PARTIAL REGENERATION OF COLLAGEN HELICES, AT 4°C, FROM WATER-SOLUBLE GELATIN RANDOM COILS

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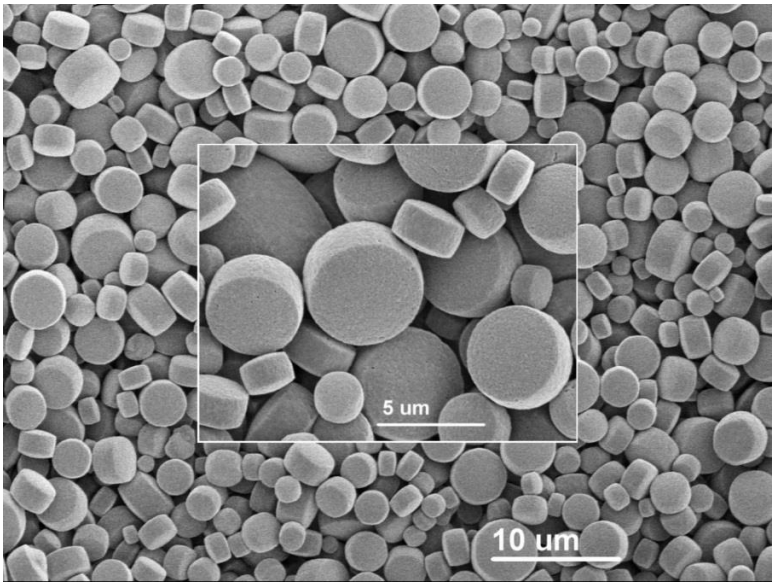
Collagen is the biopolymer of mammalians.

Do water-soluble gelatin (*i.e.*, denatured collagen) and collagen receive the attention they warrant in development of polymeric biomaterials and implantable medical devices?

The below electron microscope photos of the monodisperse (=non-agglomerated) and **biconvex micropills** of "vaterite" (a polymorphic form of $CaCO_3$; calcium carbonate) present a tribute to the partial regeneration of collagen helices upon cooling aqueous gelatin solutions (with Ca^{2+} and HCO_3^- ions), having random coil structure, at 4°C (for 24 h). Please refer to the article and US patent for the mechanism of this partial regeneration, which plays a leading role in templating the aggregation of invisible vaterite nanoclusters into micron-sized biconvex micropills.

Vaterite is a fully biocompatible substance, therefore, its micropills. It is possible to think of numerous applications in oncological research for such monodisperse and biocompatible particles as drug, gene or vaccine delivery agents. The sizes of the biconvex micropills are also suitable for "not evading" the blood-brain barrier (BBB).



Materials with "biconvex micropill"-shaped particles are not yet reported in any other naturally-occurring or synthetic systems.