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Nanotheranostics with Designed Drug Carriers and Mass Spectrometry Imaging

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Abstract

Over a decade, our group synthesized inorganic (iron oxide, gold, silica) and organic (rotaxane dendrimer) nanomaterials for the purpose of studying their anticancer drug (doxorubicin, chlorambucil, cisplatin) and anti-inflammatory agent (curcumin, baicalein) release profiles with normal, sustained, controlled (pH, ultrasound, small biomolecules), and smart/active releases. The in vitro and in vivo monitoring of these nanomaterials could be realized by magnetic resonance imaging, fluorescence imaging, and state-of-the-art mass spectrometry imaging. Nanomaterials could be organ/tissue targeting selectively in spleen, kidney and epithelial.

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