



Authorized Distributor of Phantech LLC

Bio-Mouse™ Phantom *Technical Specifications*



**Helping
Scientist
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with High Quality In Vivo
Imaging and Preclinical
Research Tools

MediLumine Inc.

5795 Av. De Gaspé, Suite #228

Montreal, Quebec, Canada

H2S 2X3

info@medilumine.com

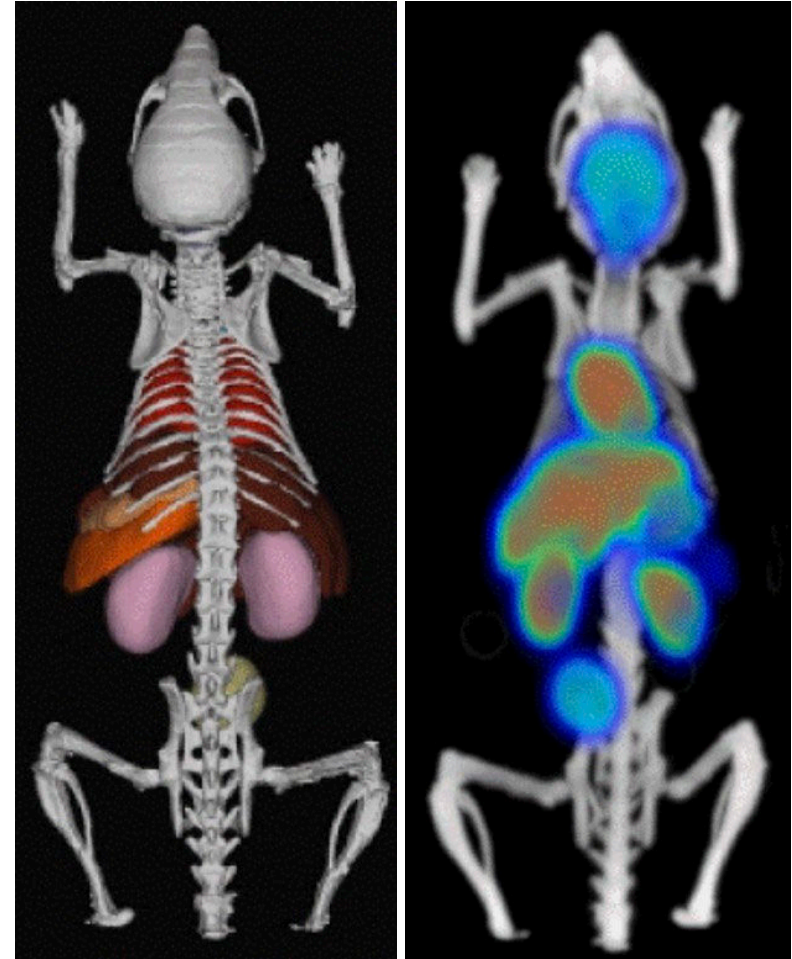
Product: Bio-Mouse™ Phantom

Overview

Phantech has developed the Bio-Mouse™; the first fillable biomimetic mouse phantom with Computed Tomography (CT) Hounsfield Unit (HU) density-equivalent bone and soft tissue. This phantom is highly versatile and can be customized to include/exclude the following organ/tissue voids: tumor(s), brain, heart, lung, liver, spleen, stomach, kidneys, bladder, and a background region. Phantech offers a standard 25g mouse, but custom sizes can be accommodated upon request. Voids are fillable with imaging agents for PET, SPECT, CT, X-ray, optical, MRI and MPI modalities. This phantom is commonly used for theranostics, biodistribution modeling, reconstruction optimization and testing, system performance (especially for 3-4 mouse bed configurations), training, and multi-modality applications.

Bio-Mouse™ Key Features:

- Modeled after *in vivo* mouse CT dataset
- Standard 25g mouse
 - Custom sizing available
- Proprietary materials that are Computed Tomography (CT) density matched
 - Bone and soft tissue
- Compatible for most imaging modalities, including MRI
- Automatic segmentation and analysis with Imalytics (Gremse-IT) Preclinical Software
- Standard fillable organs/tissues: Brain, heart, lung, liver, spleen, stomach, kidneys, bladder, background region
 - Tumor voids can be added as a custom build
- All fillable voids use an O-ring and screw to seal and prevent leaking



Organ Void and Volume List – 25g Mouse
(Custom combinations available upon request)

<i>Organ</i>	<i>Volume (uL)</i>
Background	2521.8
Bladder	197.8
Brain	405.8
Heart	155.7
Kidneys (L/R)	244.5 (121.6/122.9)
Liver	1003.7
Lungs (L/R)	142.0 (46.1/95.9)
Spleen	62.6
Stomach	115.3

Note: Tumor voids can be added as a custom option (e.g. 200, 300, 400, 500, 600, or 700 uL spherical lesion). Phantech can also work with provided image data to add volumes of interest.



Filling Instructions

Filling Instructions

- Inspect all O-rings and screws before use
- Filling is recommended using a correctly sized syringe (see table on page 2 of this packet) and a flexible oral gavage needle
- Add food coloring for better visualization of successful filling
- For filling with radiometals, creating slightly acidic pH will prevent sticking to the phantom
- To lower water surface tension and prevent bubbles, a small amount (<1% v/v) of a surfactant can be used

Filling steps:

1. Remove the screw(s) and O-ring(s) to the void.
 2. Insert the oral gavage needle to the deepest point in the void.
 3. Slowly push the plunger to fill the void, and back out the needle as the void is filling, keeping the needle bevel below the solution level. Fill the void to the bottom of the screw hole to prevent overfilling when the screw is inserted.
 4. Replace the screw(s) and O-ring(s). Turn the screw 1/8 turn after initial resistance is felt. Do not overtighten the screws. The O-ring should be slightly compressed, but should not lose normal shape.
 5. Proceed to the next void.
 6. Wrap phantom in Parafilm and then scan
- Emptying: Insert the syringe with the oral gavage needle and gently draw the solution out of each void. With the screws and O-rings removed, quick shaking can be applied to remove the solution.
 - Cleaning: flush the phantom with saline followed by several passes of air. Leave caps off and allow phantom to completely dry.
WARNING: Do NOT use organic solvents such as acetone, EtOH, isopropyl alcohol, denatured alcohol or other harsh chemicals to fill or clean Phantech phantoms; these chemicals may compromise their integrity. Use saline for filling and cleaning. Neutral pH of filling solution is recommended but slightly acidic solutions are tolerated for short-time use with radiometals, for example. Empty the phantoms as soon as possible after use and then store them in a protective case in a dry location. Do NOT autoclave. If applicable, inspect O-rings before each use. Replace O-ring