

1 vial (5×100 µL injections)	130-095-695
5 vials (25×100 µL injections)	130-095-693

### 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

<b>Components</b>	44 mg NiraWave™ nano 780, optical contrast agent or 5×44 mg NiraWave™ nano 780, optical contrast agent.
<b>Capacity</b>	5×100 µL injections or 25×100 µL injections.
<b>Product format</b>	NiraWave nano 780 is supplied as a lyophilized preparation. Reconstitution provides an isotonic solution containing 1.5 mg nanoparticles per mL.
<b>Appearance</b>	Pale brown lyophilizate. Reconstituted: clear, golden brown liquid.
<b>Storage</b>	Store protected from light at 2–8 °C. 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

NiraWave nano 780 is a nanoparticulate near-infrared (NIR) fluorescence contrast agent specifically formulated for pre-clinical optical imaging (OI).

It shows strong emission (fluorescence) in the NIR spectral range allowing for an increased tissue penetration. NiraWave nano 780 provides a broad range for excitation within the UV/VIS spectrum.

Upon intravenous injection, NiraWave nano 780 exhibits a prolonged blood circulation time. It is taken up by the reticuloendothelial system (RES) and accumulates in liver and spleen.

### 1.2 Applications

NiraWave nano 780 is indicated for use in OI of animals, for example mice, to facilitate the visualization of the vasculature. Examples include fluorescence angiography.

### 1.3 Physico-chemical properties

Emission wavelength	Excitation wavelength
780 nm	below 740 nm

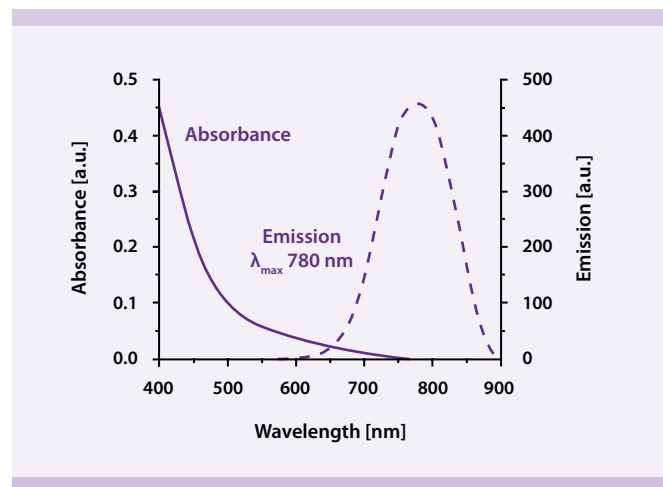


Figure 1: Absorption and emission spectra of NiraWave nano 780.

### 1.4 Requirements

- Sterile syringes and needles (27G–30G)
  - ▲ **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.
- Water for injection (WFI)
- 70% ethanol

### 2. Protocol

#### 2.1 Preparation

- ▲ Read the entire protocol before starting.
- ▲ Standard animal-handling procedures and local regulations must be followed.
- ▲ To reconstitute the lyophilizate, inject 850 µL of sterile water for injection (WFI) into the vial. Do not use saline solution! Gently agitate the vial until a clear, golden brown solution is obtained.
- ▲ For a mouse weighing 20–30 g the typical injection volume is 100 µL corresponding to a dose of 6 mg nanoparticles/kg body weight (for a 25 g mouse).

## 2.2 Injection

▲ NiraWave nano 780 contains no preservatives. Avoid microbial contamination and discard any unused material after 24 hours.

1. Vortex the vial to ensure thorough mixing.
2. Disinfect the septum with 70% ethanol. Let septum dry.
3. Warm the mouse tail to dilate the veins and enhance their visibility.
4. Inject NiraWave nano 780 (typically 100 µL) via the lateral tail vein of the mouse.

▲ **Note:** NiraWave nano 780 must be reconstituted prior to injection as described in section 2.1.

## 2.3 Imaging

▲ Follow the imaging protocol as recommended by the manufacturer of your imaging system.

▲ To maximally excite NiraWave nano 780, the excitation wavelength must be at least 40 nm below the emission maximum.

▲ The recommended excitation and emission wavelengths of NiraWave nano 780 are noted in section 1.3.

▲ Imaging can be performed immediately and over an extended time period after injection.

Find examples of NiraWave nano 780-enhanced optical images at [www.miltenyibiotec.com/viscover](http://www.miltenyibiotec.com/viscover).

## 3. References

1. Ballou, B. *et al.* (2004) Noninvasive imaging of quantum dots in mice. *Bioconjugate Chem.* 15: 79–86.
2. Gao, X. *et al.* (2004) *In vivo* cancer targeting and imaging with semiconductor quantum dots. *Nat. Biotechnol.* 22(8): 969–976.
3. So, M.K. *et al.* (2006) Self-illuminating quantum dot conjugates for *in vivo* imaging. *Nat. Biotechnol.* 24(3): 339–343.

## 4. Related products

NiraWave™ C # 130-095-154, # 130-095-155  
NiraWave™ M # 130-095-156, # 130-095-157

A comprehensive product portfolio for the imaging modalities MRI, CT, US, OI, SPECT, and PET is available at [www.miltenyibiotec.com/viscover](http://www.miltenyibiotec.com/viscover).

### Warranty

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