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Dual responsive PPO-P(Lys) block copolymer assemblies GOPAL VENKATACHALAM, SANDEEP S. NAIK, DANIEL A. SAVIN, University of Vermont — Dual responsive block copolymers consisting of poly(propylene oxide) and poly(L-lysine) (PPO-PLys) were synthesized and their solution self assembly investigated using dynamic light scattering and circular dichroism spectroscopy. PPO-PLys block copolymers were found to self assemble into spherical micelles in solution with a hydrodynamic radius dependent on both the pH, due to the helix-coil transition of the P(Lys) side chains in the corona, and the solution temperature. The basis for the pH response in these polypeptide-based hybrid block copolymers comes from the protonation or deprotonation in the side chains of the P(Lys) block, and the temperature response arises from the LCST behavior of the PPO block. The changes that occur in the solution morphology of these block copolymers were studied as a function of solution conditions.

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