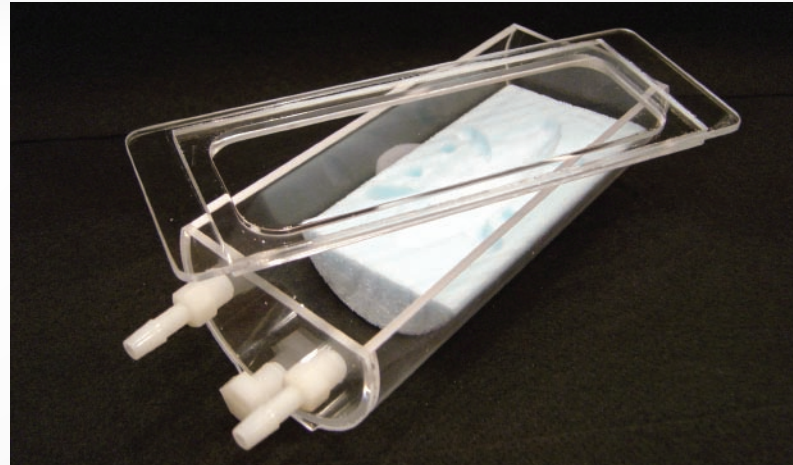
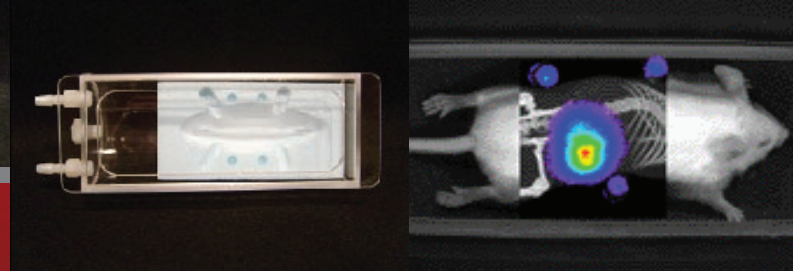
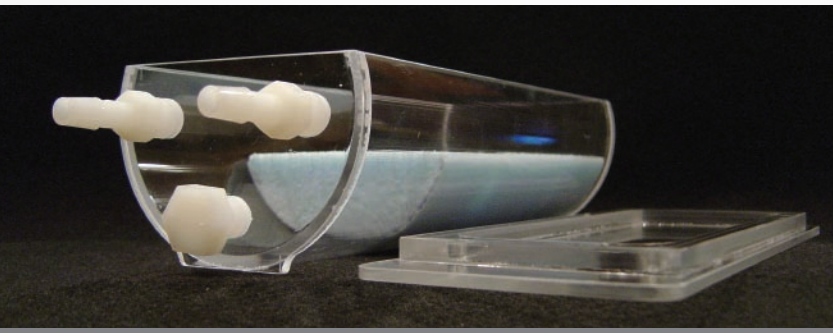


Multi-Modality Imaging Chamber™

Numira's Multi-Modality Imaging Chamber for small animal imaging facilitates the co-registration of anatomical and functional images via multi-modal fiducial markers. The Chamber design also dramatically lowers infection risk for test subjects and animal colonies.



The Chamber is constructed of two parts, a cylindrical part (hereafter called the "base") and a flat cover (hereafter called the "lid") on top and can be used with microCT, microMRI, microPET, microSPECT and Optical imaging for live animal imaging.



The customized foam bed has depressions to not only accommodate the animal with maximum ease and comfort, but also allow maximum chest motion over abdominal motion. It also helps with repetitive rigid staging of the animal for consecutive imaging sessions. Foam itself is "sky blue" to minimize auto-fluorescence for optical imaging.

The customized fiducial markers allow the co-registration process between modalities. Using glass capillary tubes as markers for MRI and microCT and filling the tubes with luminous solution (acrylic) and diluted FDG for optical and PET imaging respectively.

Key features of our design include:

- Cylindrical Base and composite construction offer maximum field of view (FOV) for circular gantries of MicroCT, MicroMRI, MicroPET, and MicroSPECT instruments
- Flat Acrylite® FF lid provides 90% optical signal transmission
- Two Multi-Size Hose Barbs accommodate variable size tube fittings enabling imaging under respiratory anesthesia and facilitating real time, longitudinal studies
- Extra Port for pass-through of intubation tubing or EKG/respiratory leads
- Inline Micro Filter for inhaled and exhaled gases, allowing animals to be scanned irrespective of health/infection status
- Compatible with MicroCT, MicroMRI, MicroPET, MicroSPECT and Optical Imaging instruments allowing co-registration of imaging data



Vacu-Guard® filters, encapsulated in a polypropylene (PP) housing and fully hydrophobic PTFE membrane with a pore size of 0.1um prevents escape of microorganisms. Retention rate is 99.97%, withstanding a maximum pressure of up to 20psi.

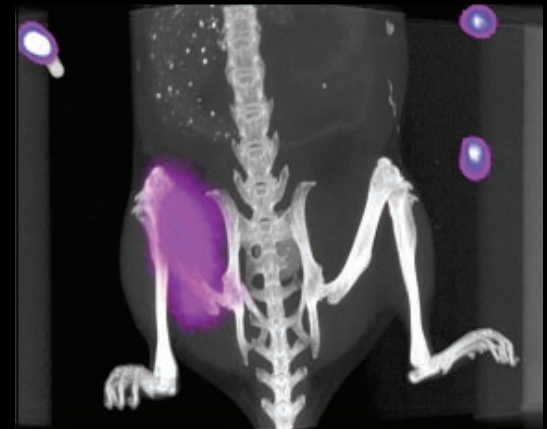
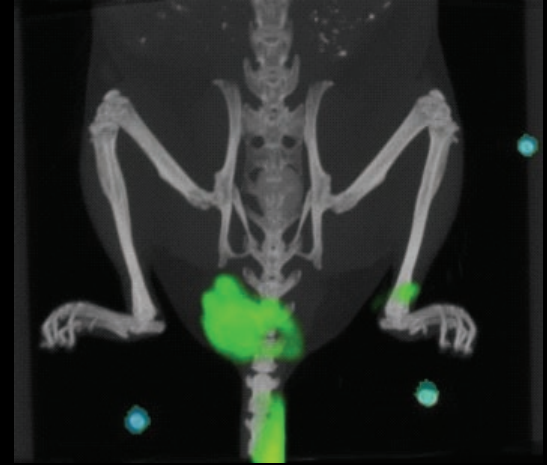
Imaging Chamber for Co-registration

Fiducial markers built into the Chamber facilitate fusing (co-registering) multi-modal imaging data. The markers are compatible across a range of imaging modalities, including PET, SPECT, CT, MRI, and optical.

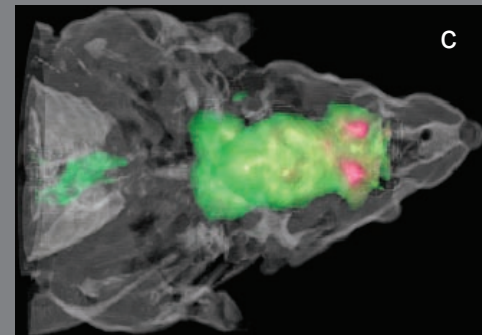
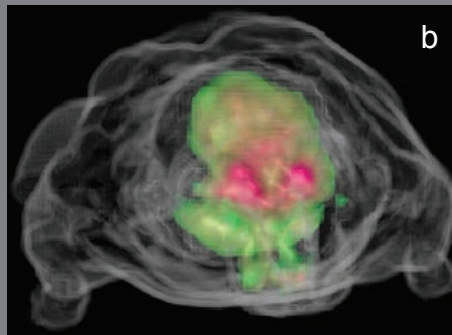
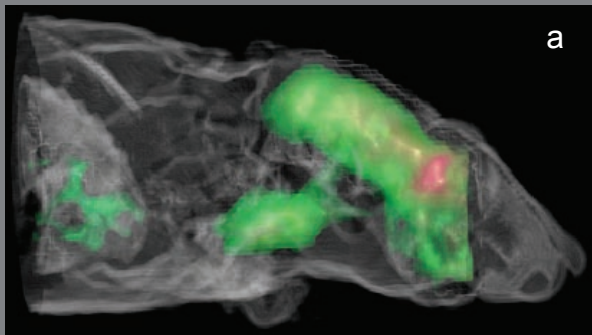
Package Contents

Key features of our design include:

- One Chamber with optically transparent lid
- Two 3/8" hose barbs
- One rubber stopper
- Four Vacu-Guard® In Line Micro filters
- Two latex tubes (1/4" diameter, 15" length)
- Ten supine (belly up) -or- prone (belly down) foam molds
- Fiducial capillary tubes
- User Manual



CT (93um resolution) and Optical (0.6mm resolution) co-registration shows planar data of luciferase expression from the right thigh, which has been mapped as a projection to the 3D CT dataset.



MRI (0.4mm resolution) and PET (0.8mm resolution) co-registration reveals glucose metabolism as measured by ¹⁸F-Fluorodeoxyglucose (FDG) in the central nervous system and upper torso of a normal mouse (a) Sagittal view (b) Axial view (c) Coronal view.

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