

Generic Name	Brand Name	Manufacturer	Available at UW-Madison	Conc. (M)	Dose (mmol/kg)	Pharmacokinetics	Protein Binding	Chemical Structure	Ionic / Non-ionic	1.5T		3.0T		Osmolality (mOsmol/kg)	Viscosity (cP)	ACR NSF Safety Group
										r1 (s <sup>-1</sup> mM <sup>-1</sup> )	r2 (s <sup>-1</sup> mM <sup>-1</sup> )	r1 (s <sup>-1</sup> mM <sup>-1</sup> )	r2 (s <sup>-1</sup> mM <sup>-1</sup> )			
gadodiamide	Omniscan	GEHC	No	0.5	0.1	ECF	no	Linear	Non-ionic	4.3	5.2	4.0	5.6	789	1.4 (37°C)	1
gadoteridol	Prohance	Bracco	No	0.5	0.1	ECF	no	Macrocytic	Non-ionic	4.1	5.0	3.7	5.7	630	1.3 (37°C)	2
gadoterate meglumine	Dotarem Clariscan	Guerbet GEHC	Yes	0.5	0.1	ECF	no	Macrocytic	Ionic	3.6	4.3	3.5	4.9	1350	2.4 (37°C)	2
gadobutrol	Gadavist	Bayer	No	1.0	0.1	ECF	no	Macrocytic	Non-ionic	4.7-5.2	6.1-6.8	3.6-5.0	6.3-7.1	1117	4.96 (37°C)	2
gadobenate dimeglumine	Multihance	Bracco	Yes	0.5	0.05-0.1	~95% ECF, ~5% HB	no*	Linear	Ionic	6.3-8.1	8.7-18.7	5.5-6.3	11.0-17.5	1970	5.3 (37°C)	2
gadoxetic acid	Eovist	Bayer	Yes	0.25	0.05**	~50% HB, ~50% ECF	yes	Linear	Ionic	6.9	8.7	6.2	11.0	688	1.19 (37°C)	3
gadopiclenol	Vueway Elucirem	Bracco Guerbet	No	0.5	0.05	ECF	no	Macrocytic	Non-ionic	12.2-12.8	15.0-15.1	11.3-11.6	13.5-14.7	850	7.6 (37°C)	pending
ferumoxytol <sup>#</sup>	Feraheme	Amag	pending	30 mg/mL	3.0mg/kg <sup>&amp;</sup>	IV, RES	no	n/a	n/a	19.0	64.9	9.5	65.2	270-330	-	n/a

**Notes:**

\* protein-associated, not true protein binding

\*\* package insert dose is 0.025mmol/kg. Standard UW-Madison dose is 0.05mmol/kg

<sup>#</sup> ferumoxytol is an iron-based agent. Use with MRI is off-label, and may be a good alternative in some patients with renal failure

<sup>&</sup> optimal dosing of Feraheme for MRI is not fully understood, but is less than therapeutic dosing with established safety profile. Dose range = 1 - 5 mg/kg

ECF = extracellular fluid, with renal excretion

HB = hepatobiliary uptake and biliary excretion

IV = intravascular

RES = reticuloendothelial uptake

r1 and r2 values of gadolinium based agents from Rohrer et al Investigative Radiology 40: 715-725, 2005, and Pintaske et al Investigative Radiology 41: 213-221, 2006

r1 and r2 values of gadopiclenol from Robic et al Investigative Radiology 54: 475-484, 2019

r1 and r2 values of ferumoxytol based on Knobloch et al Investigative Radiology 53(5): 257-263 2018

**ACR Safety Groups for Patients with Renal Failure and at Risk for NSF**

Group 1 = those agents associated with the greatest numbers of NSF cases (strictly contraindicated in patients with renal failure)

Group 2 = those agents associated with few, if any unconfounded cases of NSF

Group 3 = agents which have only recently appeared on the US market

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