




About PhotoDetection Systems:

Founded at Boston University's Photonics Center in 1999, PhotoDetection Systems (PDS) is committed to delivering the highest quality PET imaging at the lowest dose for research and clinic use. Our growing team now works in an ISO 13485-certified facility with R&D, Operations and Customer Support Services in place. The PDS mission is to provide PET imaging technologies to the research and clinical communities that may enable development of effective treatments, monitoring, and early detection of disease.

Compact and portable components produce state-of-the-art imaging results

NeuroPET™ Preliminary Technical Specifications				
Site Requirements		Detectors		Performance
Scan Room Width	3 m 10 ft	Max. Axial FOV	240 mm	Spatial Resolution 4.3 mm
Scan Room Length	4.3 m 14 ft	Max. Transverse FOV	270 mm	Sensitivity 20 kHz/MBq
Min. door opening	0.91 m 36 in.	Number of crystals	7680	
Power	115V, 20A	Number of PMTs	192	
Temperature	18C-24C	Number of MAPMTs	4	
Scanner Gantry		Computer Hardware		
Aperture	310 mm 12 in.	Gantry Acquisition and Reconstruction Cluster		
Height	1600 mm 63 in.	Processors	AMD 2.2 GHz Dual Core Opterons, 2 processors per node, total of 16 CPUs	
Width	1321 mm 52 in.	Storage	500GB mirrored disk storage per node, 2TB total	
Depth	838 mm 33 in.	Memory	8GB DDR2 667MHz RAM per node, 32GB total	
Depth with Table	3429 mm 135 in.	Network	Gigabit Ethernet LAN inter-connectivity	
Weight	517 kg 1140 lb	OS	RedHat Enterprise Linux 5	
UPS	3000VA supports gantry detectors and cluster	Console Work Station		
		Processors	Intel Core 2 Duo 3GHz with 1333MHz FSB	
		Storage	500 GB	
		Memory	4GB DDR2 1066MHz RAM	
		Network	Gigabit Ethernet connectivity to cluster	
		OS	Windows XP Pro SP2	
		Graphics	Radeon HD 2600XT PCI Express x16 graphics adapter with 512MB GDDR3	
		Monitor	30" LCD Monitor with 1000:1 contrast ratio	
Archiving	DVD/eSATA/USB/Firewire capability for external data archiving			
Power	115V, 15A, 1000VA medical grade UPS			



PhotoDetection Systems, Inc.
85 Swanson Road
Boxboro, MA 01719
Tel: 978-266-0420
Fax: 978-266-0426
www.photodetection.com

US Patents issued: 5600144; 6828564; 6992295; 7115875; 7217927.
NeuroPET is a trademark of PhotoDetection Systems Inc.
© 2009 PhotoDetection Systems Inc. All rights reserved. Printed in USA 03/2009

NeuroPET™

Like you've never seen it before.



Delivering the next generation of NeuroPET™ scanning

NeuroPET provides new levels of detector sensitivity and application versatility. We started with the very best from our whole body PET scanning technology: WLSF imaging (see sidebar). Then we scaled it down to meet the needs of a wide range of research and clinical neuro-imaging applications. NeuroPET provides the neurological image quality of a large PET scanner in a compact solution and enables more frequent repeat scanning at much lower doses.

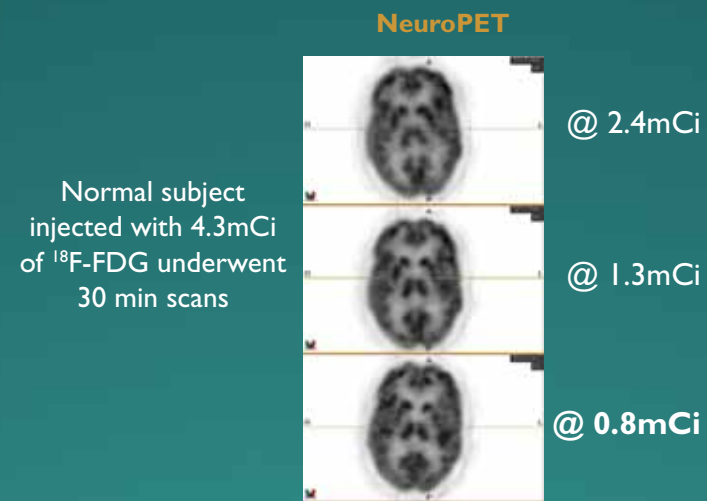
Ultra high-sensitivity breakthrough allows for new research capabilities

Because the proprietary PhotoDetection Systems' technology achieves high imaging sensitivity with very low doses of radioactive tracers, subjects can be safely scanned over a series of successive visits for research or to track the progress of treatment. In addition, NeuroPET can enable imaging of radiotracers with low binding affinity or low receptor density.

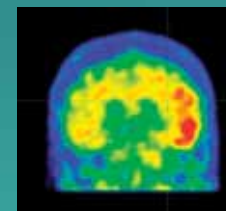
No special site requirements

The NeuroPET components are compact (it fits through a 36-inch door) and can be moved from room to room. No special power supply or site preparation is necessary. Its unique design provides the image quality and quantitative accuracy you require without expensive site prep costs.

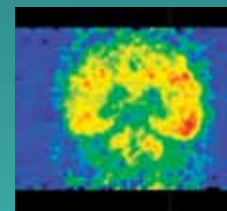
Demonstrated image quality at sub-milliCurie activity*



Subject injected with 9.2mCi of ¹¹C-PiB; imaged on HR+, then NeuroPET. Images show correspondence of enhanced PiB uptake in left temporal lobe.



NeuroPET
PiB image, 70 min post-inj
0.8mCi, 16 min scan
MLEM

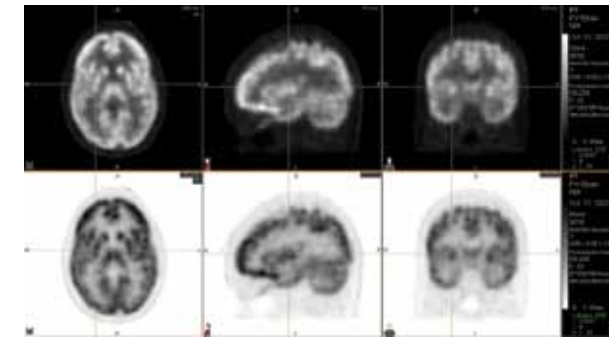


HR+
PiB image, 45 min post-inj
2.0mCi, 15min scan
FBP

*decay corrected to start of scan

NeuroPET™ for neurological PET imaging

The NeuroPET scanner uses low doses of ¹⁸F and ¹¹C radiotracers to generate detailed images of the human brain. These radiotracers are known to be helpful in imaging metabolism, amyloid, and dopaminergic binding in neurological diseases such as Alzheimer's, Parkinson's, neuro-oncology, and neuropsychiatric disorders. NeuroPET's capabilities enable ultra high-sensitivity molecular imaging of the brain with minimal exposure to the subject or the technologist. This means safer repeat scans for longitudinal studies and monitoring treatment response in drug trials for a wide variety of neurological diseases.

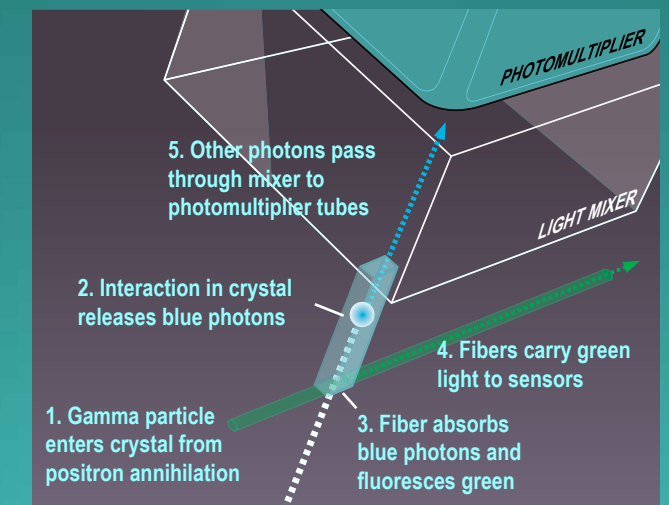


Because NeuroPET components are compact and require virtually no specialized infrastructure, state-of-the-art neurological imaging is now available in the research environment at far lower cost than with whole body scanners.

Wavelength-shifting fiber (WLSF) technology for PET

Advantages and benefits:

- WLSF boosts both sensitivity and spatial resolution
- Scintillator material, CsI(Na) collects more counts at lower cost
- Massive parallelism provides high data rates and high live fraction
- All-digital sampling enables efficient trigger and high event data content
- List mode and event weighting lead to optimal statistical treatment



Wavelength-shifting fiber technology at work

PET imaging made simple

There are just three components to the NeuroPET™ system – the scanner gantry, the patient table, and the operator console. All have wheels for easy movement and can operate comfortably in a 10 x 14 foot room. Only normal 115V, 20A power is required.

The scanner gantry's patient bore diameter is 31cm. Its maximum Axial FOV is 24cm and maximum Transverse FOV is 27cm.

Patient table is powered for vertical movement; movement into and out of the bore is manual.

The operator console, with 30 inch LCD display, connects to the scanner gantry via Ethernet and is powered from a separate 115V, 15A outlet.



Wheel it in, plug it in, ready to go

For more information call PhotoDetection Systems at 978-266-0420, or visit www.photodetection.com