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Stimuli-responsive block copolypeptides VENKATA KRISHNA KOTHARANGANNAGARI, University of Fribourg, ANTONI SANCHEZ-FERRER, ETH Zurich, JANNE RUOKOLAINEN, Aalto University, RAFFAELE MEZZENGA, ETH Zurich — Stimuli-responsive polypeptide block copolymers are appealing systems due to the morphological polymorphic states they can exhibit in selective solvents, including micelles, vesicles, fibrils, and more complex supramolecular aggregates. Their morphologies can be engineered a-priori by the relative block lengths, the solvent composition, and their concentration. However controlling the morphology upon external stimuli offers clear benefits, since changes in structure and morphology can be induced on demand. In this talk, we present two examples of stimuli-responsive block copolypeptides: in a first case, a photoresponsive PLGA-PEO diblock is discussed capable to reversibly undergo micellization-dissolution-micellization upon visible or Uv light exposure, due to spiropyrans units decorating the PLGA block; in the second case a PBLG-PDMS-PBLG triblock copolymer undergoing reversible thermal-induced organogelation is also presented. The changes in morphology are correlated, in both cases to the variations in molecular conformations of the polypeptide blocks.

Venkata Krishna Kotharangannagari
University of Fribourg

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