



SOFIEBIOSCIENCES

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G4

FROM START TO CLINIC

SOFIE is creating an ever-expanding playing field for molecular imaging. We develop innovative PET technologies that are fun, flexible, compact, and high performance. We're dedicated to bringing you premium instruments within your budget.

G4 PET / X-RAY

THE WORLD'S FIRST BENCHTOP PET SYSTEM

As small animal PET becomes an essential tool for translational research, SOFIE believes it should be convenient and cost-effective, deliver high performance in a compact, easy-to-use footprint, and keep your valuable animal models safe throughout the duration of the study. Designed to function more like an imaging lab than a standalone scanner, G4 PET/X-ray is an intuitive workflow solution.



G4 PET/X-Ray benchtop imaging systems are available through our exclusive partnership with PerkinElmer. To contact a representative, please visit: [SOFIEBIO.COM](https://www.sofiebio.com)



SCAN ON
X-RAY ON

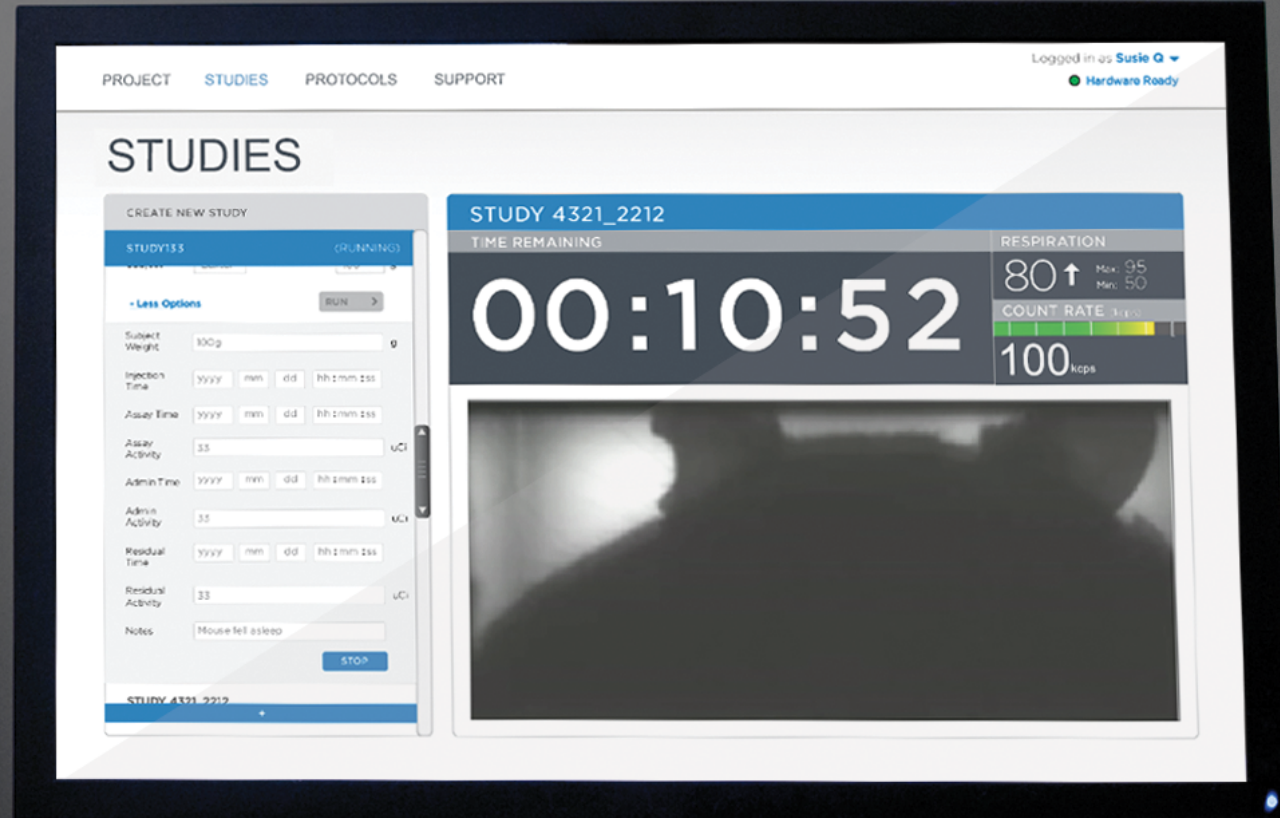
G4 PET/X-RAY



developed by
SOFIEBIOSCIENCES

A NEW GENERATION OF PET

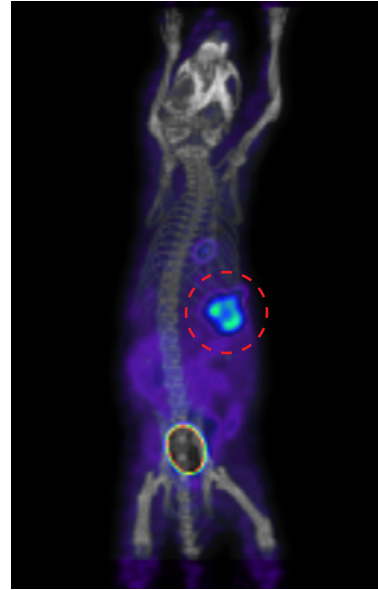
Many barriers have prevented PET from being a widely adopted preclinical imaging modality. SOFIE breaks through with a clever geometry to maximize performance in a small form factor. This architecture results in a highly sensitive PET system with increased uniformity across the entire scan field of view, while still keeping a benchtop footprint and affordable price point.



APPLICATIONS

ONCOLOGY

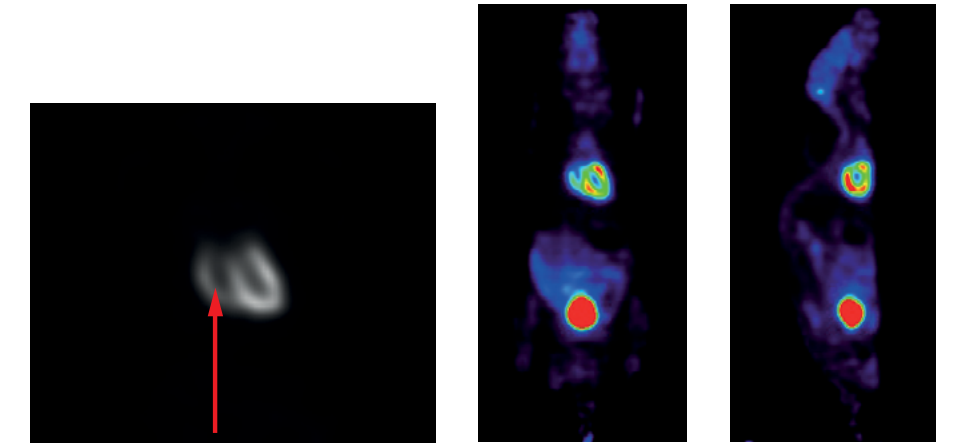
Quantify cell proliferation via DNA synthesis with [¹⁸F]FLT PET. Accumulation of [¹⁸F]FLT in a tumor model is a measure of thymidine uptake and phosphorylation in proliferating cells.



Injected Activity: 20uCi
Acquisition Time: 10min (1hr post injection)
Mouse Strain: SCID
Cell Line: A431 (epidermoid carcinoma)
Probe: [¹⁸F]FLT

CARDIOLOGY

[¹⁸F]FDG PET can unlock the physiology and biology of the heart, enabling researchers to explore the effects of new therapeutics.



Without cardiac monitoring, still able to resolve the elusive right ventricle

Coronal

Sagittal

BIODISTRIBUTION

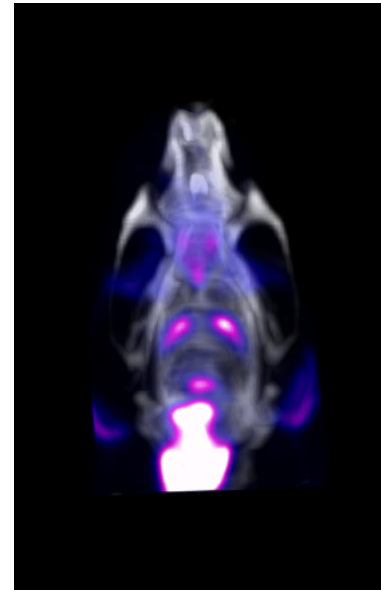
Perform dynamic studies to measure the kinetics of transport and metabolism.

CNS

[¹⁸F]Fallypride allows for non-invasive in vivo imaging of dopamine D2/3 receptors, providing invaluable mechanistic insights into neurodegenerative disease.

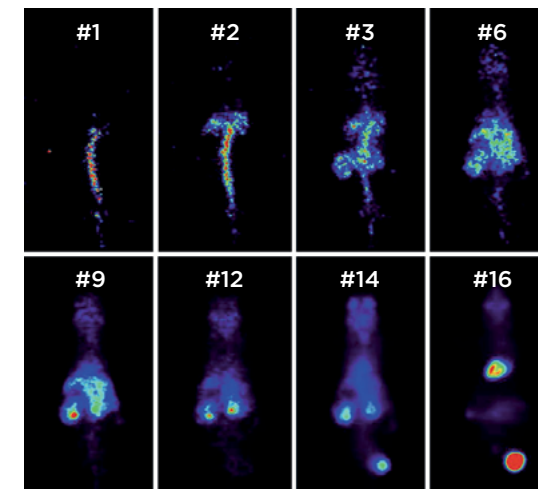


Injected Activity: 20uCi
Acquisition Time: 10min (1hr post injection)
Mouse Strain: Balb/c
Probe: [¹⁸F]Fallypride
CT from standalone system

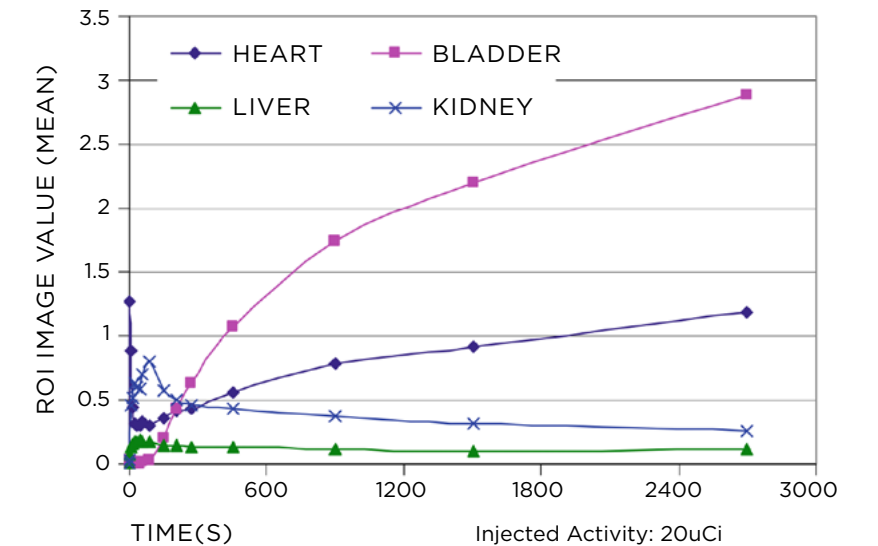


Injected Activity: 50uCi
Acquisition Time: 30min (1hr post injection)
Mouse Strain: Spague Dawley Rat (225 g)
Probe: [¹⁸F]Fallypride
CT from standalone system

DYNAMIC [¹⁸F]FDG STUDY



ACTIVITY CHANGE OVER TIME



Injected Activity: 20uCi
Acquisition Time: 45 min
Probe: [¹⁸F]FDG
Model: WT mouse



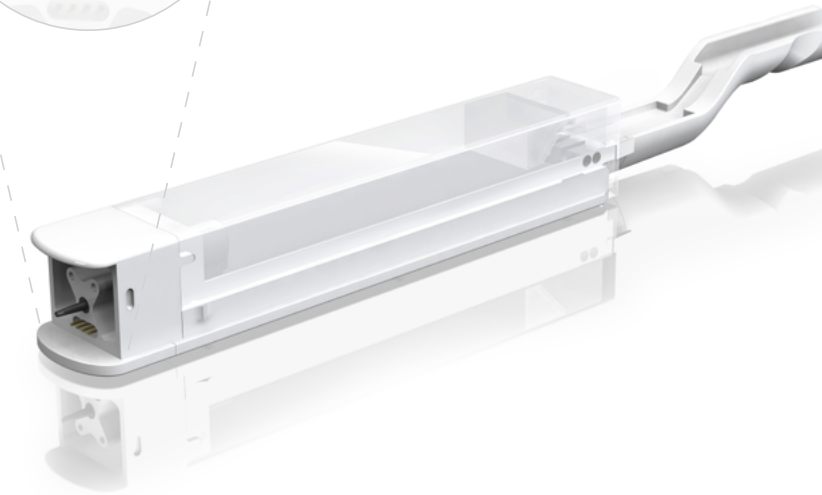
INTUITIVE WORKFLOW

Get more done with less effort. G4 is designed to maximize workflow efficiency while keeping experimental accuracy in mind. Queue up an assembly line of multiple animals in Imaging Chambers and Docking Stations to increase your throughput and decrease your set-up time.

IMAGING CHAMBER + DOCKING STATION

Glide the Imaging Chamber into the Docking Station to automatically deliver heat and anesthesia. These G4 accessories enable efficient animal prep and simplified workflow, increasing your high throughput capabilities.

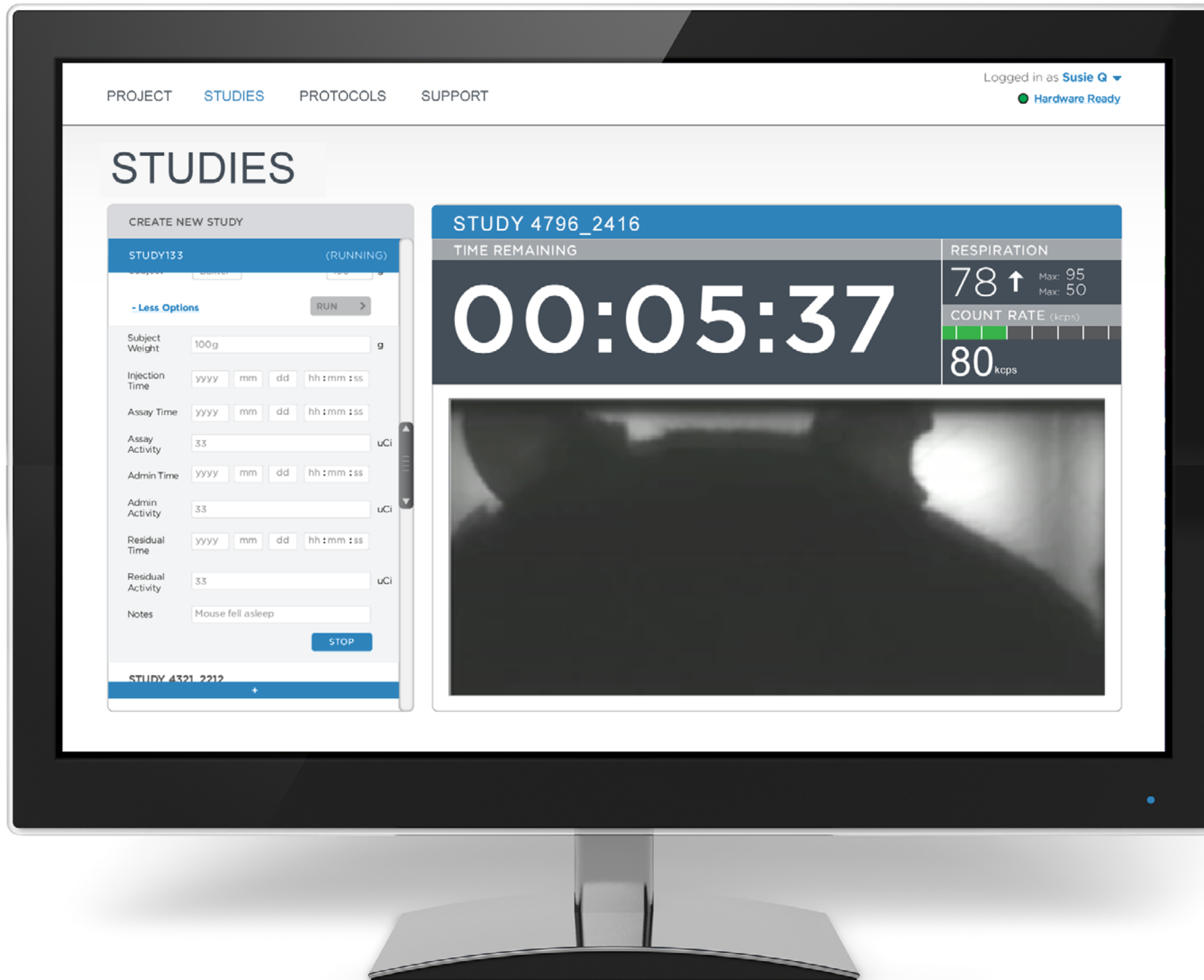
- Rat and mouse compatible
- Nose cone anesthesia and constant heating (37°C)
- Reproducible positioning for imaging
- Pathogen barrier for environmental protection
- Provisions for catheter lines and syringes
- Multi-modality connectivity for MRI, CT, SPECT



ANIMAL HANDLING

PET studies should be about the biological information investigators discover, not just the instrument. A successful experiment depends on successful preparation. To ensure biologically meaningful results, researchers must have the tools to care for their animals.

SOFIE has developed a new approach to small animal prep and management that reduces manual steps and user intervention.



SOFTWARE

EXPERIENCE THE G4 PET/X-RAY ACQUISITION ENGINE

Quickly generate complex protocols with just a few clicks, or use preset protocols provided with the software. Export data in DICOM format for analysis and seamless fusion to downstream platforms. By offering multiple modes of operation, we provide ultimate system flexibility.

- *General* mode relies on preloaded protocols and optimized imaging parameters for a simple, convenient acquisition workflow for users of all experience levels.
- *Physicist* mode emphasizes operational flexibility and gives experienced PET users the ability to modulate key acquisition and reconstruction parameters across all user profiles.
- *Administrator* mode allows easy exporting of usage data by project or users for grant or billing reconciliation.

IMAGE ANALYSIS

All PET data is collected in list mode format and images are stored in DICOM format, allowing for exportation and analysis in a variety of software platforms, including Living Image© and VivoQuant™.

LIVE LINK TO ANIMAL

You spend a lot of time validating and preparing your animal model – why leave its well-being to chance?

The built-in video camera allows you to monitor the physiologic condition of your mice and rats in real time, taking the guess-work out of anesthesia management for an optimal, safe, and stable imaging environment.

RAT AND MOUSE COMPATIBLE

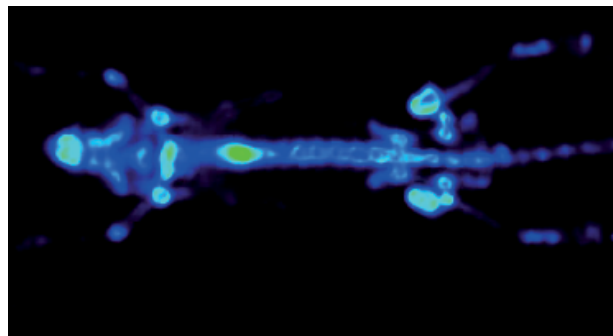
A smaller size doesn't mean a reduction in capacity. Use G4 for both your mouse and small rat studies.

ANATOMICAL REFERENCE

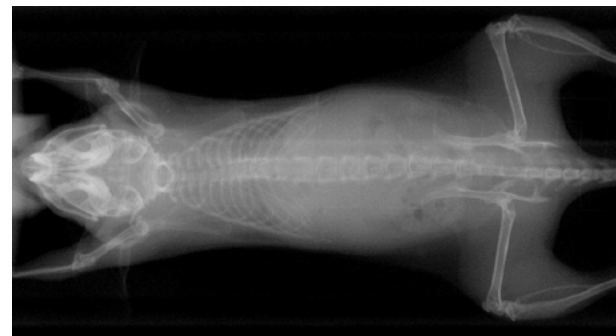
Acquire both PET and X-Ray images to form merged PET/X-Ray.

ULTRAFAST PET/X-RAY IMAGE RECONSTRUCTION

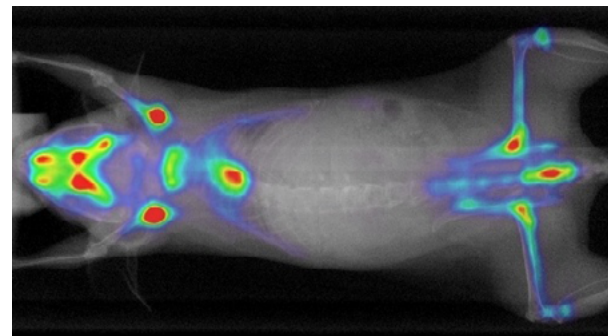
G4 takes advantage of an array of CPUs between the gantry and workstation, enabling fast and automatic histogramming, image processing, and 3D image reconstruction - all completed in only a few minutes post data acquisition. You're just a few clicks away from whole body scanning, registration, and organ analysis. With its high sensitivity, spatial resolution, automated workflow, and heavy duty computing power, quantitative results alongside high-resolution PET images will be in your hands quickly and with minimal effort.



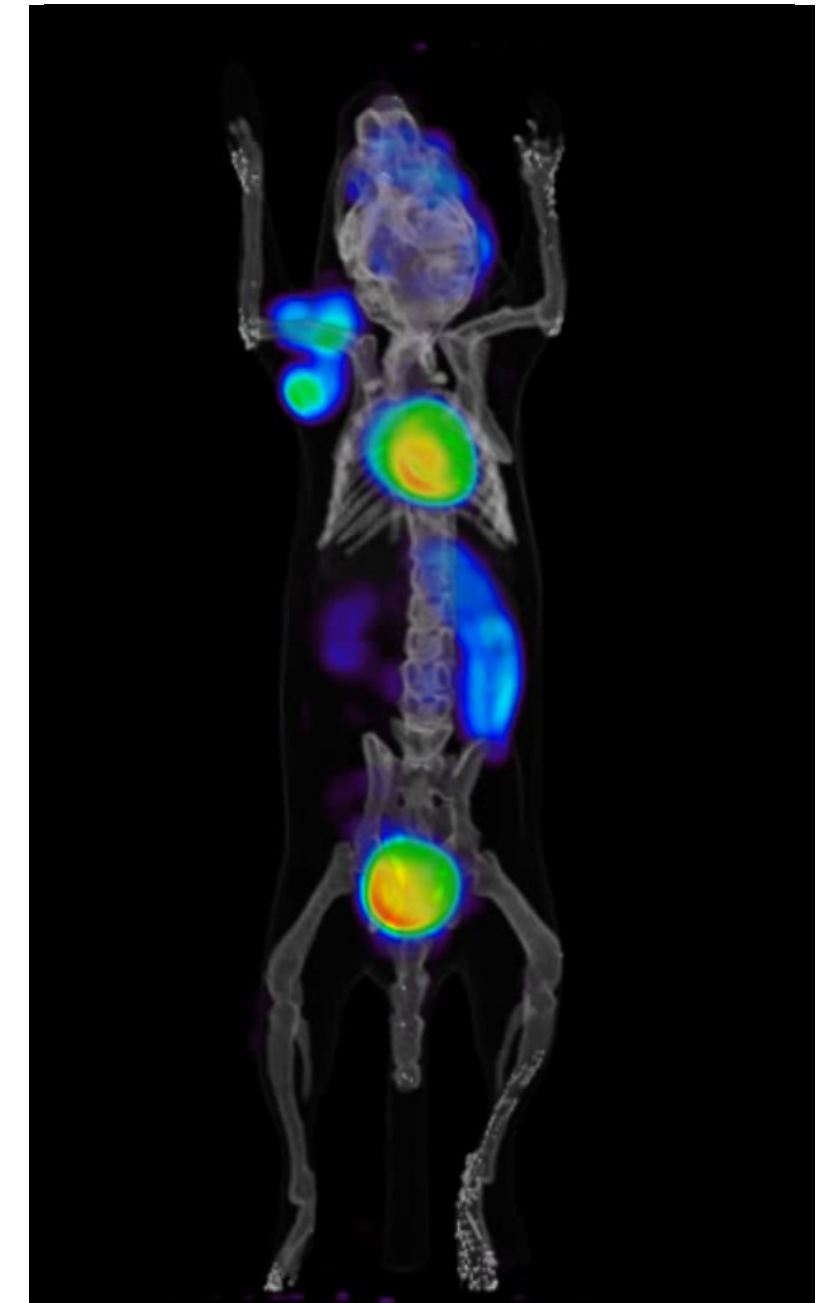
PET



X-RAY



PET + X-RAY



Fused FDG PET image with mouse registration system

SURPRISED BY THE SIZE? DON'T BE.

G4 launches an era of compact molecular imaging systems. At only 18 inches wide and 24 inches tall, G4 is the smallest PET imaging system in the industry.

Install in any laboratory setting with no site planning and minimal training to quickly get your existing staff up and running.

Generate 3D quantitative PET data and set a new performance standard, all in a fraction of the size of a traditional system.



Engineering Specifications

Unit width: 45.7 cm (18")

Unit depth: 48.3 cm (19")

Unit height: 61.0 cm (24")

Unit weight: 54.4 kg (120 lbs)

Operating room temperature: 18 - 24 °C (65 - 75 °F)

Operating humidity: 30 - 70% non-condensing

Power requirements: 2 A @ 110 V (1 A @ 220 V)

PET Performance Specifications

Axial FOV: 9.5 cm

Transaxial FOV: 4.4 cm

Detector element size: 1.8 mm x 1.8 mm x 7 mm

Peak absolute system sensitivity*: >14%

Reconstructed resolution at center of FOV*: 1.4 mm

Average energy resolution: ≤18%

Energy window range: 150 - 650 keV

Total number of detector elements: 4,992

Reconstruction algorithm: 3D ML-EM

X-Ray Specifications

Axial FOV: 9.0 cm

Transaxial FOV: 4.0 cm

X-ray tube potential: 35 kVp

X-ray tube current: 100 uA

Exposure time: 2 sec

Detector pixel array: 1024 x 1000

Detector pixel size: 96 um

Image pixel size: 106 um

Magnification factor: 1.1

Complies with FDA regulation, 21 CFR 1020.40, for radiation safety