

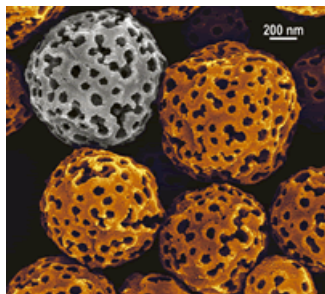


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IMAGE*inFocus*



Porous, Hollow, and Ball-in-Ball Metal Oxide Microspheres

An inexpensive ultrasonic generator was used to synthesize porous, hollow, and ball-in-ball metal oxide microspheres. The morphology and pore size were controlled by the silica to Ti^{IV} ratio and the silica particle size. With the introduction of transition-metal ions, core/shell-type microspheres can be synthesized in a single-pot synthesis. These nanomaterials are rapidly taken up into the cytoplasm (but not into the nucleus) of macrophages and show very little cell toxicity.

[W. H. Suh, A. R. Jang, Y.-H. Suh, K. S. Suslick](#), *Advanced Materials*, Early View, Published Online: 27 Jun 2006