

## GadoSpin™ F

### MRI agent for pre-clinical imaging

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

# 130-095-162  
# 130-095-163

#### Contents

1. Description
  - 1.1 Background information
  - 1.2 Applications
  - 1.3 Physico-chemical properties
  - 1.4 Requirements
2. Protocol
  - 2.1 Preparation
  - 2.2 Injection
  - 2.3 Imaging
3. References
4. Related products

#### 1. Description

**Components** 850 µL GadoSpin™ F, MRI agent (perfluorinated Gd-chelate)  
or  
5 x 850 µL GadoSpin™ F, MRI agent (perfluorinated Gd-chelate).

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

**Product format** GadoSpin F 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 F is an amphiphilic gadolinium-based imaging agent with high protein-binding affinity specifically formulated for pre-clinical magnetic resonance imaging (MRI). It is an imaging agent of high relaxivity increasing the signal intensity in T<sub>1</sub>-weighted MRI due to a shortening of the spin-lattice relaxation time (T<sub>1</sub>). Upon intravenous injection, GadoSpin F rapidly binds to plasma proteins. This protein-binding extends the residence time of the agent in the vascular space and, consequently, prolongs the imaging time window.

Accumulation in atherosclerotic plaques can be observed allowing for direct visualization of plaque burden. GadoSpin F is excreted in feces and urine.

##### 1.2 Applications

GadoSpin F is indicated for use in MRI of small animals, for example mice, to facilitate the visualization of the vasculature. Examples include contrast-enhanced magnetic resonance angiography (MRA) and detection of atherosclerotic plaques.

##### 1.3 Physico-chemical properties

Molecular weight	Relaxivity (37 °C, 1.5 T)	
	in plasma	in water
~1,300 g mol <sup>-1</sup>	r <sub>1</sub> = 18 L mmol <sup>-1</sup> s <sup>-1</sup> r <sub>2</sub> = 31 L mmol <sup>-1</sup> s <sup>-1</sup>	r <sub>1</sub> = 15 L mmol <sup>-1</sup> s <sup>-1</sup> r <sub>2</sub> = 20 L mmol <sup>-1</sup> s <sup>-1</sup>

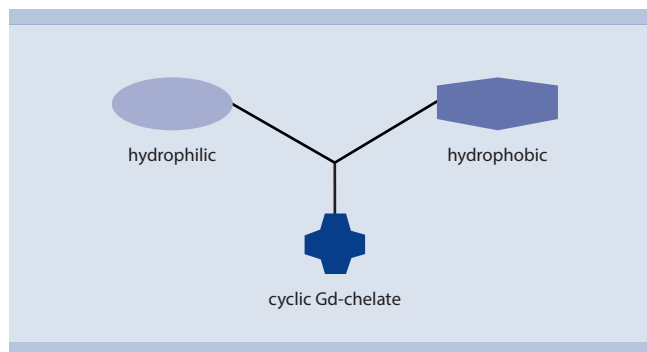


Figure 1: Schematic diagram of GadoSpin F.

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

**Note:** GadoSpin F 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 F is particularly suited for T<sub>1</sub>-weighted MRI but can also be detected by T<sub>2</sub>- and T<sub>2</sub>\*-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 F-enhanced MR images at [www.viscover.berlin](http://www.viscover.berlin).

## 3. References

- Jung, C. *et al.* (2014) GadoSpin F-enhanced magnetic resonance imaging for diagnosis and monitoring of atherosclerosis: validation with transmission electron microscopy and x-ray fluorescence imaging in the apolipoprotein e-deficient mouse. *Mol Imaging*. doi: 10.2310/7290.2014.00039.
- Christiansen, S. I. (2015) Quantitative Diagnostik und Monitoring sowie qualitative Charakterisierung atherosklerotischer Plaques in ApoE-KO-Mäusen in der MRT mittels GadoSpin F im Vergleich zu µCT und en face-Präparation. PhD thesis.
- Zheng, J. *et al.* (2008) Targeted contrast agent helps to monitor advanced plaque during progression: a magnetic resonance imaging study in rabbits. *Invest. Radiol.* 43: 49–55.
- Raatschen, H. J. *et al.* (2006) MRI tumor characterization using Gd-GlyMe-DOTA-perfluorooctyl-mannose-conjugate (Gadofluorine M), a protein-avid contrast agent. *Contrast Media Mol. Imaging* 1: 113–120.

## 4. Related products

GadoSpin™ M	# 130-095-134, # 130-095-135
GadoSpin™ P	# 130-095-136, # 130-095-137
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](http://www.viscover.berlin).

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