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Self Assembly of Poly(ethylene oxide-b-lysine-b-leucine) in Dilute Aqueous Solution CRAIG MACHADO, BROOKE BARNES, KYLE BENTZ, DANIEL SAVIN, University of Florida — In general, the self-assembly of amphiphilic block polymers is dictated by the balance of three thermodynamic parameters. When one or more of the blocks exhibits a specific interaction, this balance can be shifted. In this study, the self-assembly of block polypeptides in dilute aqueous solution is examined via light scattering and transmission electron microscopy (TEM). Triblock polymers of poly(ethylene oxide-b-lysine-b-leucine) (PEO-Lys-Leu) with varying lengths of the poly(leucine) block were synthesized in order to study the effect of poly(leucine) block length on assembly behavior. It was observed that the presence of the leucine block facilitates formation of elongated structures such as nanotubes, hydrogels and hierarchical fractal assemblies. In all cases, radius of gyration (Rg) was greater than the hydrodynamic radius (Rh). A clear increase in size of the aggregates can be seen with increasing degree of polymerization of the poly(leucine) block.

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