viscover

GadoSpin™ D

MRI agent for pre-clinical imaging

1 vial (5 x 100 µL injections)	# 130-095-164
5 vials (25 x 100 µL injections)	# 130-095-165

Contents

1. Description

Components **850 µL GadoSpin™ D,**
MRI agent (dendritic Gd-chelate)
or
5 × 850 µL GadoSpin™ D,
MRI agent (dendritic Gd-chelate).

Capacity **5 × 100 µL injections**
or
25 × 100 µL injections.

Product format GadoSpin D 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 D is a dendritic gadolinium-based imaging agent of intermediate molecular weight specifically formulated for pre-clinical magnetic resonance imaging (MRI).
It is an imaging agent of high relaxivity increasing the signal intensity in T_1-weighted MRI due to a shortening of the spin-lattice relaxation time (T_1).
Upon intravenous injection, GadoSpin D remains within the vascular system. Significant extravasation can be observed in fenestrated blood vessels of inflamed tissue or tumors. GadoSpin D is mainly excreted via glomerular filtration (kidneys).

1.2 Applications

GadoSpin D is indicated for use in MRI of small animals, for example mice, to facilitate the visualization of the vasculature. Examples include dynamic contrast-enhanced magnetic resonance imaging (DCE-MRI), tumor characterization and therapy monitoring.

1.3 Physico-chemical properties

Molecular weight	Relaxivity (37 °C, 1.5 T) in plasma	Relaxivity (37 °C, 1.5 T) in water
~17,000 g mol^{-1}	r_1 = 19 L $mmol^{-1}$ s^{-1} r_2 = 29 L $mmol^{-1}$ s^{-1}	r_1 = 17 L $mmol^{-1}$ s^{-1} r_2 = 22 L $mmol^{-1}$ s^{-1}

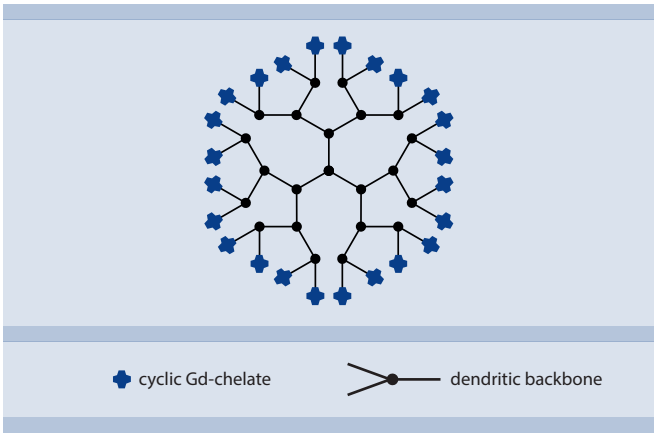

Figure 1: Schematic diagram of GadoSpin D.

1.4 Requirements

- Sterile syringes and needles (27–30 G)

  Note: To allow sufficient volume for 5 × 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.

140-002-877.03

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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 D (typically 100 µL) via the lateral tail vein of the mouse.

  Note: GadoSpin D 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 D 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.
- Imaging can be performed immediately and over an extended time period after injection.

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

3. References

1. Su, M. Y. *et al.* (2002) Measurement of volumetric and vascular changes with dynamic contrast enhanced MRI for cancer therapy monitoring. Technol. Cancer Res. Treat. 1: 479–488.
2. Verhoye, M. *et al.* (2002) Assessment of the neovascular permeability in glioma xenografts by dynamic T(1) MRI with Gadomer-17. Magn. Reson. Med 47: 305–313.
3. Fink, C. *et al.* (2003) High-resolution three-dimensional MR angiography of rodent tumors: morphologic characterization of intratumoral vasculature. J. Magn. Reson. Imaging 18: 59–65.
4. Hamzah, J. *et al.* (2008) Vascular normalisation in RGS5-deficient tumours promotes immune destruction. Nature 453: 410–414.

4. Related products

GadoSpin™ M	# 130-095-134, # 130-095-135
GadoSpin™ P	# 130-095-136, # 130-095-137
GadoSpin™ F	# 130-095-162, # 130-095-163
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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