

Developing Hybrid Nanomaterials for Biomedical Imaging and Cancer Therapy

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Early diagnosis of diseases allows for more effective treatment, giving patients the greatest chance of survival and recovery. By harnessing the power of synthetic inorganic chemistry with that of the latest nanoscience and nanotechnology, the Lin group has developed new hybrid nanomaterials for multimodal imaging. These nanomaterials provide nontoxic and sensitive MRI and optical imaging probes for early and noninvasive detection of cancer and inflammatory arthritis in animal models, which potentially allows for the therapy to be initiated at the most treatable stage. The Lin group is also extending this powerful synthetic strategy to developing hybrid nanoparticles containing potent anticancer drugs. Such therapeutic nanomaterials can be selectively and more efficiently delivered to tumors than current chemotherapy, leading to reduced toxicity to normal cells and more effective cancer therapy.