

Peer Review

Review of: "Gadolinium Toxicity: Mechanisms, Clinical Manifestations, and Nanoparticle Role"

Alexander M. Panich¹

1. Physics Dept., Ben-Gurion University of the Negev, Israel

It is an interesting and useful review. I would suggest adding the quoting of Gd-grafted nanodiamonds. The suspensions of these 5 nm sized nanoparticles show very high relaxivities of $r_1 = 33.4$ and $r_2 = 332$ mM⁻¹ s⁻¹, which considerably exceed most of those reported in the literature, particularly Dotarem (Gd-DOTA), usually used as an MRI contrast agent in clinics, showing $r_1 = 3.6$ and $r_2 = 4.3$ mM⁻¹ s⁻¹, respectively.

The resulting hydrosols are very stable and did not undergo noticeable changes or precipitation for several years of storage.

To avoid possible toxicity, the Gd-grafted nanodiamonds are covered by PVP. The PVP shell prevents the release of toxic Gd³⁺ ions into the body's organs and greatly increases its safety. This provides benefits of PVP-coated Gd-grafted nanodiamonds over traditional GBCAs in reducing toxicity.

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Declarations

Potential competing interests: No potential competing interests to declare.