Biograph Vision Quadra PET/CT

Bigger perspective. Better answers.

siemens-healthineers.com/biograph-vision-quadra

SIEMENS Healthineers

The need for a new perspective

From visualizing physiology and anatomy in a single study to observing tracer interactions in individual organs and the whole body, PET/CT has advanced precision medicine. As we push the boundaries of investigation further, making these studies more dynamic with wider ranges is the next frontier.

Today's traditional 16-26 cm PET field of view length and step-and-shoot sequential approaches limit our perspective. To pioneer new therapies, we need to see the behavior of radiotracers over time, throughout the body, simultaneously—all while limiting patient exposure to ionizing radiation.

We need PET/CT scanners with broader capabilities accessible to researchers and clinicians alike.

A bigger perspective for better answers

The power of a proven platform. The perspective of a larger axial PET field of view. Biograph Vision Quadra™ takes the potential of PET/CT even further. Dynamically see vertex to thighs in a single position and deepen the dimension of your investigations. Whether you're exploring new research questions or identifying the best clinical approach, with Biograph Vision Quadra, the answers are yours to find.

Biograph Vision Quadra

Expand your research dimensions

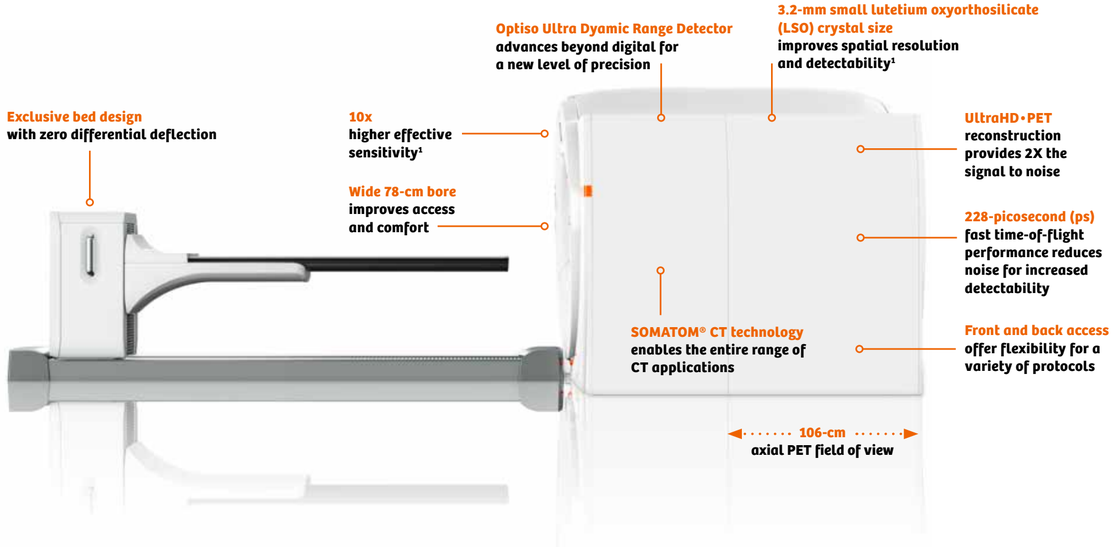
Reshape clinical outcomes

Benefit from a realistic fit

Advance your vision

An innovative design that expands your vision

Biograph Vision Quadra



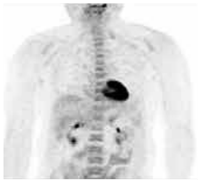
Expand your research dimensions

With 106-cm axial PET field of view, Biograph Vision Quadra offers a whole-body (vertex-to-thighs) perspective so you can scan more in one position to dynamically follow tracer kinetics throughout the body. With best-in-class time-of-flight performance and PET effective sensitivity[2], you can see with outstanding clarity. From tumor perfusion over time, to diverse physiological processes, to pediatric imaging, and more, Biograph Vision Quadra exponentially expands your realm of investigation.

Capture more organs dynamically

Data courtesy of Inselspital, Bern University Hospital, Bern, Switzerland.

Activity concentration (SUV)

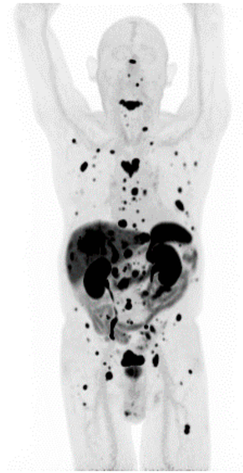


Metabolic rate (MR_{FDG})

Distribution volume (DV)

Observe relationships between organs and tracer kinetics

Data courtesy of Yale University, New Haven, Connecticut, USA.



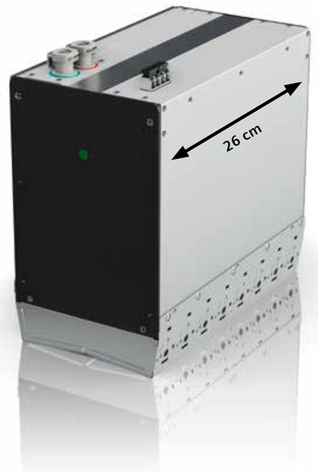
Asses potential of novel and new radiopharmaceuticals

Data courtesy of Inselspital, Bern University Hospital, Bern, Switzerland.

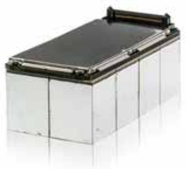
Increase your perspective with 106-cm axial PET field of view

Biograph Vision Quadra features a unique detector electronic assembly (DEA) engineered to enable greater research capabilities.

Detector electronic assembly



Leveraging Optiso UDR detector module technology



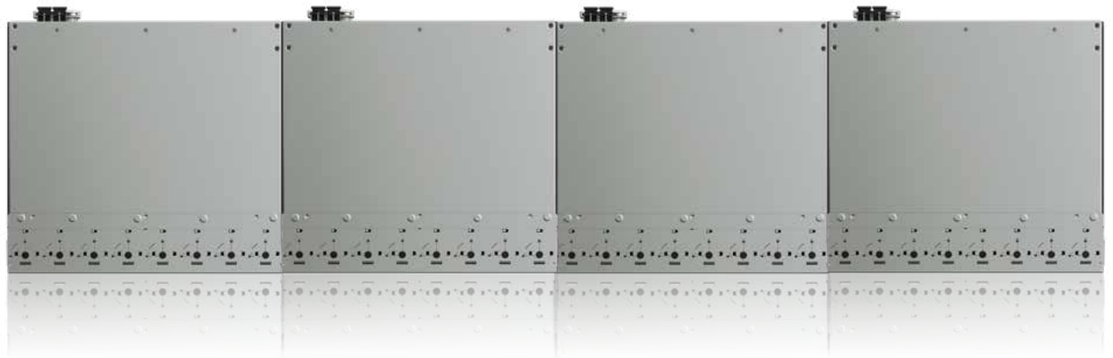
Each DEA incorporates:

3,200 LSO crystal elements

16 Optiso UDR detector modules

32 electronic detector channels

128 silicon photomultipliers (SiPM)



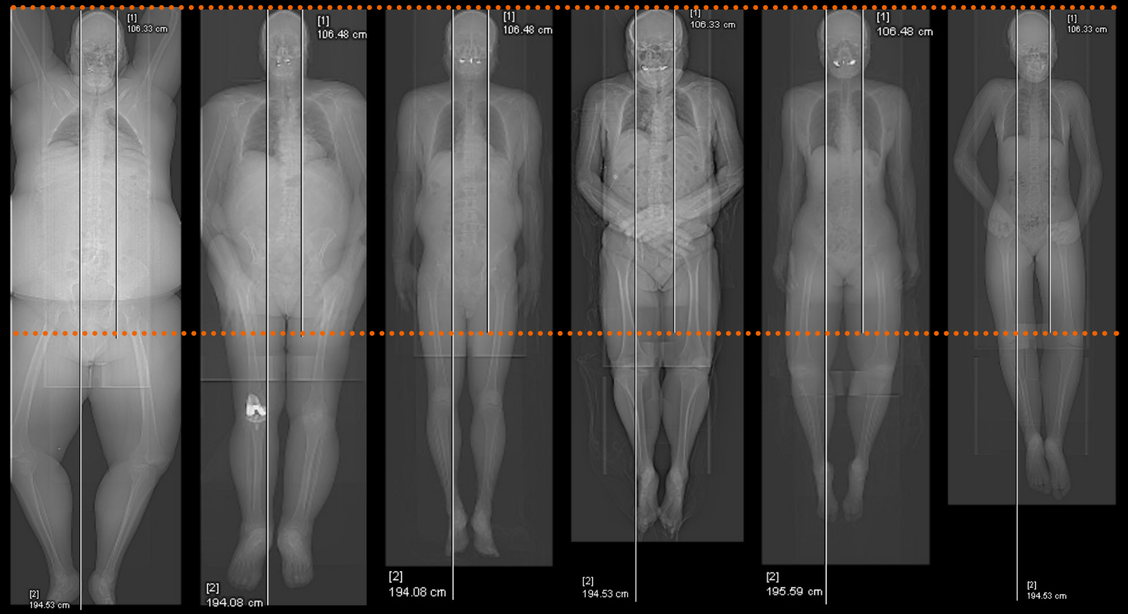
106-cm axial PET field of view

106 cm gives you:

1,216 Optiso UDR detector modules

76 detector electronic assemblies

Encompass the critical organs most evaluated in molecular imaging studies

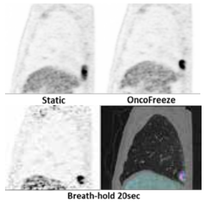


203 cm (6′ 8″) | **190 cm (6′ 3″)** | **180 cm (5′ 11″)** | **172 cm (5′ 8″)** | **168 cm (5′ 6″)** | **161 cm (5′ 3″)**

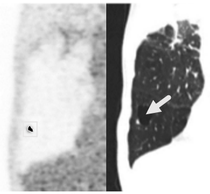
Biograph Vision Quadra's 106-cm axial PET field of view covers more than 85% of patient scans vertex to thighs[3].

Leverage a bigger perspective

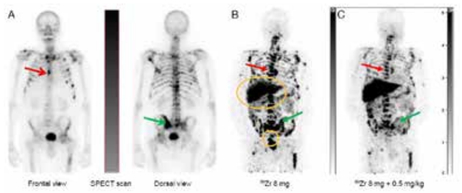
High sensitivity



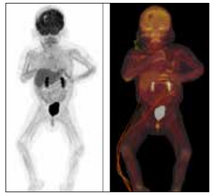
Fast breath-hold PET/CT



PET/CT screening

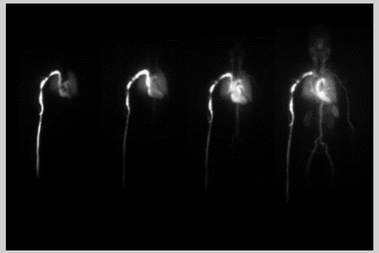


Low-dose immunoPET (^{89}Zr and others)



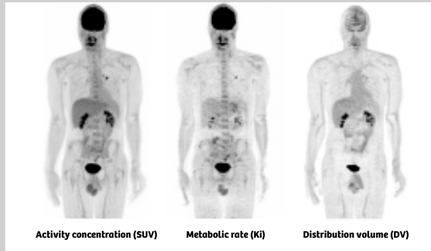
Pediatric imaging

Multi-organ coverage



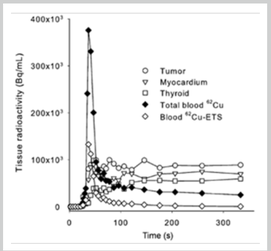
PET angiography and PET perfusion

Data courtesy of Inselspital,
Bern University Hospital, Bern, Switzerland.



Accurate whole-body parametric imaging

Data courtesy of Yale University,
New Haven, Connecticut, USA.



Multi-organ tracer kinetics
and input functions

Larger + Faster = Higher

106-cm axial PET field of view heightens scanner sensitivity resulting in **171 cps/kBq** NEMA sensitivity.

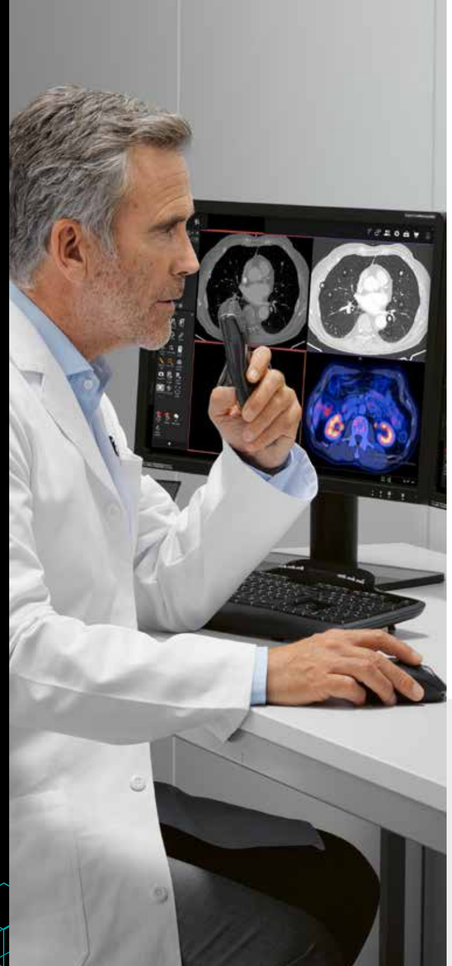
Fast **228-ps** timing resolution amplifies scanner sensitivity, providing a **5.9x** time-of-flight gain[2].

The larger field of view together with improved time-of-flight gain results in a higher effective sensitivity of 1,000 cps/kBq[2] to scan faster at lower doses.

With the highest effective PET sensitivity[2] and a large axial PET field of view, Biograph Vision Quadra gives you the power to expand what you can investigate.

Reshape clinical outcomes

The accuracy, performance, and reproducibility of Biograph Vision™ are the gold standard in PET/CT imaging. With Biograph Vision Quadra, you achieve the same outstanding detail and definition that you have come to expect—increased detectability of smaller lesions, reduced scan time and effective dose, and faster evaluation of treatment impact[4]. Ten times higher effective sensitivity and the best time of flight[2] means that no matter your imaging application, Biograph Vision Quadra delivers proven clinical outcomes at a greater scale.



10 minute

4 minute

1 minute

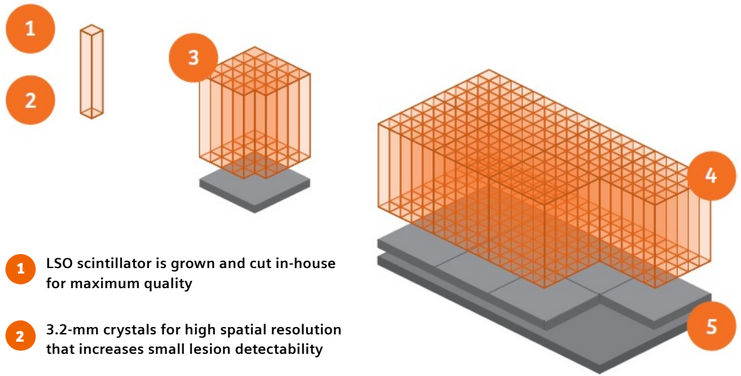
Data courtesy of Inselspital, Bern University Hospital, Bern, Switzerland.

Leverage higher scanner performance for routine clinical PET/CT imaging—high image quality with lower doses and/or faster acquisition times[1].

The power of a proven platform

As the foundation of the Biograph Vision family, the Optiso UDR detector is a high-performing PET detector-based SiPM technology, designed to improve accuracy, performance, and reproducibility.

Optiso UDR's proprietary 3.2-mm LSO crystals move SiPM technology beyond digital to a new level of precision to help you detect small lesions, devise accurate treatment strategies, and achieve optimal performance in a wide range of count rates.



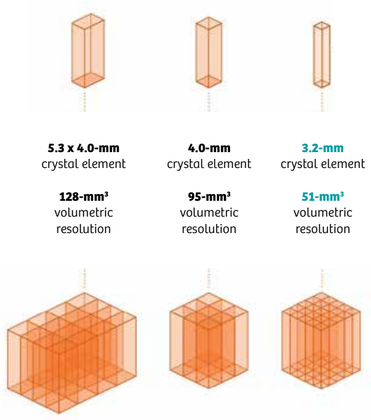
1. LSO scintillator is grown and cut in-house for maximum quality
2. 3.2-mm crystals for high spatial resolution that increases small lesion detectability
3. 100% coverage with SiPM sensors results in a timing resolution of 228-ps and a 5.9x time-of-flight gain[2], amplifying scanner sensitivity for faster scans and lower doses[1]
4. Small block size delivers 15,215 kilo counts per second effective peak noise-equivalent count rate (NECR) for improved clinical performance[1]
5. High-flow direct-cooling enables room temperature operation

Improve image clarity and detection

3.2-mm crystals for high spatial resolution

High spatial resolution improves small-lesion detectability. Reducing crystal size improves spatial resolution.

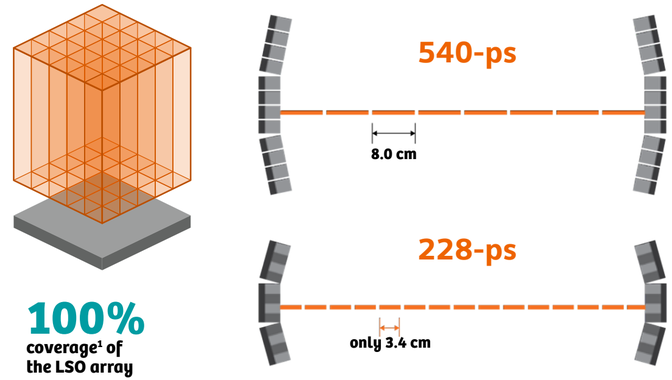
60%
better volumetric resolution[1]



100% coverage of the scintillator area, leading to the fastest time of flight[2]

Time-of-flight performance depends on collecting light from all photons in the scintillation. Optiso UDR is designed so that the SiPMs cover the entire LSO-array area, allowing all light from the scintillation to be detected. This leads to 100% coverage and enables fast temporal resolution.

Fast 228-ps
time of flight



100%
coverage[1] of the LSO array

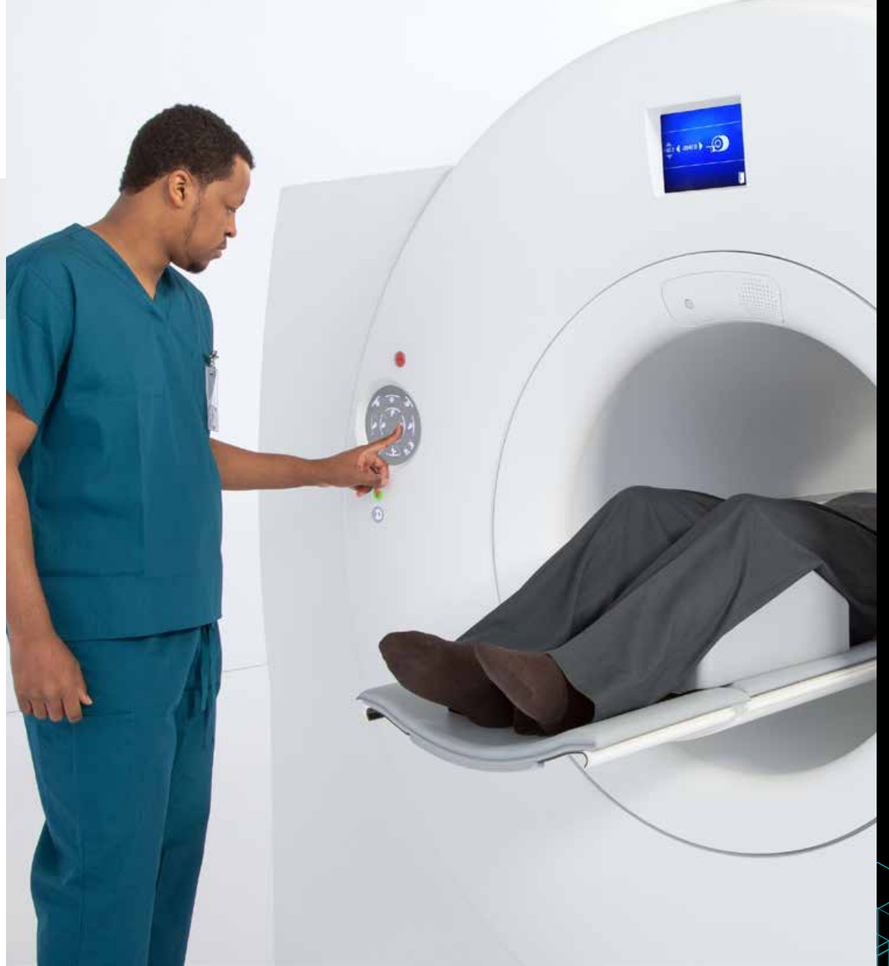
Smaller + Faster[2] x More = Flexibility

3.2-mm LSO crystals offer higher spatial resolution for improved detectability[2].

228-ps temporal resolution improves detectability and boosts scanner sensitivity.

106-cm axial PET field of view amplifies scanner sensitivity and effective sensitivity.

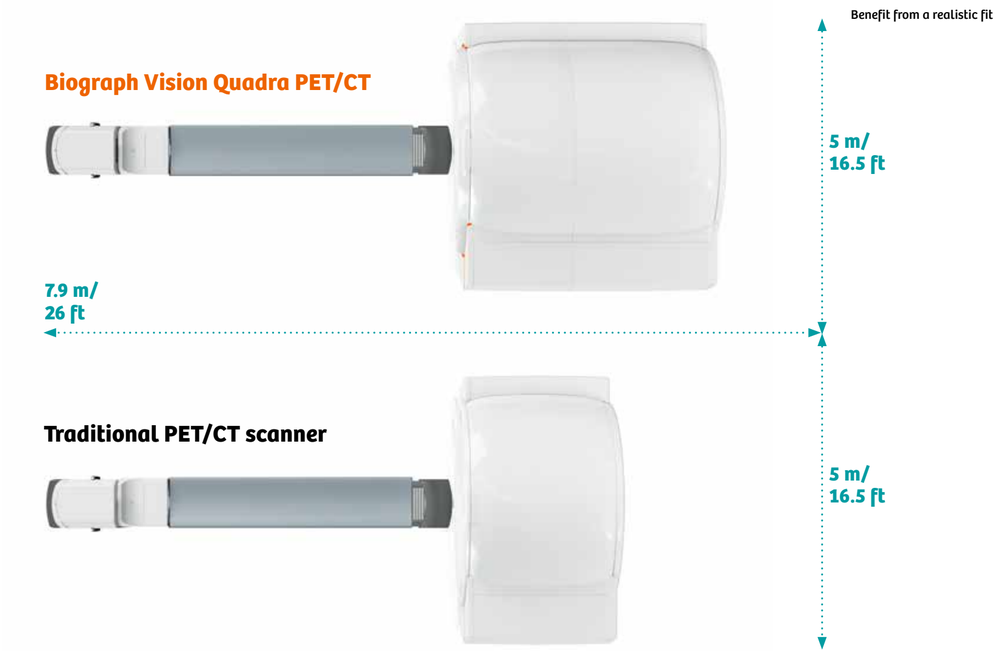
Design research and clinical protocols to meet your needs. Scan faster, increase clinical throughput, and open up more time for research.



Meet clinical throughput needs and expand research time; achieve greater utilization of your PET/CT in a normal working day, all without compromising image quality.

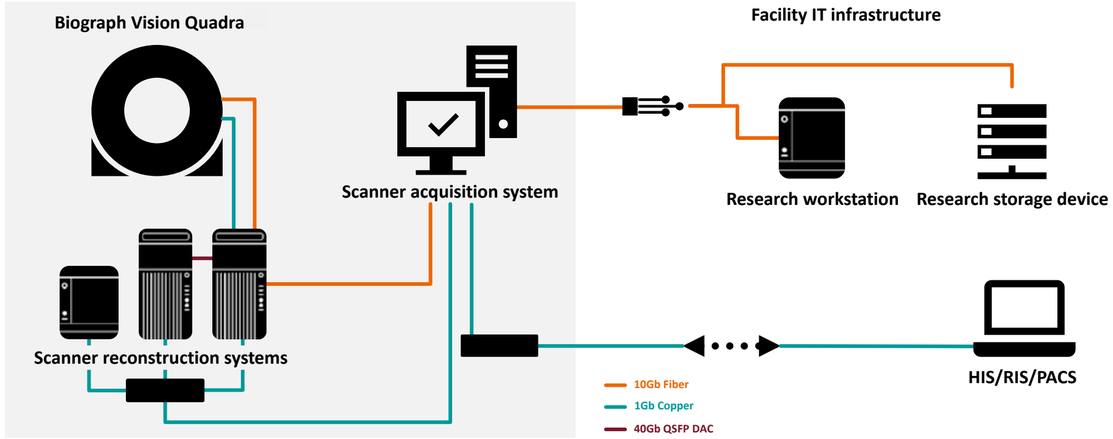
Benefit from a realistic fit

Biograph Vision Quadra is the first whole-body PET/CT scanner designed to fit into your existing environment—expanding research opportunities and enabling clinical flexibility. Unique, innovative architecture allows for easy serviceability while driving efficient data management and enhanced workflows. With Biograph Vision Quadra, you have a research and clinical solution designed for your realities.



The first whole-body PET/CT scanner built for the same space as a traditional PET/CT scanner

Balance data management and workflows



Optimized for high performance, Biograph Vision Quadra's hyper-reconstruction workstation efficiently handles both research and clinical workflows.

With built-in, high-speed dedicated networks, you can simplify image availability and large dataset management to dedicated workstations and storage devices.

Enhance accessibility for all

Serviceability made easy

The pioneering structural design of Biograph Vision Quadra balances the system and allows for seamless, easy movement into service position for faster infield serviceability. The unique architecture encourages precise positioning of DEAs for reliability and reproducibility of performance.

Optimized patient accessibility

With an accessible tunnel length, gantry controls and both the front and back, and a 78-cm-wide bore, Biograph Vision Quadra offers outstanding patient comfort and protocol options. Operators can administer radiopharmaceuticals and instantaneously begin scanning from either end of the gantry.

Smart + Optimized = Accessible

Engineered for a traditional PET/CT footprint by leveraging our unique SMART patient handling system (PHS), and our core Biograph Vision gantry design.

Built with enhanced data management for high performance both in research and clinical workflows.

Maximized accessibility for patient comfort, infield serviceability, and flexibility for both clinical and research applications.

With a smart design tailored to clinical and research realities, Biograph Vision Quadra enables you to do more while broadening your scope.

Advance your vision

Biograph Vision Quadra helps you lead the way in clinical and translational research, pioneering therapies, breakthrough procedures, and novel diagnostics.

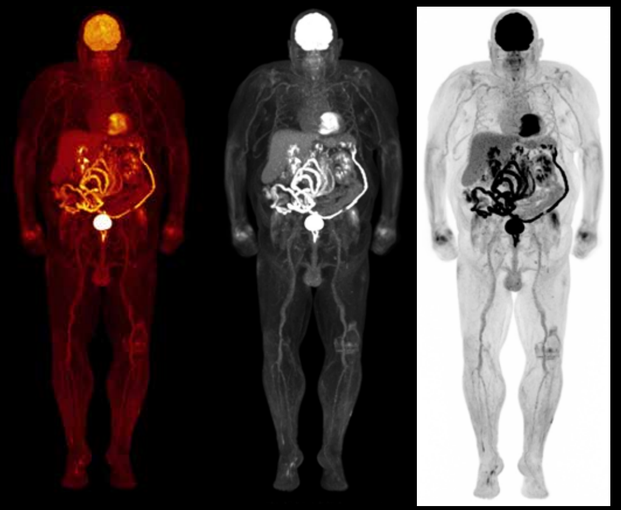
Data courtesy of Inselspital, Bern University Hospital, Bern, Switzerland.

Powered by groundbreaking innovations, you can enhance your strategic collaborations and partnerships, further distinguish your institution, and strengthen your ability to attract world-class talent.

Introducing a new era for research

“We are convinced this technology will broaden our clinical horizons, and, since we are a university hospital, our scientific horizons with manifold new opportunities as well.”[5]

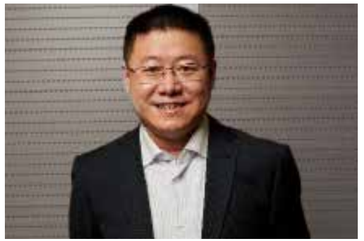
Axel Rominger, MD, PhD
Director and Chief Nuclear Medicine Physician
Department of Nuclear Medicine
Inselspital, Bern University Hospital
Bern, Switzerland



PET MIP

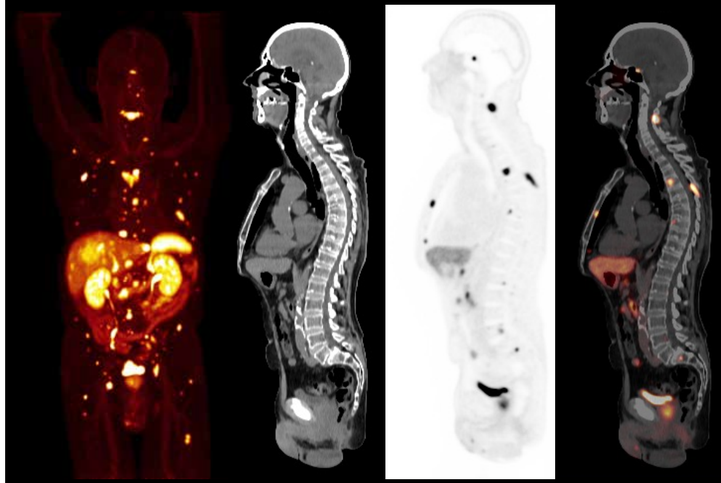
Data courtesy of Inselspital, Bern University Hospital, Bern, Switzerland.

Expanding collaborations



“We are now establishing more collaborations with our colleagues and even some outside the nuclear medicine community. This super scanner needs a super team, so a single institute is not sufficient.”[5]

Kuangyu Shi, PhD
Head of AI and Translational Theranostics Lab
Department of Nuclear Medicine
Inselspital, Bern University Hospital
Bern, Switzerland



PET MIP **CT** **PET** **PET/CT**

Data courtesy of Inselspital, Bern University Hospital, Bern, Switzerland.

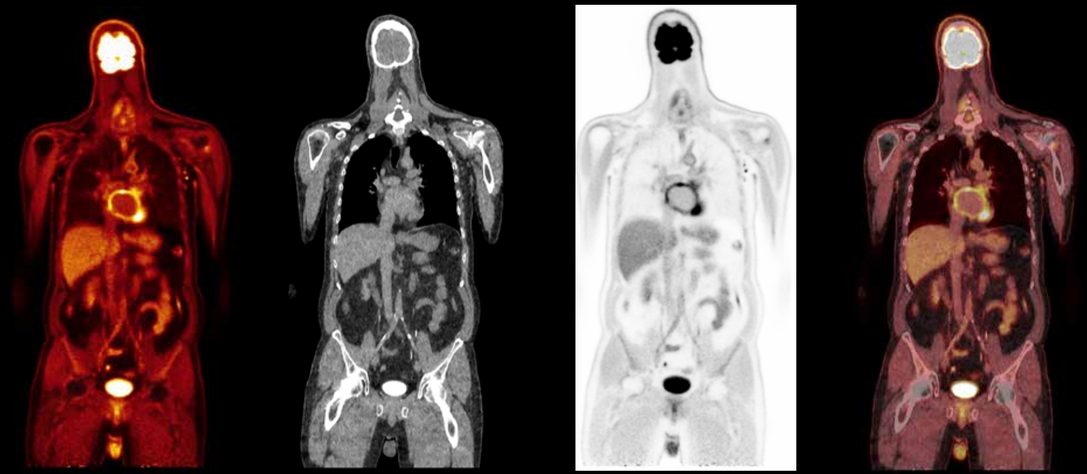
Advancing precision and accuracy

"Biograph Vision Quadra's ultra-high sensitivity and high spatiotemporal resolution offers a way to quantify the molecular processes inside humans with unprecedented precision and accuracy."[5]

Charalampos Tsoumpas, PhD
Scientific Researcher
Nuclear Medicine and Molecular Imaging Department
University Medical Centre Groningen
Groningen, The Netherlands

PET MIP

Data courtesy of University Medical Centre Groningen, Groningen, The Netherlands.



Data courtesy of University Medical Centre Groningen, Groningen, The Netherlands.

You + Us = Future

Advancing clinical care and improving patient outcomes is life-changing work. As you continue to ask deeper questions and look for more complex answers, you need imaging that supports your ideas.

Siemens Healthineers is dedicated to responding to the needs of clinicians and researchers leading the way in advancing science.

With expanded treatment options and more effective ways to measure impact, together, we are accelerating advances and opening up new possibilities.

With Biograph Vision Quadra, the answers are yours to find.

Clinical image featured on cover: data courtesy of Inselspital, Bern University Hospital, Bern, Switzerland.

[1] Compared to current state-of-the-art PET/CT systems. Data on file.
[2] Based on competitive literature available at time of publication. Data on file.
[3] Based on typical patient height and weight limit of 207 kg (500 lb).
[4] Compared to Biograph mCT.
[5] The statements by Siemens Healthineers customers described herein are based on results that were achieved in the customer's unique setting. Because there is no "typical" hospital or laboratory and many variables exist (eg, hospital size, samples mix, case mix, level of IT, and/or automation adoption) there can be no guarantee that other customers will achieve the same results.

Biograph Vision Quadra is not commercially available in all countries. Its future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

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