Special Issue

Mineralization of Metals through Bio Activities

Message from the Guest Editor

Living organisms transport or accumulate inorganic elements that are used for metabolic processes, as minerals and hard tissue components, or for detoxification. Magnetotactic bacteria contain magnetite nanoparticles in the magnetosome. Many bacteria have a strong potential to accumulate metal ions inside or outside the cells and synthesize metal nanoparticles. Microalgae surround their cell body with silicate or calcium carbonate for protection and buoyancy. Invertebrates such as corals, bivalves, gastropods, and crustaceans use calcium carbonate for their exoskeleton. These synthesized minerals, having bioactivity, are called biominerals. Biominerals contain fine repeated microstructures with special optical properties and extraordinary toughness and stiffness. Such biominerals are considered functional materials for the industry. Studies on the molecular mechanisms of bioactivity will be fundamental for material science.

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Deadline for manuscript submissions

closed (31 October 2021)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/44500

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