

GadoSpin™ M

MRI agent for pre-clinical imaging

1 vial (5 x 100 µL injections)
5 vials (25 x 100 µL injections)

130-095-134
130-095-135

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1. Description

Components 850 µL GadoSpin™ M, MRI agent (Gd-DTPA)
or
5 x 850 µL GadoSpin™ M, MRI agent (Gd-DTPA).

Capacity 5 x 100 µL injections
or
25 x 100 µL injections.

Product format GadoSpin M is supplied as a 25 mM gadolinium sterile isotonic solution.

Appearance Clear, colorless liquid.

Storage Store protected from light at 2–8 °C. Do not freeze. The expiration date is indicated on the vial label.

For laboratory and animal research use only. **Warning: Not for human or animal therapeutic or diagnostic use. Make sure to comply with all laws and regulations governing research on animals.**

1.1 Background information

GadoSpin M is a gadolinium-based imaging agent of low molecular weight specifically formulated for pre-clinical magnetic resonance imaging (MRI). GadoSpin M increases the signal intensity in T₁-weighted MRI due to a shortening of the spin-lattice relaxation time (T₁). Upon intravenous injection, GadoSpin M is rapidly distributed in the extracellular space. No significant plasma protein-binding can be observed and the stable complex is excreted unchanged via glomerular filtration (kidneys) within hours.

GadoSpin M does not penetrate the intact blood-brain barrier and is, in fact, used in clinical practice for imaging of brain tumors.

1.2 Applications

GadoSpin M is indicated for use in MRI of small animals, for example mice, to facilitate the visualization of the extracellular space. Examples include disruption of the blood-brain barrier and fenestration of blood vessels in inflamed tissue or tumors.

1.3 Physico-chemical properties

Molecular weight	Relaxivity (37 °C, 1.5 T)	
	in plasma	in water
938 g mol ⁻¹	r ₁ = 4 L mmol ⁻¹ s ⁻¹ r ₂ = 5 L mmol ⁻¹ s ⁻¹	r ₁ = 3 L mmol ⁻¹ s ⁻¹ r ₂ = 4 L mmol ⁻¹ s ⁻¹

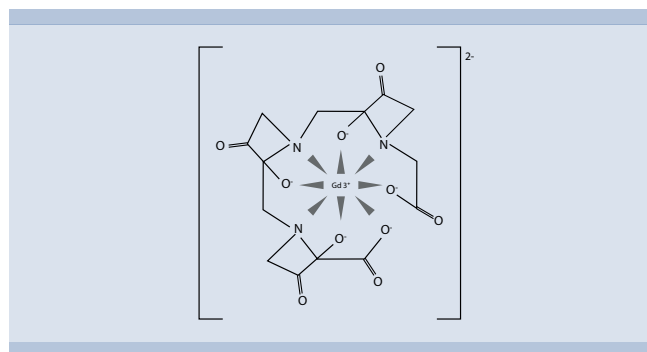


Figure 1: Structural formula of Gd-DTPA.

1.4 Requirements

- ☞ Sterile syringes and needles (27–30 G)

Note: To allow sufficient volume for 5 x 100 µL injections per vial, the syringe/needle dead volume should be kept below 70 µL.
Tip: Use insulin or tuberculin syringes.
- ☞ 70 % ethanol

2. Protocol

2.1 Preparation

- ☞ Read the entire protocol before starting.

Tip: For optimum device settings perform initial studies in a suitable imaging phantom.
- ☞ The imaging agent is ready for injection as provided.
- ☞ For a mouse weighing 20–30 g the typical injection volume is 100 µL corresponding to a dose of 100 µmol Gd/kg body weight (for a 25 g mouse).

Note: Standard animal-handling procedures and local regulations must be followed.

2.2 Injection

- Disinfect the septum with 70% ethanol. Let septum dry.
- Warm the mouse tail to dilate the veins and enhance their visibility.
- Inject GadoSpin M (typically 100 μ L) via the lateral tail vein of the mouse.

Note: GadoSpin M contains no preservatives. Avoid microbial contamination and discard any unused material after 24 hours.

2.3 Imaging

- Imaging can be performed on a multitude of devices at all commonly used field strengths including high-field MRI.
- GadoSpin M is particularly suited for T_1 -weighted MRI but can also be detected by T_2 - and T_2^* -weighted sequences.
- Taking a pre-contrast image is recommended.
- Begin imaging immediately after injection.

Find examples of GadoSpin M-enhanced MR images at www.viscover.berlin.

3. References

- Kiessling, F. *et al.* (2003) Dynamic T_1 -weighted monitoring of vascularization in human carcinoma heterotransplants by magnetic resonance imaging. *Int. J. Cancer* 104: 113–120.
- Furman-Haran, E. *et al.* (1996) Angiogenic response of MCF7 human breast cancer to hormonal treatment: assessment by dynamic GdDTPA-enhanced MRI at spatial resolution. *J. Magn. Reson. Imaging* 6: 195–202.
- Bjørnaes, I. *et al.* (2000) Measurement of the extracellular volume of human melanoma xenografts by contrast enhanced magnetic resonance imaging. *Magn. Reson. Imaging* 18: 41–48.
- Rohrer, M. *et al.* (2005) Comparison of magnetic properties of MRI contrast media solutions at different magnetic field strengths. *Invest Radiol.* 40: 715–724.

4. Related products

GadoSpin™ P	# 130-095-136, # 130-095-137
GadoSpin™ F	# 130-095-162, # 130-095-163
GadoSpin™ D	# 130-095-164, # 130-095-165
FeraSpin™ R	# 130-095-138, # 130-095-139
FeraSpin™ XS	# 130-095-140, # 130-095-141
FeraSpin™ S	# 130-095-166, # 130-095-167
FeraSpin™ M	# 130-095-168, # 130-095-169
FeraSpin™ L	# 130-095-170, # 130-095-171
FeraSpin™ XL	# 130-095-172, # 130-095-173
FeraSpin™ XXL	# 130-095-174, # 130-095-175

A comprehensive product portfolio for the imaging modalities MRI, CT, US, OI, SPECT, and PET is available at www.viscover.berlin.

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