

Séminaire interne LIONS

(ouvert à tous)



Jeudi 10 Juin à 11h, pce. 157, bât. 125

The Effects of Mollusk Shell Macromolecules on CaCO₃ Mineralization: In Vitro Construction of the Nacre-Like CaCO₃ Laminated Structure

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Biominerals, such as bones, teeth and shells are usually with sophisticated structures, displaying particular functions. It is believed that proteins and polysaccharides play important roles in the formation of these complex structures. To understand how does the bio-polymers (proteins and polysaccharides) control the mineralization process, the SOM (Soluble Organic Matrix) of the nacreous layers of *Pinctada margaritifera* was extracted and used as an additive for the growth of calcium carbonate in vitro.

Interestingly, the layered structure of CaCO₃ crystal became apparent as the amount of the SOM was increased. Consequently, the morphology of the as-grown CaCO₃ crystals shows the laminated structure, which is similar to the structure of nacre. Different from the presence of aragonite in nacre, the as-synthesized crystals were identified as calcite by XRD and FT-IR characterization. According to the AFM results, it is believed that the layered structure of calcite is composed of nanograins. These findings inspire us to investigate the crystallization process of the layered structure in detail.