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The Living Feature of PBLG-Grafted SiO_2 Polypeptide Composite Particles JIANHONG QIU, SIBEL TURKSEN-SELCUK, ERICK SOTO-CANTU, PAUL RUSSO, Louisiana State University — Silica-polypeptide composite particles (SiPCPs) have a SiO_2 core and polypeptide shell. The length of poly(carbobenzoxy-L-lysine (PCBL) polypeptide chains on the SiPCP surface is proportional to the concentration of monomer when the particles are dispersed in *m*-cresol . The same is true for poly(benzyl-L-glutamate (PBLG) SiPCPs in pyridine; the hydrodynamic radius increases each time monomer is added and the reaction after each addition of monomer is mostly completed in one day. The radius of gyration stays level, reflecting the fact that the core is predominantly responsible for the scattering and confirming that the particles are not aggregated. The amount of monomer added at the first step is crucial because it determines the number of polypeptide chains formed on the SiO_2 particle surface. The living feature also allows us to graft co-block polypeptide PBLG/PCBL on SiO_2 core. Thus, silica-polypeptide particles of defined size and complex shell structure can be produced.

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