

Eliminating Binding of Endogenous Anions of a Commercial Gadolinium Based MRI Contrast Agents

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Gd-DTPA, clinically named Magnevist, is the prime example of Gadolinium based contrast agents. These contrast agents work by reducing the longitudinal relaxation (T_1) of the surrounding water molecules which increases the contrast in MRI images. To date, there have been many modifications of the ligand of Gd-DTPA to improve its relaxivity and to selectively bind the contrast agent to a desired target. Many of these derivatives of Gd-DTPA suffer from anion binding which decrease the relaxivity of the complex and hence their efficiency *in vivo*. To solve these problems, in collaboration with Miller group, we have recently developed a new modification to the DTPA backbone. We have demonstrated that this modification decreases the effects of anions binding and is stable. This new complex (Gd-CyMe₂TA) is also binds to Human Serum Albumin (HSA), which is further increases the relaxivity and blood retention time for the complex *in vivo*.¹

- (1) Helm, L.; Merbach, A. E.; Tóth, E. *The chemistry of contrast agents in medical magnetic resonance imaging.*; 2013.