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Hybrid cellular-inorganic core-shell microparticles: Encapsulation of individual living cells in calcium carbonate microshells

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Abstract

We report the fabrication of hybrid cellular-inorganic core-shell microparticles obtained by encapsulation of individual living yeast cells *Saccharomyces cerevisiae* in calcium carbonate microshells and demonstrate the viability of the encapsulated cells. Our method is based on the direct precipitation of calcium carbonate on the cell walls of yeast cells. Resulting hybrid microparticles consist of single yeast cells coated with semipermeable inorganic microshells, which resemble the original ellipsoid shapes of yeast cells, exhibit negative zeta-potential, and have micrometer-thick calcium carbonate walls. The combination of the functional properties of living cells and calcium carbonate microshells promises a wide area of applications of these hybrid core-shell microparticles in the development of novel materials. © 2009 American Chemical Society.

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