

Self-coacervation of polyampholyte towards biomimetic reactors

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Water-in-water emulsions found their interest in the sequestration of fragile molecules as the internal and external phases are constituted of water. Typically, all aqueous phase separation occurs when two water soluble molecules are mixed together. This phenomenon also called coacervation has the ability to sequester spontaneously various entities from small molecules to complex cells. Nevertheless, the stability of such coacervates is not efficient and required the use of stabilizing agents such as colloids.

We have exploited ampholyte polymer chains to create highly stable micrometric coacervates stabilized by a polymeric shell [1]. The main advantage of these complex assemblies results from their ability to sequester spontaneously molecules. These hybrid self-assembly, compatible with physiological media, found their application in microextraction, drug delivery or sensors.

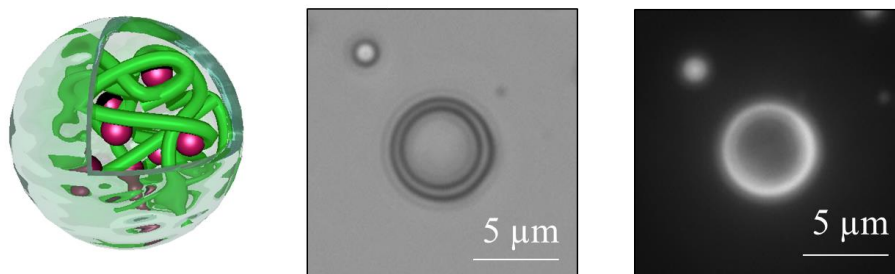


Figure 1: Schematic representation of the core-shell ampholyte/agar. Optical and fluorescence microscopy images of coacervates co-agar (0.5%wt) in presence of Coumarin at pH 5.

Keywords: Water-in-water emulsion, self-assembly, colloidosomes, coacervates, sequestration.

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