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MICELLAR MULTICOMPARTMENT HYDROGELS FROM POLY(2-OXAZOLINE)S CONTAINING FLUOROPHILIC, HYDROPHILIC AND LIPOPHILIC BLOCKS

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In aqueous solution, poly(2-oxazoline) block copolymers with lipophilic, hydrophilic and fluorophilic blocks behave like amphiphiles. Depending on concentration, they form micelles and multicompartement micellar hydrogels. Using fluorescence correlation spectroscopy, we have characterized the (very low) critical micelle concentrations of diblock copolymers containing hydrophilic and lipophilic blocks as well as the unimer and micellar hydrodynamic radii for several block copolymer architectures.¹ Using small-angle neutron scattering with contrast variation, we could demonstrate that the micelles formed by these copolymers and of fluorophilic-hydrophilic diblock copolymers are of core-shell type and that they do not form common micelles upon mixing.² At higher concentration, the scattering from hydrogels of lipophilic-hydrophilic-fluorophilic triblock copolymers indicates that the gels consist of separate lipophilic and fluorophilic micelles connected by the hydrophilic blocks.³ This strongly supports the notion of a multicompartement micellar network.

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2. R. Ivanova, T. Komenda, T.B. Bonn , K. L dtke, K. Mortensen, K.P. Pranzas, R. Jordan, C.M. Papadakis, submitted.

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