

ExiTron™ ultra 18000

CT contrast agent for pre-clinical imaging

1 vial (5 x 100 µL injections) # 130-095-709
5 vials (25 x 100 µL injections) # 130-095-710

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1. Description

Components 850 µL ExiTron™ ultra 18000, CT contrast agent
or
5 x 850 µL ExiTron™ ultra 18000, CT contrast agent.

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

Product format ExiTron ultra 18000 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 ultra 18000 is a nanoparticulate contrast agent based on a post-transition metal specifically formulated for pre-clinical computed tomography (CT).

It shows exceptional X-ray absorption due to the nature as well as high load of the metal in the particles.

Upon intravenous injection, ExiTron ultra 18000 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 ultra 18000 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: 300 nm.

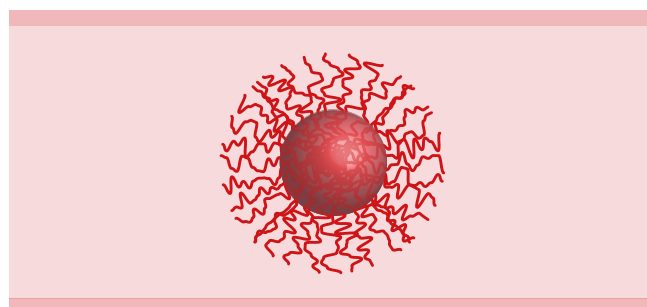


Figure 1: Schematic diagram of an ExiTron ultra 18000 nanoparticle.

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 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 1800 mg iodine/kg body weight (for a 25 g mouse).
Note: Standard animal-handling procedures and local regulations must be followed.

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 ultra 18000 (typically 100 µL) slowly via the lateral tail vein of the mouse.

Note: ExiTron ultra 18000 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. For optimal contrast enhancement use the lowest excitation voltage possible on your imaging device.
- 🌀 Taking a pre-contrast image is recommended.
- 🌀 Imaging can be performed immediately and over an extended time period after injection.

Find examples of ExiTron ultra 18000-enhanced CT images at www.viscover.berlin.

3. References

- Amato, C. *et al.* (2023) Dual-contrast photon-counting micro-CT using iodine and a novel bismuth-based contrast agent. *Phys. Med. Biol.*, 68 135001.
- Amato, C. (2022) Novel Contrast Agents in Photon-Counting Computed Tomography. PhD Thesis.

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
ExiTron™ nano 12000	# 130-095-698, # 130-095-700
ExiTron™ BAT	# 130-095-707, # 130-095-708

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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