

# How Does Nature Use Organic Molecules to Template the Formation of Inorganic Structures?



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### ABSTRACT

An investigation of the possible mechanisms underlying modulated synthesis of hydroxyapatite, the inorganic mineral component of bone tissue. This wet chemical approach, with the inclusion of chitosan, the deacetylated product of chitin, results in the synthesis of nearly spherical nano-hydroxyapatite exhibiting a structurally graded hybrid of the composites, and displaying several levels of nano-architecture.

Presently, an interaction study designed to determine the structural changes taking place should provide an established mechanism by which chitosan is templating the crystallization of hydroxyapatite. This project suggests several interesting and novel biomedical applications and furthermore, by elucidating the mechanism behind this synthesis, information can be gathered to help understand similar hybrid-materials systems.

### BIOGRAPHY

Born in Butte, Montana, in 1985, I am a third generation student of Montana Tech. As a 22 year-old Senior in the Biochemistry curriculum, I have grown increasingly interested in molecular modeling and mechanistic studies. Expecting to graduate this spring, I am anxious to apply myself towards cutting edge biomedical research and studies.