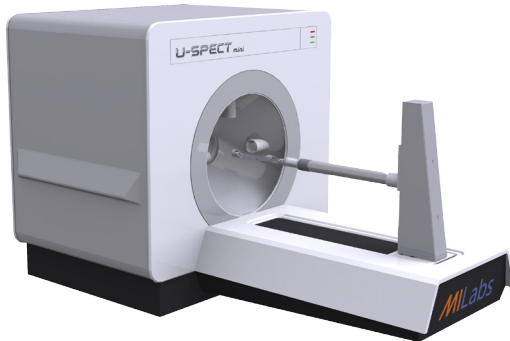


# U-SPECT<sub>mini</sub> and VECTor<sub>mini</sub>

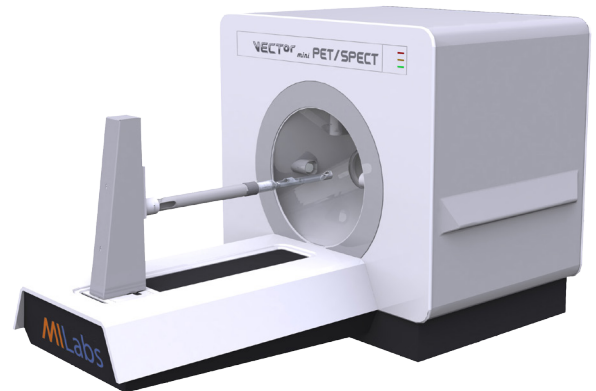
## High-Performance benchtop SPECT/PET

The **mini** family enables high-performance imaging at compact dimensions and has the same benefits preferred by world-wide users of MILabs' high-performance U-SPECT<sup>+</sup> and VECTor<sup>+</sup> systems: high resolution, list-mode acquisition,

fast dynamic modes, high precision reconstruction algorithms, multi-modality connectivity, upgradeability and user friendliness. The **mini** family brings both ultra-high performance SPECT and PET technologies within everyone's reach.



**U-SPECT<sub>mini</sub>**  
 $<1/3$  mm resolution  
 Ultra-fast & sensitive ( $>8000$  cps/MBq)



**VECTor<sub>mini</sub>**  
 Full U-SPECT<sub>mini</sub> capability  
 with unique sub-mm SPECT/PET addition

Benchtop SPECT with high resolution and sensitivity

Patented 3D focusing capability for dynamic nuclear microscopy in organs and tumors

Ultra-fast imaging with multi-physiologic gating reveals dynamic processes with high time resolution, ideal for pharmacokinetic imaging

Patented M5™ collimation satisfies wide range of resolution, sensitivity and FOV needs

High reliability and long life due to stationary detector design

Highly quantitative single and multi-tracer SPECT

Economical and lab-space efficient SPECT & PET

$<1/3$  mm resolution SPECT and simultaneous SPECT/PET capability of  $1/2$  mm and  $3/4$  mm respectively

PET tracers can be imaged simultaneously with several SPECT tracers at superb accuracy and minimal cross-talk

Proprietary single step SPECT/PET with intrinsic spatial and temporal SPECT/PET registration

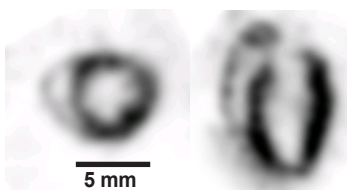
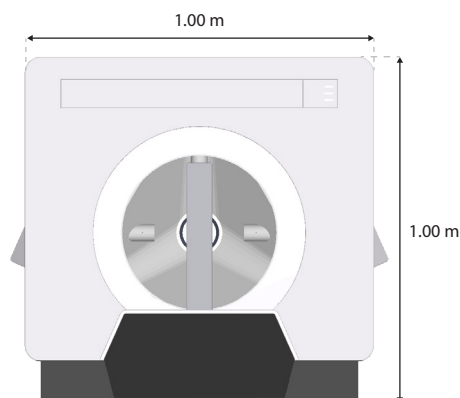
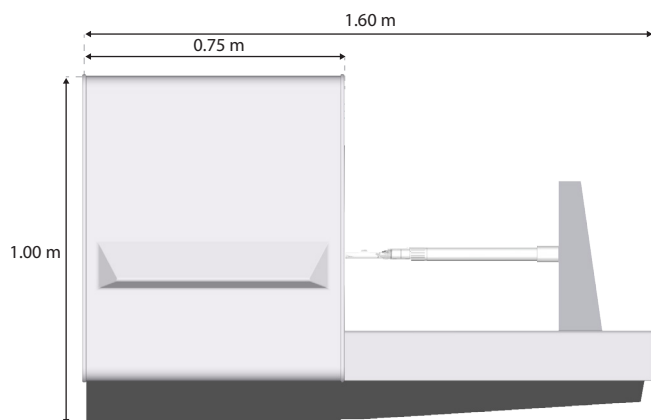
Excellent resolution for single photon emitters with high gamma energies such as  $^{131}\text{I}$ ,  $^{67}\text{Ga}$  and  $^{213}\text{Bi}$

VECTor<sub>mini</sub> is extremely user-friendly

High performance preclinical SPECT

Simultaneous SPECT/PET breakthrough technology with excellent resolution

High detail, sensitivity and speed



Cardiac <sup>99m</sup>Tc Tetrofosmin mouse imaging



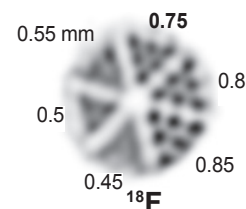
Detailed uptake of <sup>99m</sup>Tc HDP in a mouse

## M5 Multi-Pinhole Collimator for U-SPECT<sub>mini</sub> and VECTor<sub>mini</sub>

SPECT Collimator	Purpose	Pinhole size (mm)	Reconstructed resolution (mm)	Sensitivity (cps/MBq)
Ultra High Resolution Mouse (UHR-M)	Ultra high resolution total body and focused mouse imaging	0.35	<0.35	>350
General Purpose Mouse (GP-M)	General purpose total body and focused mouse imaging	0.6	<0.45	>1000
Ultra High Sensitivity Mouse (UHS-M)	Low dose total body and focused mouse imaging	1.0	<0.65	>2300
Extra Ultra High Sensitivity Mouse (XUHS-M)	Ultra low dose total body and focused mouse imaging	2.0	<1.1	>8000
Ultra High Resolution Rat and Mouse (UHR-RM)	Ultra high resolution total body and focused rat and mouse imaging	1.0	<0.9	>450
General Purpose Rat and Mouse (GP-RM)	General purpose collimator for total body and focused rat and mouse imaging	1.5	<1.2	>1000

## 1/3 mm resolution SPECT and simultaneous SPECT/PET

The world's only true simultaneous SPECT/PET preclinical imaging device that utilizes both M5 multi-pinhole SPECT, as well as MILabs proprietary clustered multi-pinhole collimators for ultra-high resolution PET and simultaneous SPECT/PET acquisition at the sub-mm resolution level. No other small animal imaging device can provide this unique technology combination, dramatically expanding your imaging capabilities at affordable pricing.



VECTor<sub>mini</sub> enables quantitative sub-mm simultaneous pinhole imaging of single-photon emitters (SPECT) and positron emitters (PET). This is realized with MILabs' patented collimation technology combined with broadband detectors and advanced image reconstruction. VECTor<sub>mini</sub> is available as an upgrade for any MILabs system. With VECTor<sub>mini</sub>, resolution of organ and tumor imaging with PET tracers outperforms traditional coincidence PET and is very cost effective. When imaged simultaneously with PET, SPECT resolution remains superior at 1/2 mm. By simply replacing the collimator, the VECTor<sub>mini</sub> is turned into an uncompromised U-SPECT<sub>mini</sub> with 1/3 mm resolution.

## PET and SPECT images acquired with VECTor<sub>mini</sub>



Simultaneously acquired SPECT (left: <sup>99m</sup>Tc-HDP) and PET (right: <sup>18</sup>F-NaF)



Whole-body <sup>18</sup>F-NaF mouse bone scan

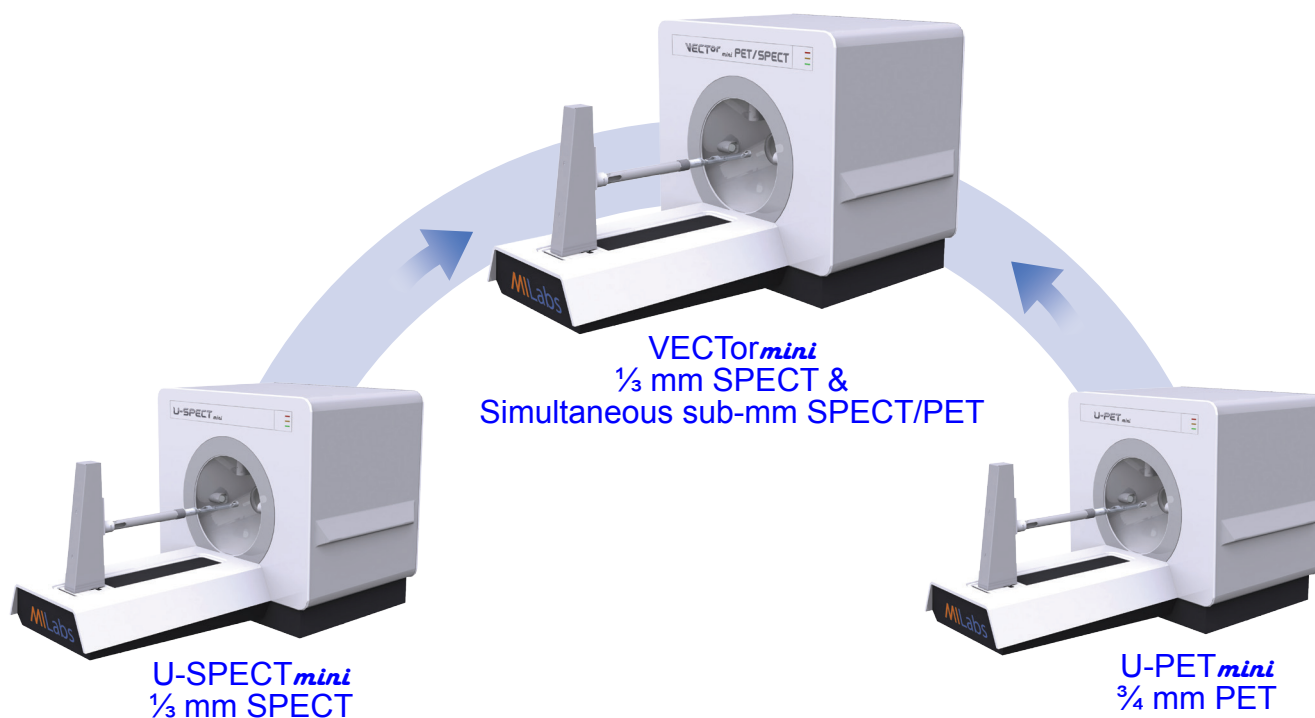


<sup>18</sup>F-FDG mouse brain scan

## VECTor<sub>mini</sub> offers many unique advantages over coincidence PET

System capabilities	VECTor <sub>mini</sub> SPECT/PET	Coincidence PET
1/3 mm SPECT	Yes	No
Quantitative multi-isotope SPECT	Yes	No
Ultra-fast dynamic SPECT	Yes	No
Simultaneous SPECT/PET	Yes	No
Sub-mm PET	Yes	No
Quantitative PET	Yes	Yes
High energy SPECT	Yes	No
Adaptive resolution and sensitivity	Yes	No

# Field-Upgradeable Imaging Solutions



Starting with U-SPECT<sup>mini</sup> or U-PET<sup>mini</sup>, researchers can later upgrade to VECTOr<sup>mini</sup> by adding the PET or SPECT functionality. The choice to start out with the economical U-SPECT<sup>mini</sup> or the U-PET<sup>mini</sup> system enables researchers to be fully in control of the desirable road map to incorporating both SPECT and PET in their research labs.

MILabs is highly flexible in helping you to get started, both via upgrades, exchanges from our **mini** systems to the ultra-high performance U-SPECT<sup>+</sup> or VECTOr<sup>+</sup> platforms and via providing various leasing options.

*All specifications are subject to change without notice. March 2013, MILabs B.V. The Netherlands*

**MILabs**

Heidelberglaan 100, STR 4.205  
Phone: +31 88 756 5343  
[www.milabs.com](http://www.milabs.com)

3584 CX Utrecht The Netherlands  
Fax: +31 88 755 0094