

Special Issue

Transition-Metal Contrast Agents for MRI

Message from the Guest Editors

By far, the majority of MRI contrast agents are coordination complexes of Gd(III), which exhibit high magnetic susceptibility and impart contrast by enhancing the relaxation rate of surrounding water protons. However, growing safety concerns over the use of lanthanide-based contrast agents have led the drive to find alternatives to gadolinium-based MRI agents.

One approach is to look to endogenous transition metal ions as alternatives. Several strategies can be used to achieve contrast in proton MRI using transition metal ions, including conventional relaxivity agents, which exploit paramagnetic relaxation enhancement, and paraSHIFT agents, for which paramagnetic hyperfine shifts are induced by anisotropic magnetic susceptibility. Spin changes can be induced with an external stimulus using transition metal chemistry in the pursuit of switchable contrast agents for imaging biochemical processes. This Special Issue aims to publish a collection of research contributions of recent work in the development, study, and understanding of transition metal contrast agents for MRI.

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