



PRODUCT DATA SHEET AND USER GUIDE

Fenestra™ HDVC Contrast Agent for MicroCT Imaging

Product is for research use only. It is not for medical use. It is not used to treat or mitigate and is not for human use.

Description

Fenestra HDVC is an iodinated nanoemulsion formulated for microCT imaging of vasculature, liver and spleen.

Fenestra HDVC circulates in blood for 24 hours so as to allow for vascular imaging. After 4 hours in blood, it begins to selectively target hepatocytes. After 24 hours, it enables anatomical liver imaging, **staging and monitoring fatty liver disease, and quantifying liver tumor burdens.**

Fenestra HDVC remains in the liver for many months after a single injection and enables longitudinal studies of liver diseases.

Features & Benefits

- The peak contrast level in blood vessels occurs immediately after injection.
- Highly concentrated with 100 milligrams (mg) per ml of X-ray attenuating agent
- Designed to address a broad spectrum of micro-CT applications alone or in conjunction with PET, SPECT, bioluminescence, and optical imaging.

Handling and Storage

Fenestra HDVC is provided in a multi-use glass container at a total volume of 2 mL. Do not freeze the product. Store the product in the fridge (eg. 4° C or 40°F) protected from light.

Check the expiration date prior to administration. Do NOT use expired Fenestra HDVC.

Expose and treat the rubber of the vial stopper using 70% alcohol. Perform a gentle inversion of the vial before entering the vial with a needle.

Some researchers have found that an optimal way of

drawing product into syringe is to first use an 18, 20 or 25 gauge needle and then replace with 27 or 30 gauge needle for the injection

For drawing the emulsion into syringe, invert the vial and insert needle into rubber stopper at a 45–60° angle with the opening of the needle tip facing up (i.e., away from the stopper), sometimes referred to as “bevel up”. A small amount of pressure is applied, and the angle is gradually increased as the needle enters the vial. The needle should be at a 90° angle just as the needle bevel passes through the stopper. Draw the solution into the needle by advancing the plunger. The plunger can be advanced back and forth if the material is not successfully drawn to desired volume with first aspiration. Careful attention should be taken for air bubbles. If air bubbles are drawn, you can ‘flicker’ the syringe until the air bubbles reach the dead air space between plunger and the contrasting solution.

It is recommended to always draw a little more solution into the syringe than what is injected. The justification for this is that dead space air should never be pushed into the blood stream.

Write the date of the first entry and store at 4°C (40°F). Strict aseptic technique must always be maintained during handling of the agent since it can support the growth of microorganisms if contaminated. Do not use and discard properly if contamination is suspected. Discard vials 30 days after the first entry to make sure there is no contamination.

Dosage

Following intra-vascular injection, Fenestra HDVC is rapidly diluted in the vascular compartment (plasma) and the degree of contrast enhancement is directly proportional to the amount of iodine in the administered dose. The recommended dosage for Fenestra HDVC is between 10 to 20 ml per kg depending on the amount of contrast enhancement that is required for your application.

Tail Vein Injection

We strongly recommended using our Mvein™ restrainer for tail vein injections. Some of users have found this economical accessory has helped them dramatically increase success rates of your tail vein injections.

You can follow the step-by-step guide for the tail vein injections with Mvein on this web page:

<https://www.medilumine.com/mouse-tail-vein-injections-with-mvein-restrainer/>

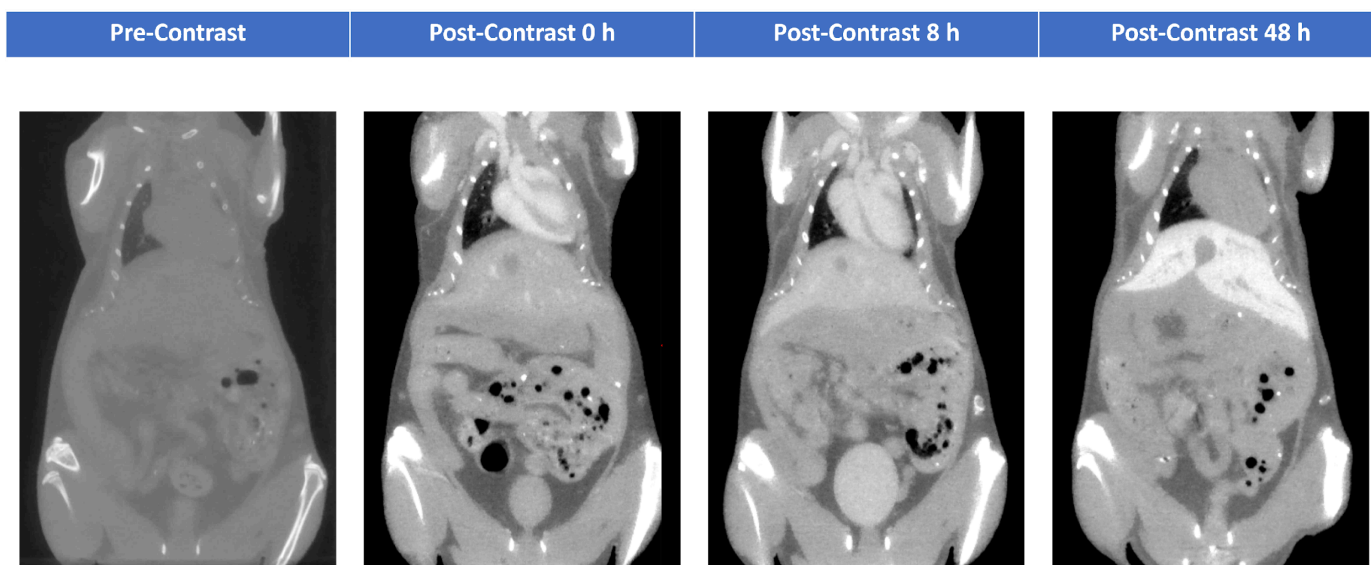
It is recommended to take at least 30 seconds (10 microliters per second) to perform injection following successful insertion of needle in tail vein.

A white streak will be visible in tail vein confirming the successful administration. When the administration is

finished, the injection site must be pressed firmly with a swab to prevent backflow of contrast material and/or blood.

Publications

Ming Tan, Nancy L. Ford, "Time course experiment using Fenestra HDVC and Fenestra HDVC contrast agents in small rodents for in vivo imaging," Proc. SPIE 12036, Medical Imaging 2022: Biomedical Applications in Molecular, Structural, and Functional Imaging, 1203623 (4 April 2022); <https://doi.org/10.1117/12.2611237>



Fenestra HDVC can also be injected via the IP route of administration. The image below shows contrast 24 hours after IP was acquired on the MILabs U-SPECT/CT^{UHR} (ultra high-resolution) system.

