viscover

ExiTron™ nano 12000

CT contrast agent for pre-clinical imaging

1 vial (5 x 100 µL injections)	# 130-095-698
5 vials (25 x 100 µL injections)	# 130-095-700

Contents

1. Description

Components **850 µL ExiTron™ nano 12000,**
CT contrast agent
or
5 × 850 µL ExiTron™ nano 12000,
CT contrast agent.

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

Product format ExiTron nano 12000 consists of a radiopaque particulate agent supplied as a sterile suspension.

Appearance White liquid.

Storage Store 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

ExiTron nano 12000 is an alkaline earth metal-based nanoparticulate contrast agent specifically formulated for pre-clinical computed tomography (CT).
It shows strong X-ray absorption due to the high metal load of the particles.
Upon intravenous injection, ExiTron nano 12000 circulates in the blood stream for a prolonged time. It accumulates in the liver and spleen due to uptake by Kupffer cells (macrophages of the liver).

1.2 Applications

ExiTron nano 12000 is indicated for use in CT of small animals, for example mice, to facilitate the visualization of the vasculature. Examples include contrast-enhanced angiography.

1.3 Physico-chemical properties

Mean hydrodynamic diameter: 110 nm.

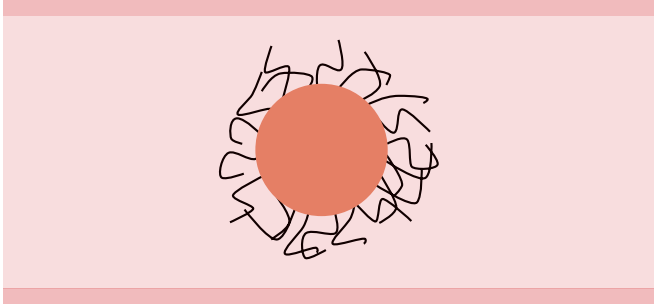

Figure 1: Schematic diagram of an ExiTron nano 12000 nanoparticle.

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 contrast 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 equivalent to 1200 mg iodine/kg body weight (for a 25 g mouse).
  Note: Standard animal-handling procedures and local regulations must be followed.

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2.2 Injection

- Vortex the vial to ensure thorough mixing.
- Disinfect the septum with 70% ethanol. Let septum dry.
- Warm the mouse tail to dilate the veins and enhance their visibility.
- Inject ExiTron nano 12000 (typically 100 µL) slowly via the lateral tail vein of the mouse.

  Note: ExiTron nano 12000 contains no preservatives. Avoid microbial contamination and discard any unused material after 24 hours.

2.3 Imaging

- Follow the imaging protocol as recommended by the manufacturer of your imaging system.
- Taking a pre-contrast image is recommended.
- Imaging can be performed immediately and over an extended time period after injection.

Find examples of ExiTron nano 12000-enhanced CT images at **www.viscover.berlin**.

3. References

1. Boll, H. *et al.* (2011) Micro-CT based experimental liver imaging using a nanoparticulate contrast agent longitudinal study in mice. PLoS ONE 6: e25692.
2. Lalwani, K. *et al.* (2013) Contrast Agents for Quantitative MicroCT of Lung Tumors in Mice. Comp Med. 63(6): 482-90.
3. Flechsig, P. *et al.* (2015) A Comparison of microCT and microPET for Evaluating Lymph Node Metastasis in a Rat Model. Mol Imaging Biol. 18(2): 243-248.
4. Das, N. M. *et al.* (2016) *In Vivo* Quantitative Microcomputed Tomographic Analysis of Vasculature and Organs in a Normal and Diseased Mouse Model. PLoS One 11(2): e0150085.

4. Related products

ExiTron™ U	# 130-095-142, # 130-095-143
ExiTron™ V	# 130-095-283, # 130-095-284
ExiTron™ P	# 130-095-144, # 130-095-145
ExiTron™ nano 6000	# 130-095-146, # 130-095-147
ExiTron™ MyoC 8000	# 130-095-701, # 130-095-702

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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