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Core-shell nanoparticles as scavengers for hydrophobic molecules in biological systems JEFFREY WONG, JORGE CHÁVEZ, RANDOLPH DURAN, Department of Chemistry, University of Florida — Core-shell nanoparticles containing hydrophobic cores and hydrophilic shells were synthesized based on a tertiary microemulsion system. Due to their hydrophobic interior, this system is proposed to work as a scavenger of non polar species, like pesticides or drugs present in concentrations higher than what the body can tolerate. The ability to control the core and shell sizes using different molecules to fill the core was studied with different techniques. Hydrophobic fluorescent dyes were used as model non polar molecules to study the uptake abilities of the system synthesized. Derivatization of the surface of the core-shell particles with different groups, including biotin and poly(ethylene glycol) was performed to improve the biocompatibility of the system. Binding to streptavidin via the biotin units on the surface was performed to study the biocompatibility of the derivatized nanocapsules in biological relevant systems.

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