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Smart colloidosomes with tunable permeability and a dissolution trigger ADRIANA SAN MIGUEL, JAN SCRIMGEOUR, JENNIFER CURTIS, SVEN BEHRENS, Georgia Tech — Self-assembly of colloidal particles in the liquid interface of double emulsion droplets can be used to fabricate “colloidosome” microcapsules, which have great potential as vehicles for the controlled delivery of drugs or other cargoes. Here we present a novel class of aqueous core colloidosomes that combine the benefit of low capsule permeability (good cargo retention) with the option of a stimulus-triggered fast release in a target environment. Complete or partial dissolution of the capsule walls in response to a mild pH change is achieved in each case through the use of responsive particles made from polymers with pH-switchable solubility. We demonstrate three methods of controlling the capsule permeability prior to release while maintaining the intended response to the release trigger.

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