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1H-NMR Study of Silica-Poly(epsilon-carbobenzyloxy-L-lysine) Composite Particles as Function of Temperature[1] ERICK SOTO, JEROME KOCH, DALE TRELEAVEN, PAUL RUSSO, Louisiana State University — Nearly monodisperse silica-poly(epsilon-carbobenzyloxy-L-lysine) composite particles were synthesized. The hydrodynamic radius of the composite particles and silica core was 200 and 100 nm respectively. Separately, poly(epsilon-carbobenzyloxy-L-lysine) was synthesized having a molecular mass of 200 kDa and a polydispersity of about 1.08. 1H-NMR spectra of the untethered polypeptide dissolved in deuterated m-cresol was collected at different temperatures ranging from 15 to 40 ^{o}C. The sharp change in the chemical shift of several protons at around 27 ^{o}C suggests a coil-helix conformation transition. Similarly, 1H-NMR spectra of the composite particles exhibits a more subtle change in chemical shifts in the explored temperature range suggesting a conformation transition of the tethered polypeptide.

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