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Crystallization in the biological system attracts lots of interest to produce mineral with remarkable morphologies. In this study, a biomimetic approach using tools of molecular biology and nanotechnology has been explored to produce both shape and crystalline structure controlled nanoscaled materials. The enzyme-mimicked peptides containing functionality for the recognition and nucleation of CaCO₃ were immobilized inside the channel of the anodic aluminum oxide(AAO) template. Using this peptide-associated template, both morphology and crystalline structure controls on CaCO₃ was achieved. The enzyme-mimicked peptides controlled the calcium carbonate crystalline structure during the biom mineralization. The outcomes of this study suggests that the biomimetic molecule with the conjugation of shape-controlling template is useful as a platform for the synthesis of various inorganic nanomaterials.