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Core-Shell Nanoparticles for Cancer Imaging and Treatment

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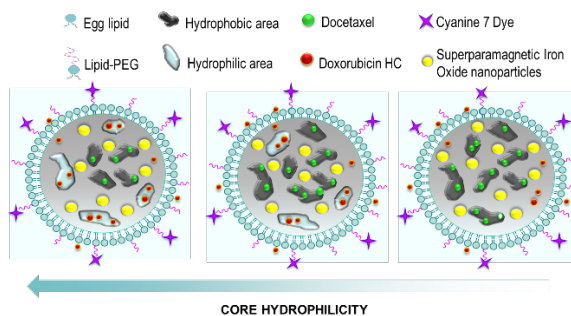
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Abstract

In this work, polymer nanoparticles composed of a polyurethane (PUR) core and a cell-friendly lipid shell were designed (figure 1).



PUR chemistry was exploited to modulate the polymeric core affinity for drugs/probes of varying water solubility. The outer lipid shell was labeled with a photo-acoustic probe to combine complementary imaging techniques.

We investigated whether the core/shell structure could be used for rationale design of particles with modulated core-dependent properties to accommodate different payloads, without affecting the surface-related properties, such as biodistribution, cell uptake and tumor accumulation.