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Small Size Mesoporous Organosilica Nanorods with Different Aspect Ratios: Synthesis and Cellular Uptake

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Abstract: In the work, small size thioether-bridged mesoporous organosilica nanorod (MONRs) are successfully synthesized using cetyltrimethylammonium bromide (CTAB) as structure-directing agent and bis[3-(triethoxysilyl)propyl]tetrasulfide (TETS) and tetraethoxysilane (TEOS) as co-precursors. The MONRs have tunable aspect ratios of 2, 3, and 4 (denoted as MONRs-2, MONRs-3, and MONRs-4), small and controllable lengths (75-310 nm), high surface area (570–870 cm² g⁻¹), uniform mesopores (2.4–2.6 nm), large pore volume (0.34 cm³ g⁻¹), and excellent biocompatibility. The uptake of the MONRs by multidrug resistant human breast cancer

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