TOMORROW TODAY

SIGNA™ PET/MR

With QuantWorks

Fueled by SIGNA™Works

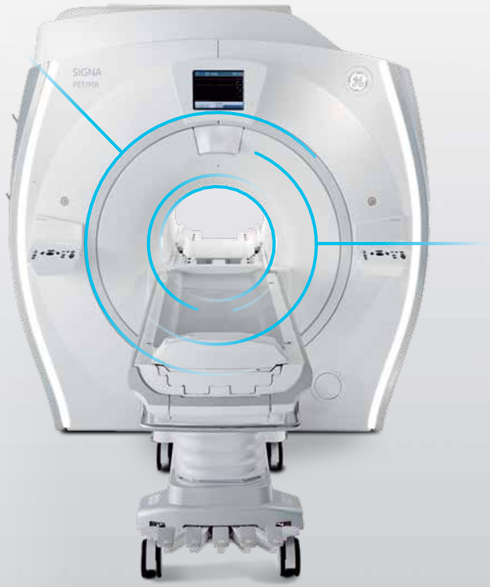
gehealthcare.com/mr

Signal

A new era in personalized imaging with quantitative PET/MR

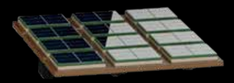
When we first introduced Time-of-Flight (TOF) technology on a fully integrated PET/MR system, we said it would be revolutionary. We delivered on that promise and now we are taking it even further.

Introducing SIGNA™ PET/MR with QuantWorks. Built with pioneering TOF and integrated with a 3.0T MR, its impressive quantitative accuracy and high count rate combined with innovative Q.Clear reconstruction delivers up to 2x improvement in image quality. In addition, SIGNA PET/MR with QuantWorks includes GE MR's comprehensive suite of applications. Flexible research tools are available to pursue ideas that could influence the future of medicine.



Light tight RF shield with copper coating

Lutetium Based Scintillator crystal array and Enhanced Spectral Reflectors



SiPM - Silicon PhotoMultiplier with circuit boards/ASICS

Thermal coupling gasket

Aluminum mounting plate

GE TurboTOF SiPM Technology

- Timing Resolution: <400 ps
- Scintillator Crystal Dimensions: 4.0mm x 5.3mm x 25mm
- NEMA PET Sensitivity: 21 cps/KBq

Embrace

The full diagnostic potential of high sensitivity and TOF

SIGNA PET/MR with QuantWorks is built with proprietary Silicon PhotoMultiplier (SiPM) detectors and the exceptional sensitivity of 25 mm deep Lutetium-based crystal. The detectors, with a 25 cm axial FOV, deliver exceptional sensitivity, and TOF capability.

In addition, our innovative Q.Clear reconstruction creates the excellent signal-to-noise ratio (SNR) enabled by TOF. And our Zero Echo Time (ZTE) MR, a true ZTE imaging technique, can ‘see’ bone for an ionizing-radiation-free attenuation correction method with MR. This combination of improvements to the already high image quality and quantitation accuracy enables you to embrace the full potential of PET/MR.

Establish

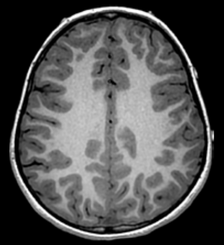
Trust with consistently accurate results

When you can trust the accuracy of each result, quantitation takes on a whole new meaning.

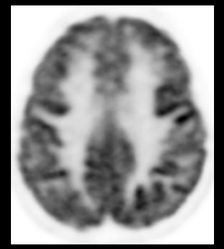
Using innovative reconstruction, Q.Clear incorporates prior knowledge about image quality into reconstructed images to decrease noise while providing quantitation accuracy and significantly improving image quality.

In addition, SIGNA PET/MR with QuantWorks includes the most comprehensive MR motion correction package in the industry to reduce the effects of involuntary and physiological motion.

CLINICAL GALLERY
Pediatric PET/MR
7y/o, R/L temporal
asymmetric uptake

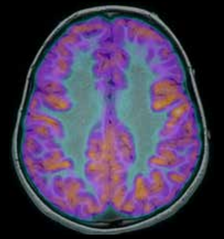


3D T1w BRAVO
4:41 min

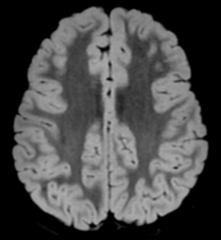


PET
18F-FDG 90MBq
scan time 30min
uptake time 73 min

new: Qclear recon
new: recon matrix 384x384

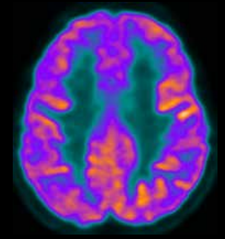


Fusion PET / 3D
T1w BRAVO

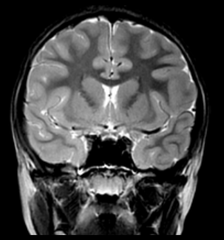


Sagittal 3D Cube FLAIR
with HyperSense and
T2 Prep reformated in Ax
5:13 min

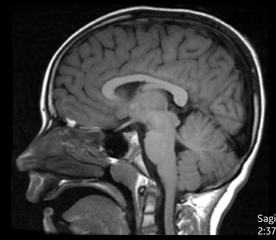
Scan time reduction
20% (compared to
original acquisition
without CS)



PET



Coronal T2w PROPELLER
3:24 min



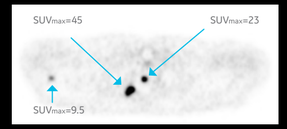
Sagittal T1w FLAIR
2:37 min

Personalized MR
Attenuation Correction
on a pediatric patient
Using Zero-TE
acquisitions, including
system components

Images courtesy of Children's Hospital of WI, USA

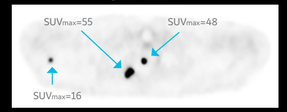
CLINICAL GALLERY
M 71y/o, history of prostate cancer
68Ga-PSMA 270MBq
5 beds, uptake time 75min

VPFX 28subsets/2 iterations



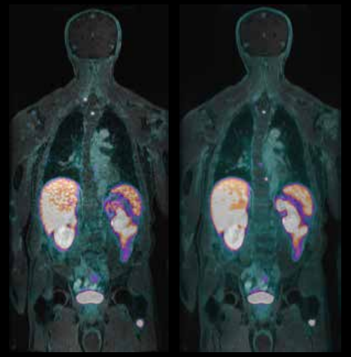
VPFX

Q.Clear beta 700



Q.Clear

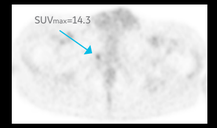
PET

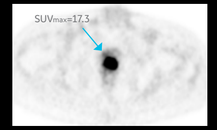


Fusion at 2
coronal slice
positions
T1w LAVA
Flex Water
/PET

M 84y/o, history of prostate cancer
68Ga-PSMA 135.5MBq
WB 2 min/bed, 5 beds, uptake time 62 min
Pelvis bed 15 min, uptake time 75 min

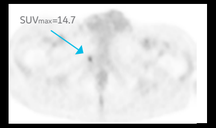
VPFX 28 subsets/2 iterations

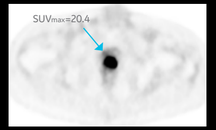




VPFX

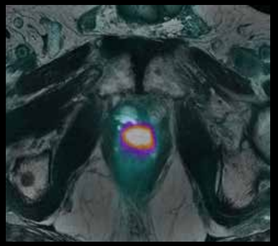
Q.Clear beta 500





Q.Clear

Ax T2w FRFSE



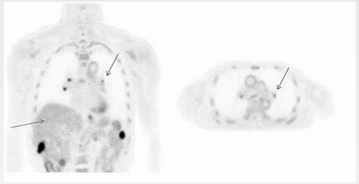
Fusion
Ax T2w / PET

Courtesy University Hospital Zurich, Switzerland

Q.Clear

Q.Clear incorporates prior knowledge about image quality into the reconstructed image to decrease noise while providing quantitation accuracy and significantly improved image quality.

SIGNA PET/MR with Time-of-Flight (TOF)



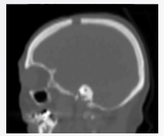
Same TOF scan reconstructed with Q.Clear

Images courtesy of Stanford University Medical School

ZTE MR

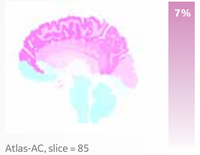
ZTE MR replaces the X-ray based gold standard for attenuation correction with this accurate, personalized ionizing-radiation-free MR technique. Based on the high stability of SIGNA PET/MR with QuantWorks' hardware, our ZTE MR is more reliable and faster than Ultra Short Echo (UTE) and improves image quality.

Attenuation Correction Map

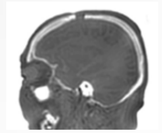


CT

Deviation from CT Gold Standard



Atlas-AC, slice = 85



ZTE MR

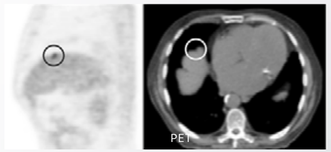
ZTE-AC, slice = 85

Images courtesy of Zurich University Hospital, UCSF, UZ Leuven

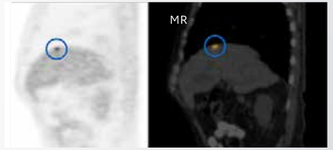
Comprehensive motion correction solutions

Solutions to reduce involuntary and physiological movement with an extensive selection of motion correction applications for PET and MR, including PROPELLER, PROMO and Auto Navigator.

Conventional Static



Q.Static



SIGNA™Works

The new standard is extraordinary

Our new SIGNA™Works applications portfolio redefines productivity and improves security across the breadth of our core imaging techniques. SIGNA PET/MR with QuantWorks comes preloaded with the standard applications portfolio of SIGNA™Works as a fully integrated package. This extensive library of high quality and efficient imaging techniques enables you to achieve the outcomes you desire across your entire practice.

SIGNA™Works' advanced applications include HyperWorks, VIosWorks, ImageWorks and SilentWorks, which further advance diagnostics and accelerate throughput while simultaneously improving patient outcomes and your ROI.

Not only is SIGNA™Works upgradeable, it can be further customized, so you have the flexibility to add applications to suit the needs of your practice.

HyperWorks changes the MR acquisition by offering improvements to speed and quality, helping to improve the PET/MR experience for both personnel and patients

Applications

HyperSense

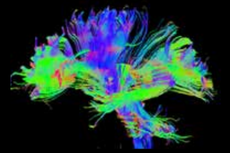
HyperSense is an acceleration technique based on sparse data sampling and iterative reconstruction. This application can deliver higher spatial resolution images or reduced scan times, enabling faster imaging without the penalties commonly found with conventional parallel imaging.

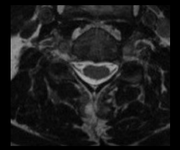
HyperBand

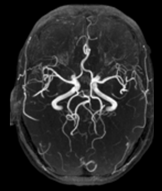
HyperBand takes your diffusion to a new level by allowing you to acquire more slices or diffusion directions within a typical scan.

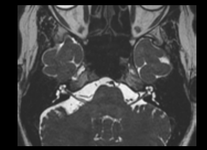
HyperCube

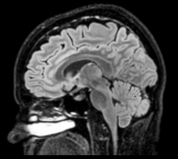
HyperCube expands the capabilities of 3D imaging allowing you to reduce scan times and eliminate artifacts such as motion and aliasing to reduce scan time by reducing the phase field of view without the presence of aliasing artifacts.

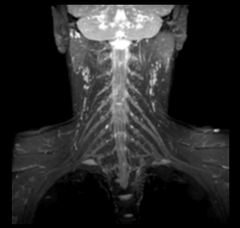












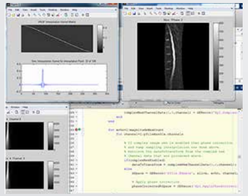
Not all applications come standard on all systems. Please contact your GE Representative for the most current information.

Open new avenues of discovery

Explore all that PET/MR is capable of by using SIGNA PET/MR with QuantWorks' extensive offering of research tools.

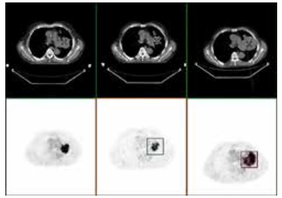
SIGNA PET/MR with QuantWorks has the tools you need to discover disease-specific tracers and develop new protocols. You can use PET/MR simultaneously with MR multinuclear spectroscopy as an *in-vivo* laboratory to study fast biochemical processes. In addition, PET ToolBox and Orchestra Software Development Kit give you offline access to our image reconstrauction environments for PET and MR making it faster and easier to work on your own reconstruction ideas.

SIGNA PET/MR with QuantWorks provides the tools you need to push the boundaries of its innovative technology.



Orchestra Software Development Kit

- Directly access SIGNA PET/MR with QuantWorks' image reconstruction environment offline and work with raw image data without having to be at the scanner.

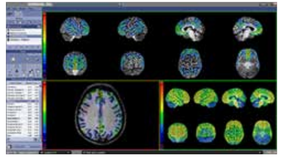


OncoQuant

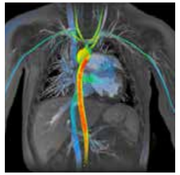
- AW's OncoQuant application is designed to help organize and display your Oncology data to facilitate your quick review.

PET ToolBox

- Develop novel PET imaging techniques using our software tools to access the PET image reconstruction environment.



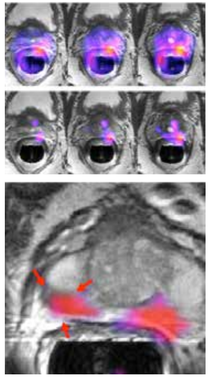
CortexID



ViosWorks

Organ-specific applications

- Analyse brain studies with beta amyloid and FDG tracers and compare them to FDG normals with CortexID multimodality package.
- Get a comprehensive cardiovascular assessment with ViosWorks in one free-breathing, eight-minute scan that provides quantitative 3D information for cardiac anatomy, function and flow.



In-vivo Laboratory

- Simultaneously use PET/MR with MR multinuclear spectroscopy as an *in-vivo* laboratory to study fast biochemical processes.

GE Healthcare is a leading provider of medical imaging, monitoring, biomanufacturing, and cell and gene therapy technologies. GE Healthcare enables precision health in diagnostics, therapeutics and monitoring through intelligent devices, data analytics, applications and services. With over 100 years of experience and leadership in the healthcare industry and more than 50,000 employees globally, GE Healthcare helps healthcare providers, researchers and life sciences companies in their mission to improve outcomes for patients around the world.

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Imagination at work

JB60963FR