reaction, the nanoparticles showed no structural damage, which was attributed to the protective polymer shell. The extent of functionalization was dictated by stoichiometric addition of the amine reagent. Magnetic susceptibility of the magnetomicelles was probed using superconducting quantum interference device magnetometry. Kim and co-workers showed that micelles containing few nanoparticles ($N_{ave} < 4$) have less interparticle coupling than micelles with many nanoparticles ($N_{ave} > 4$). This change was most likely due to increased first-neighbor distance for the micelles with fewer nanoparticles.

KEVIN P. HERLIHY

Novel Saccharide–Peptide Hybrid Polymers Show Potential for Biomedical Applications

Although a few biopolymers synthesized from natural building blocks exhibit good biocompatibility and have found clinical application, their structural diversity and functionality are limited. Recently, however, researchers from the University of California, Irvine, polymerized saccharide and amino acid monomers to form versatile biomaterials that display properties desirable for biomedical applications.

As reported in the October 14 issue of *Angewandte Chemie, International Edition* (p. 6529; DOI: 10.1002/anie.200501944), Z. Guan and co-workers synthesized three hybrid copolymers from a galactose-derived monomer and one of three different L-lysine–derived monomers. Gel permeation chromatography showed that each copolymer—poly(galactaro dilysine), poly(galactaro trilysine), and poly(galactaro tetralysine)—attained a high molecular weight. Enzymatic degradation studies showed that the polymers were almost completely degraded after 5–7 days. The researchers used a standard assay to demonstrate that their polymers exhibited minimal cytotoxicity, that is, toxicity at the cellular level. In addition, immunogenicity responses measured *in vivo* using rats as animal models showed no evidence of antibody response.

The researchers then evaluated their polymers as a vector for gene delivery—a biomedical application for which the polymers are particularly suited because of the cationic charges they possess at physiological pH. Current synthetic cationic polymers, such as poly(L-lysine) (PLL), condense DNA into particles that can enter cells through endocytosis, but these polymers are also cytotoxic. Guan and co-researchers used electrophoretic mobility-shift assays to show that their polymers efficiently complexed DNA under physiological conditions. Atomic force microscopy showed that the condensed polymer–DNA particles are spherical, with diameters (50–200 nm) within the range typical for cellular internalization. Using a standard assay, the researchers found that two of their polymers transferred DNA into cells much more efficiently than PLL. The researchers said that "a diverse family of saccharide–peptide hybrid polymers is currently under development in our laboratory for various biomedical applications including gene/drug delivery and tissue engineering."

STEVEN TROHALAKI

Targeted Delivery of Amphotericin B to Cells Accomplished with Functionalized CNTs

Carbon nanotubes (CNTs) can easily cross cell membranes without damaging them. Recent studies have shown that functionalized carbon nanotubes (f-CNTs) can carry specific drugs to the cells and they are known to be less toxic than existing mechanisms. W. Wu of Institut de

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