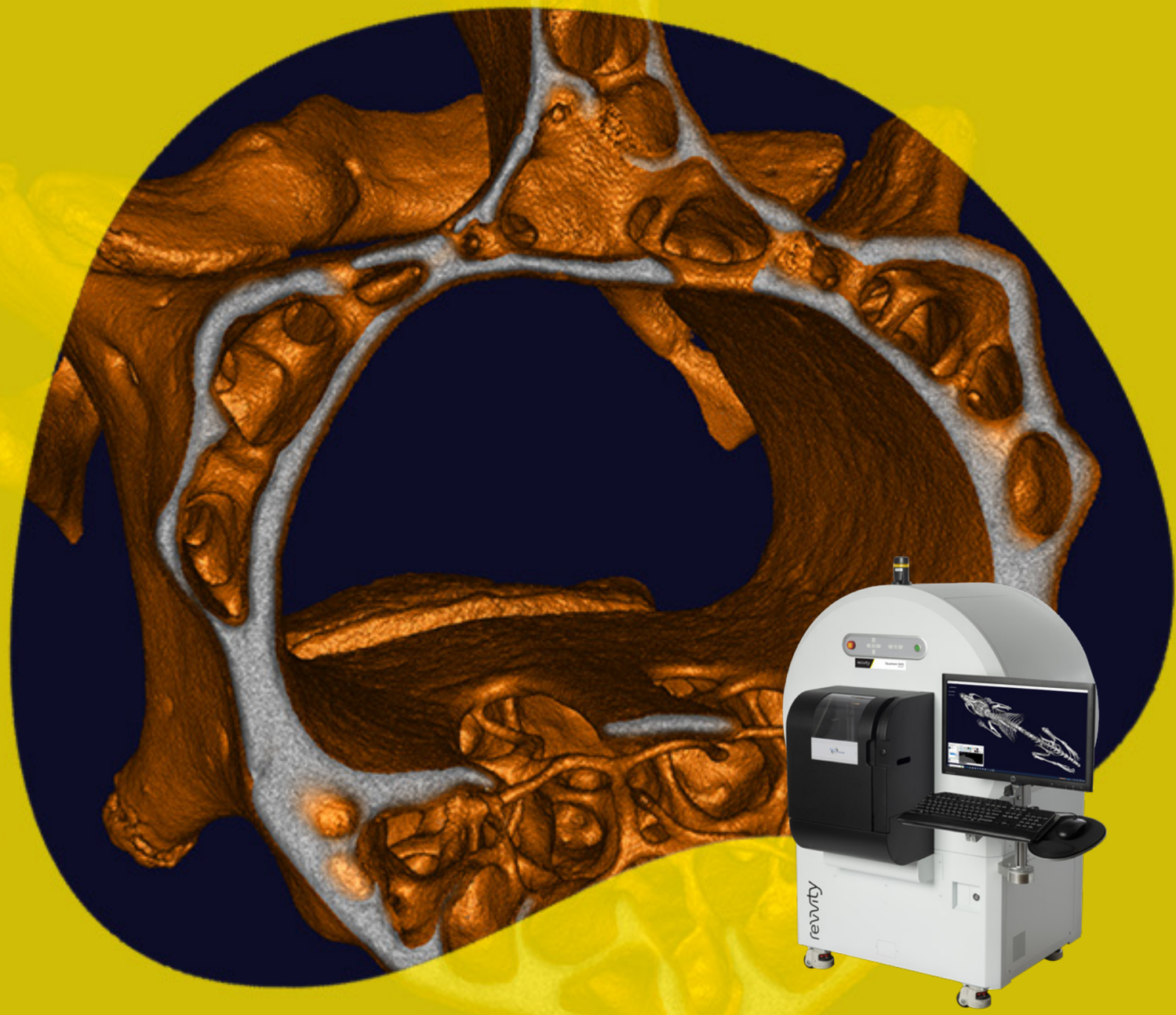
Resolution that's remarkable.



Quantum GX3 microCT imaging system

revvity

Meet your new go-to system for microCT imaging

Introducing the Quantum GX3 advanced microCT system for *ex vivo* and *in vivo* imaging. This versatile microCT system offers the flexibility researchers need by delivering the functionality to perform longitudinal studies, across a wide range of species, with fast, low-dose scanning and superior spatial resolution.

With a wide range of field of views, the Quantum GX3 can image *ex vivo* biological samples, insects, or a single mouse vertebrae with extreme clarity, as well as large animals, such as rabbits.

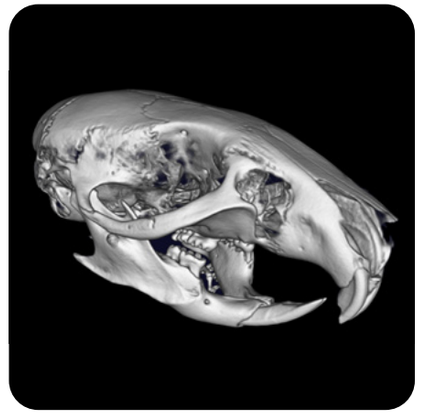
The high resolution, coupled with superior image-based respiratory and cardiac gating technology and easy to use software, make the Quantum GX3 the go-to system for microCT imaging, not only for those studying bone, lung, and cardiovascular applications but also researchers and drug development scientists involved in investigating liver, kidney, metabolic and other soft tissue diseases.

Higher resolution allows you to see more

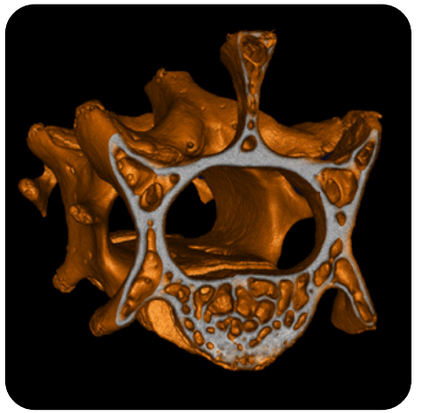
Through spatial resolution down to 5 µm and pixel size of 2.86 µm using the 8 mm field of view, the Quantum GX3 is ideal for visualizing the smallest bone structures and other fine anatomical features.

The Integrated Active Ring Reduction (ARR) increases scan and reconstruction quality and provides the highest image quality and resolution for optimal image analysis when coupled with step scan mode for motion artifact reduction.

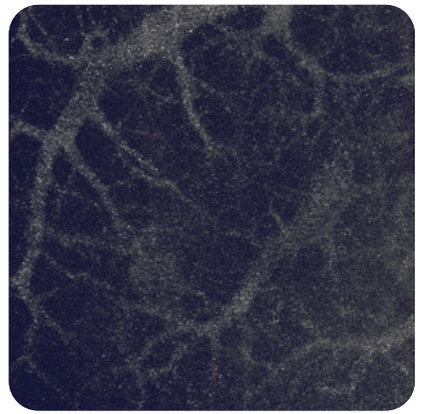
You can now visualize anatomical structures in greater detail with high-resolution scanning that offers superior image quality for *in vivo* and *ex vivo* biological applications.

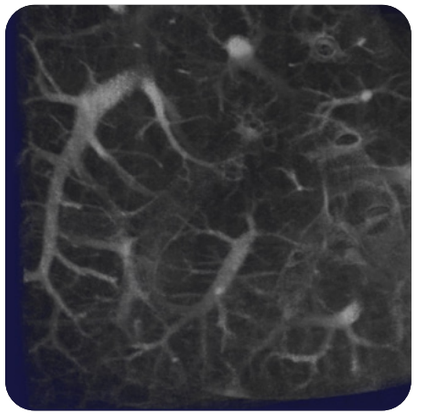


Mouse skull



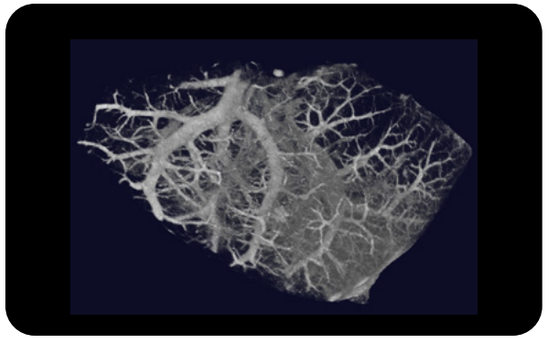
Mouse vertebrae





Continuous scanning mode (left). Step scanning mode (right). Ex vivo image of mouse lung.

The most versatile microCT in the industry

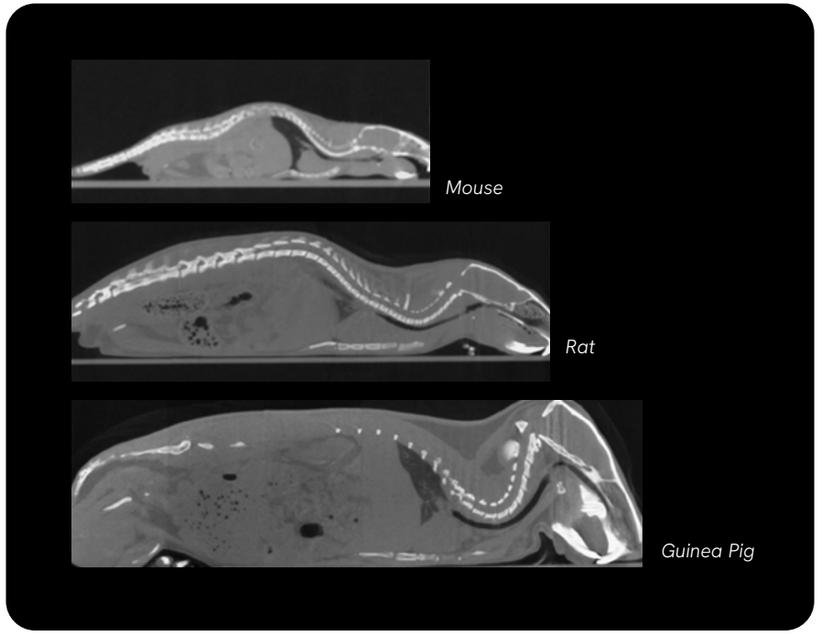


Mouse lung

With an adjustable field of view (FOV), the Quantum GX3 gives you the flexibility to choose the right balance of resolution and pixel size depending on the size of the specimen or part of the animal to be imaged.

The multiple FOVs combined with large bore size and scannable range enable true multispecies imaging from mice to ferrets and even small rabbits. This allows you to use the species most relevant to your disease model.

Providing the widest FOV range from 8 mm for imaging *ex vivo* samples and the smallest of bones, to the largest FOV of 86 mm, ideal for imaging lungs of larger animals in a single scan, the Quantum GX3 offers the versatility required for your research and development needs.



For superior cardiac and lung function measurements

For accurate microCT reconstructions in cardiac and respiratory applications, minimizing the motion from the diaphragm and heart is extremely important. Using a retrospective two-phase image-based gating technique, the Quantum GX3 enables superior cardiac and lung function measurements for various species, including mice, rats, and ferrets.

Using proprietary algorithms reduces heart and diaphragm motion by drawing a region of interest (ROI) over the diaphragm or heart. The software algorithms reprocess the data using projections captured during specific stages in the respiratory or cardiac cycle, which reduces motion artifacts in the final reconstruction. This workflow is ideal for *in vivo* cardiac and respiratory applications while maintaining the system's valuable high throughput *in vivo* scanning capabilities.

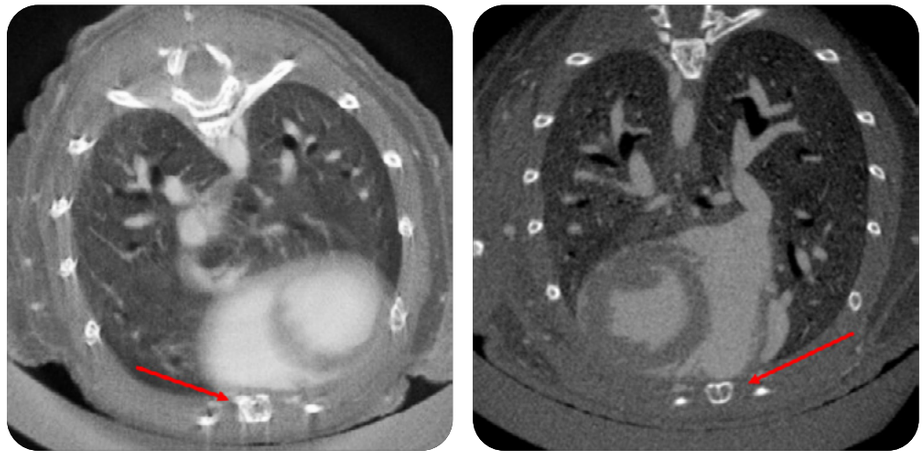
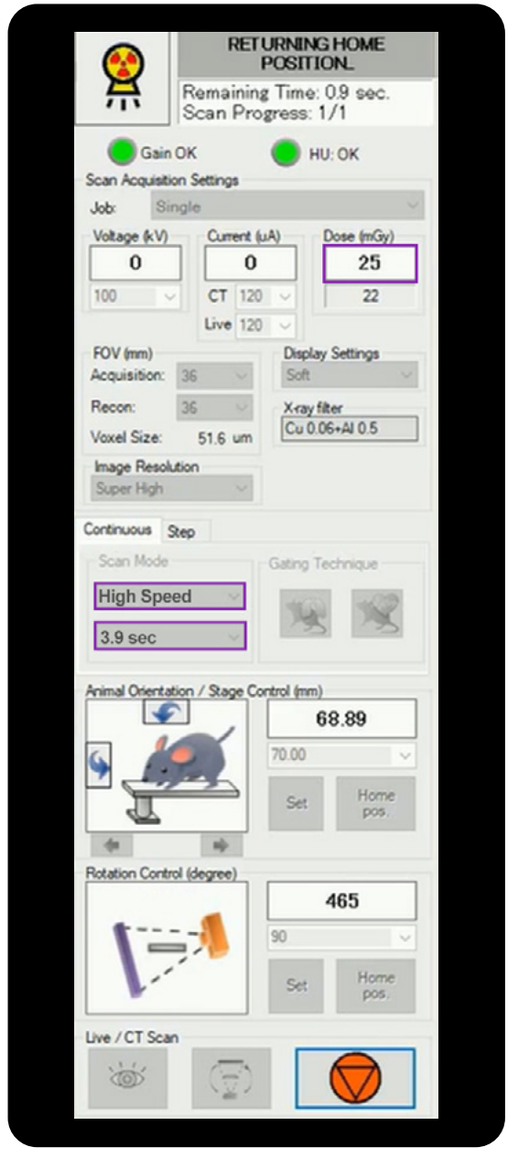


Image-based gating of a mouse lung; ungated (left) and gated (right). The red arrows point to the sternum showing enhanced image quality after gating due to removal of motion artifacts.

Low-dose, high speed imaging, and faster reconstruction times

The Quantum GX3 provides industry-leading fast scan times of 3.9 seconds in high-speed mode. The rapid data acquisition reduces the radiation exposure minimizing the health impact to the animal which is crucial for performing longitudinal studies or imaging immuno-compromised subjects.

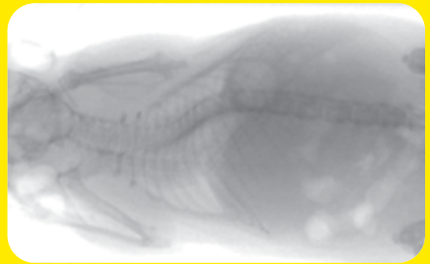
The rapid scan times and a fast reconstruction time of 6 seconds enable a 3D image to be acquired and reconstructed with the Quantum GX3 in just 20 seconds. Fast imaging combined with smooth workflows delivers the throughput needed to scan up to 30 animals in an hour quickly and easily, accelerating your research studies.



Advanced enhancements for improved visualization

Improved Fluoroscopy

Better visualization of anatomical structures and vasculature (angiography) in real-time

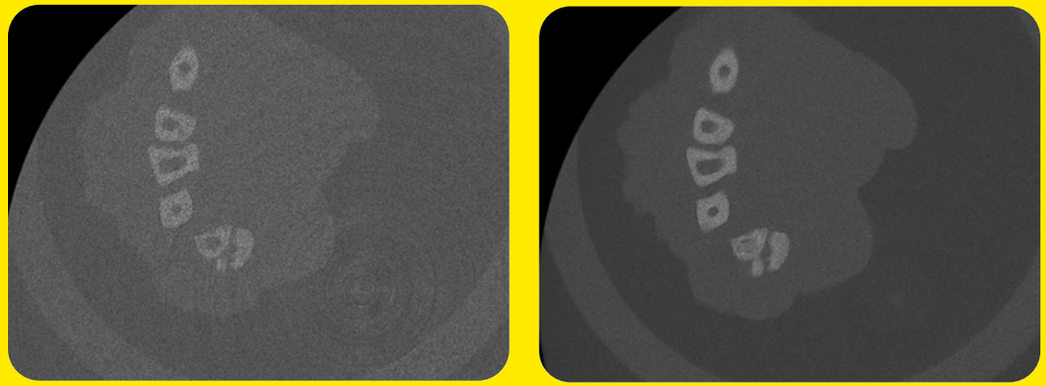


Specimen Holder

Specifically used with our exclusive 8 mm FOV, the specimen holder enables imaging of *ex vivo* biological samples.

Active Ring Reduction

Hardware enhancements remove ring artifacts from your scans, significantly improving image quality.



Features and benefits at a glance

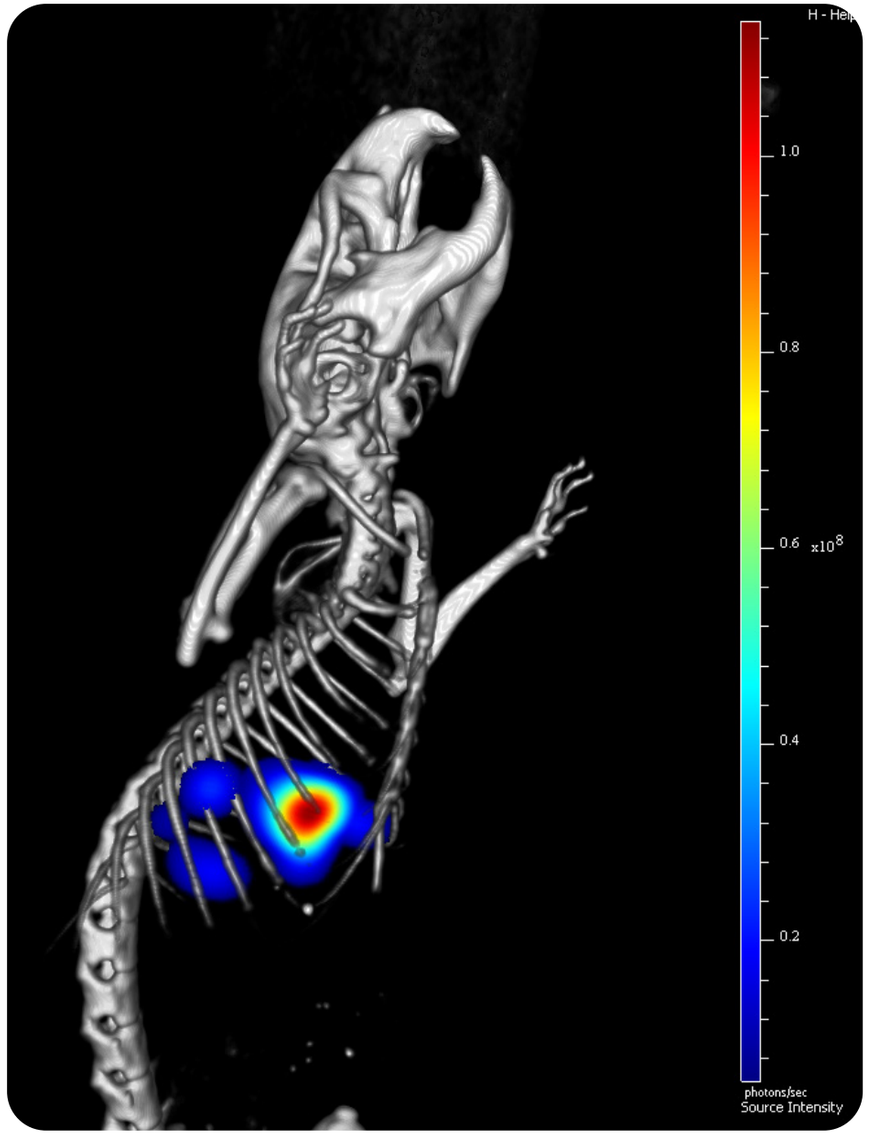
Feature	Specification	Benefit
Detector	CMOS flat panel, 14-bit (2944 x 2352 pixels)	Delivers robust, reliable, and higher quality images
X-ray Voltage	20-100 kV, 200 uA, 20 W	Increased x-ray penetration for imaging dense tissue which results in better signal-to-noise and superior images
Field of Views	8, 18, 36, 72, 86 mm	Enables imaging of a wide range of animals and specimens
Specimen Holder	3 connecting holders	Used to image small specimens
Spatial Resolution	5 µm | 2.86 µm smallest pixel size	Superior resolution for visualizing anatomical features in greater detail
Filters	6 changeable filters with automatic sensing	Software verification of filter selection to ensure correct filter is being used for the study
Scan Time	3.9 sec (fastest)	▪ High speed imaging minimizes x-ray exposure to the subject ideal for longitudinal studies or immuno-compromised animals ▪ Increases throughput accelerating research & development
Reconstruction Times	6 sec (fastest)	Increases throughput accelerating research & development
Respiratory and Cardiac Gating	Image-based retrospective cardiac and respiratory gating	Removes motion artifacts of heart and lungs in multiple species including ferrets.
Continuous and Step Scanning Modes	Yes	Option for continuous mode for faster acquisition or step mode for higher resolution
Touchscreen monitor	Yes	Easy-to-use interactive screen
Co-registration	Yes	Easily combine data from the Quantum GX3 with IVIS® 3D optical or Vega® 3D ultrasound data to obtain both functional/ molecular and anatomical readouts from the same animal
Active Ring Reduction	Yes	Hardware enhancement automatically removes ring artifacts for increased image quality

Expanding your insight

Individual imaging and measurement techniques alone can fall short in answering crucial biological questions. By combining microCT data with other modalities, researchers can gain comprehensive insights into the molecular and anatomical features of both diseased and healthy biology.

Seamless co-registration of data from the Quantum GX3 can be easily combined with readouts from Revvity's IVIS® 3D optical systems using an animal imaging shuttle that keeps the subject anesthetized and in the same position. In just a few clicks, built-in fiducial markers automatically co-register microCT with 3D optical data.

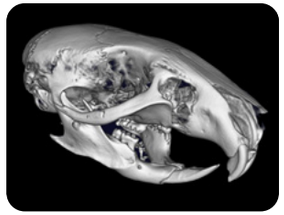
Readouts from the Quantum GX3 can also be exported in DICOM format and opened in many different analysis software programs used by other modalities such as MRI, PET, SPECT, and ultrasound.



Paving the way for preclinical breakthroughs

The Quantum GX3 low-dose microCT allows you to push the boundaries of what's possible by providing the versatility and technology you need to advance your research in many key application areas. This 3D tomographic system combines fast scanning and superior resolution with the flexibility of imaging a wide range of species.

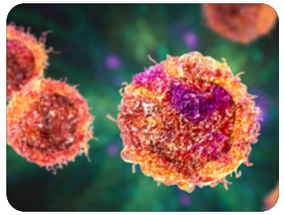
Click on each application to learn more.



Bone

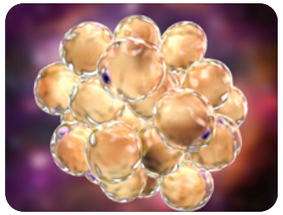
Lung

Cardiovascular



Oncology

Liver & Kidney



Body Composition

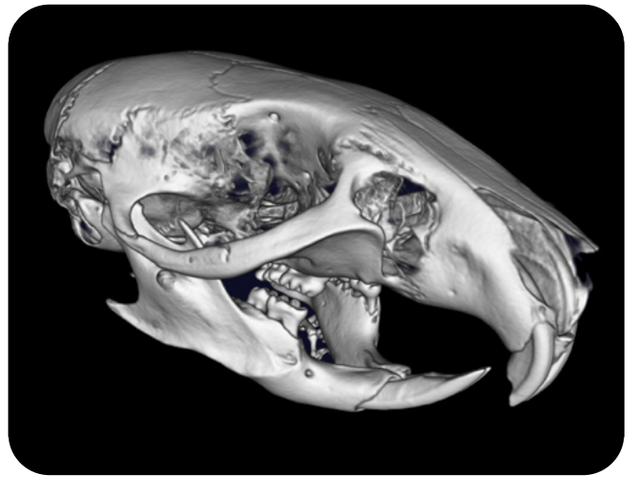
Close window

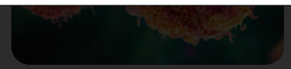
Bone research takes a quantum leap forward

The high resolution afforded by the Quantum GX3 system enables superior imaging of small, trabecular, and cortical bone structures. You can explore and assess 3D volumes and micro-architecture in a variety of species with greater precision.

Unlock valuable insights in key application areas, including:

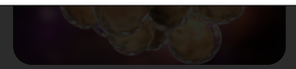
- Assessing bone mineral density and morphology
- Studying bone resorption/damage (osteoarthritis, arthritis)
- Investigating primary and metastatic tumors
- Phenotyping genetic disorders
- Exploring the effects of aging and osteoporosis





Oncology

Liver & Kidney



Body Composition

Close window

Reach new heights in respiratory research

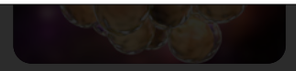
Experience superior image-based retrospective two-phase respiratory gating with this high-performance system for lung imaging applications in mice, rats, and ferrets.

Gain knowledge in key application areas such as:

- Investigating respiratory viruses and bacterial infections
- Gaining greater knowledge about lung cancer
- Understanding healthy and disease-related respiratory function, including asthma, COPD, emphysema, pneumonia, and fibrosis

Oncology

Liver & Kidney



Body Composition

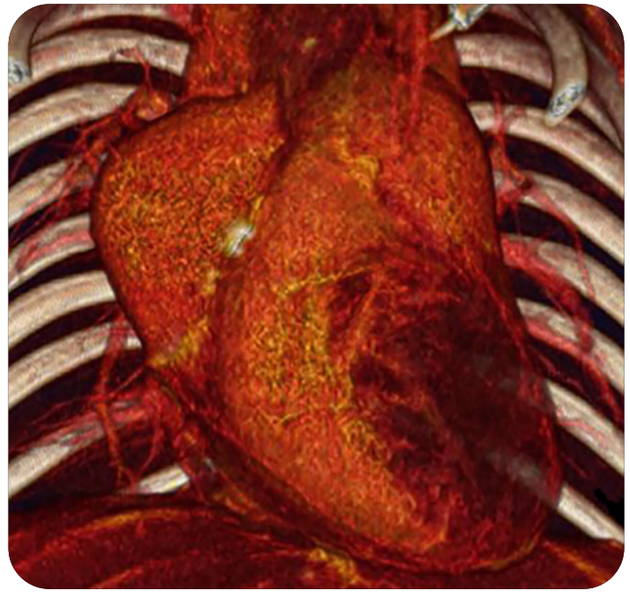
Close window

Reaching the heart of discovery

With short scan times and state-of-the-art image-based 2-phase retrospective cardiac gating, the Quantum GX3 delivers the technology needed to obtain advanced insights into cardiac function and disease.

Now you can:

- Visualize detailed cardiac structure and function
- Obtain precise functional measurements (stroke volume, ejection fraction)
- Evaluate drug candidate effects on cardiac function



Oncology

Liver & Kidney

Body Composition

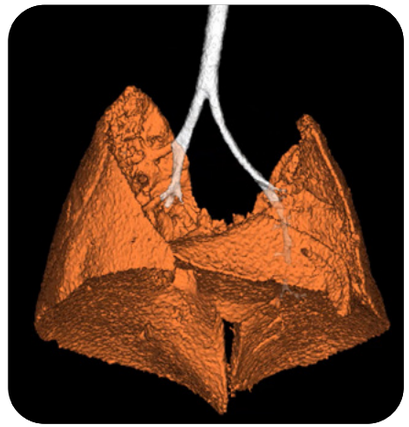
Close window

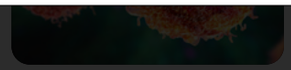
See beyond the surface of what's possible

Prepare to break the barriers that block discovery. With the Quantum GX3, you can visualize and quantify 3D anatomical changes related to cancer biology and treatment response like never before.

Imagine the possibilities for progress as you:

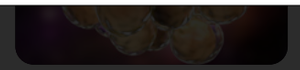
- Track tumor evolution and monitor tumor development and progression with greater precision
- Quantify tumor volume for better insights
- Evaluate therapeutic response to treat with greater accuracy
- Visualize tumor vasculature and angiogenesis in detail





Oncology

Liver & Kidney



Body Composition

Close window

Discover the power of non-invasive liver and kidney imaging

Now you can obtain fast and accurate images and quantitative measurements for liver or kidney biology non-invasively over time with high resolution. Completely non-invasively. No surgeries. No worries.

You can quickly and accurately:

- Quantify steatosis and fibrosis (NASH, NAFLD) research
- Evaluate inflammation and infection accurately
- Visualize vascular density and perfusion with clarity

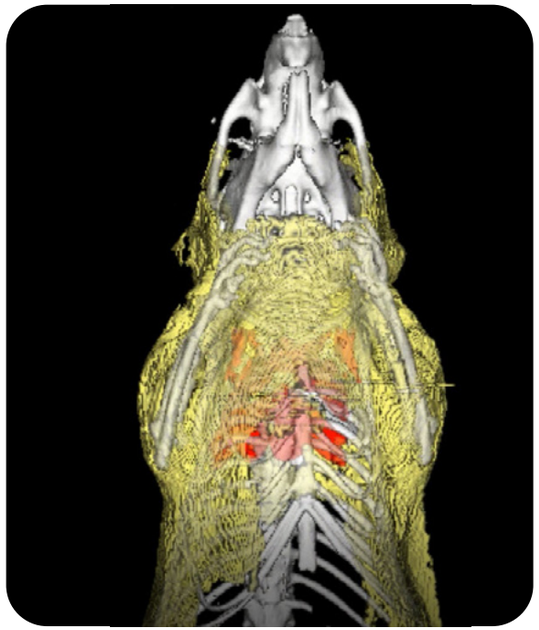
Oncology

Liver & Kidney

Body Composition

Close window

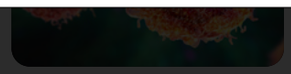
Crack the code of body composition to solve health challenges



Step into a world of discovery. The Quantum GX3 microCT can help visualize the effects of metabolic disorders and aging on body composition with fast scan times that allow for low-dose longitudinal monitoring.

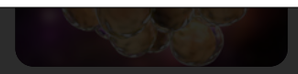
Exploring body composition and biological function enables you to:

- Differentiate subcutaneous, visceral, and brown adipose tissues for a complete picture
- Quantify impact of new therapies on adipose tissue volumes to help comprehend and fight obesity and diabetes as well as better understand the impact of aging



Oncology

Liver & Kidney



Body Composition

Streamline your data capture and analysis

Experience data capture and analysis made easy with intuitive software enabling rapid automatic 3D reconstructions within seconds of scanning. Basic analysis tools allow you to visualize tissue densities or make quantitative measurements. Additionally, you can export data in DICOM format for further analysis in various software programs.

Software highlights:

- Easy-to-use software for the acquisition and viewing of microCT data
- Analysis tools measure distances and region of interest (ROI) areas
- The viewer displays crisp 3D renderings of thresholded objects
- Image database provides hierarchical organization for study scans
- The job scan feature allows for automated sequential imaging or stitching of single images into a larger panoramic
- Sub-volume reconstruction feature enables higher-resolution imaging
- Easy co-registration with IVIS 3D optical imaging data

Maximize your microCT data with Analyze 14

The dynamic capabilities of Analyze 14.0 software allow you to get the most from your MicroCT data. It is designed to provide advanced imaging visualization, manipulation, and measurements including advanced bone analysis, body composition, fat volume, and more. Analyze 14.0 software gives you the tools you need to visualize your data's full potential.

Highlights of Analyze 14.0 software include:

- Quickly segment precise anatomical regions
- Measure lengths, volumes, and intensities for in-depth statistical analysis of data
- Easily filter images for optimized visualization
- Co-register your microCT data with other modalities
- Display and save images as high-resolution stills or 3D videos
- Perform spatial and intensity transformations, mathematical processing, and data reorientation
- Bone microarchitecture analysis (BMA) add-on available

Push the boundaries of your research

Easily image large species

Optional imaging bed designed for supporting large animals (e.g. rabbits) up to 5 kg in weight. Combined with the large 163 mm bore cover, entire guinea pigs and rabbits (up to 5 kg) can be imaged in the Quantum GX3.

Specimen holder

For use with our exclusive 8 mm FOV, facilitating higher throughput imaging of small *ex vivo* biological samples.

For simultaneous delivery of anesthesia to multiple instruments

The RAS-4 rodent anesthesia system facilitates efficient gas distribution through four delivery circuits while minimizing excess gas exposure to lab personnel with active scavenging capabilities:

- Delivers anesthesia to two instruments, an induction chamber, and benchtop accessories simultaneously
- Vacuum system for active scavenging of isoflurane through imaging chamber manifolds and benchtop accessories
- Separate dedicated exhaust for induction chamber to prevent anesthesia exposure

Quickly transfer your subject between imaging modalities

The mouse imaging shuttle enables the subject to be transferred from the IVIS® 3D optical system to the Quantum GX3 microCT instrument for seamless co-registration of 3D optical and CT images

- Shuttle maintains mouse positioning for both scans
- Easily snaps into holders specially made for the IVIS and Quantum GX3, respectively
- Software uses fiducial markers for automatic co-registration

Imaging that powers preclinical research

2D optical imaging

IVIS Lumina III platform
IVIS Lumina 5 platform

- Benchtop 2D bioluminescence and fluorescence imaging
- Optional integrated x-ray

2D & 3D optical imaging

IVIS Spectrum 2 platform

- High sensitivity 2D and 3D bioluminescence and fluorescence imaging
- Optional integrated CT

MicroCT imaging

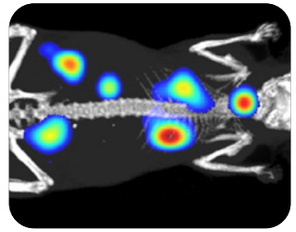
Quantum GX3

- High-resolution, fast, low-dose microCT for *ex vivo* biological samples and *in vivo* applications

Ultrasound

Vega®

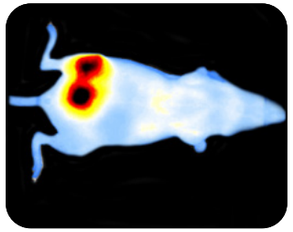
- Automated, hands-free, and high throughput
- Scan times in <1 minute
- Whole-body field of view



Reagents

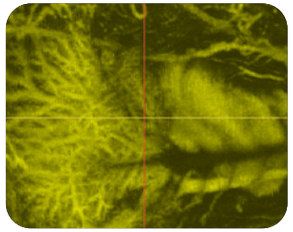
IVISbrite™

- Bioluminescent substrates, cells, and lentiviral particles



IVISense™

- Fluorescent probes, labels, and dyes



VesselVue®

- Microbubble contrast agents for vascular ultrasound imaging

Your greatest challenge is our call to action

We're uniquely posed to help you with the challenges you face. Our experienced team of scientists and specialists is here to support you. From application questions, to training, to troubleshooting advice, to helping you select the best imaging system for your research — we have the resources you need to get the most out of your *in vivo* imaging studies.

Application support

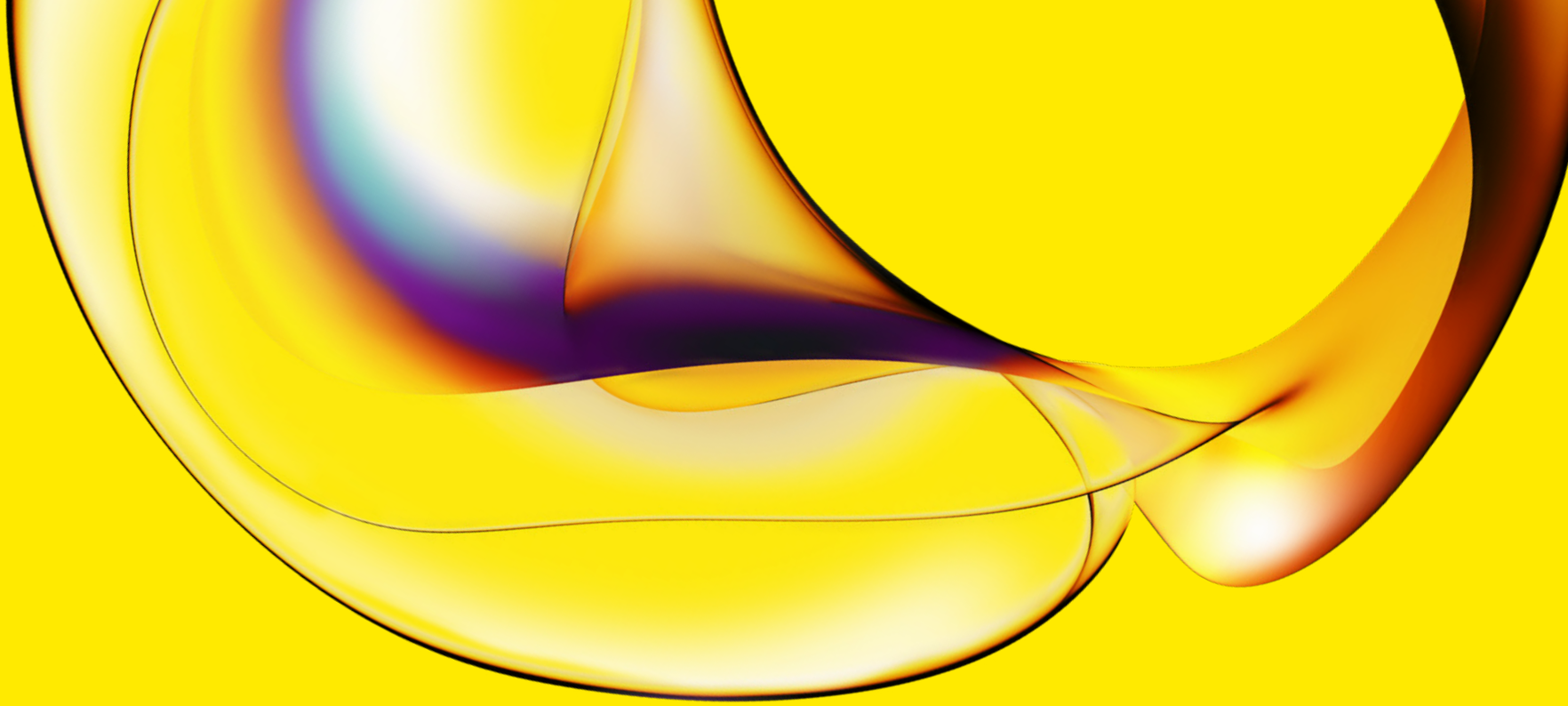
Our global team of dedicated application experts offers in-depth scientific knowledge that can help you achieve your research goals. Our application scientists are your primary contact for any questions, from developing imaging protocols to training and education, ensuring you get the answers and guidance you need.

Learn from our experts

Get the most from your *in vivo* imaging research by learning from our experts. We offer basic and advanced training at your facility and classroom training through *In Vivo* University to broaden your knowledge, share with fellow researchers, and gain firsthand insights from field application specialists.

Service customized for you

Our worldwide network of service engineers is available to help you with installation, preventative maintenance, technical guidance, and any repair services to ensure your imaging system operates as optimally as possible to meet your *in vivo* imaging research goals.



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