



In-Vivo Xtreme

- Preclinical Optical/X-ray Imaging System
Extremely sensitive, extremely versatile,
and extremely fast

In-Vivo Xtreme

One of the most respected brands in scientific instrumentation, Bruker Corporation is a global company that serves researchers in a broad range of industries including life sciences, clinical research, pharmaceutical, biotechnology, material science and more. With a focus on preclinical research, Bruker provides the most innovative and cutting edge technologies for small animal imaging including magnetic resonance imaging (MRI), magnetic particle imaging (MPI), optical, X-ray, nuclear (PET, SPECT), and X-ray computer tomography (micro CT). By offering the most expansive collection of imaging modalities, the Bruker imaging portfolio becomes unparalleled in the market offering you the most complete and diversified choice for the advancement of small animal preclinical research. In the area of high resolution optical and X-ray imaging systems we were the first to offer the combination of four modalities—luminescence, fluorescence, radioisotopic, and X-ray—in a single system for preclinical research. And now we continue our long tradition of innovation with the our most advanced optical imaging platform—the In Vivo Xtreme.

The Power to Do More

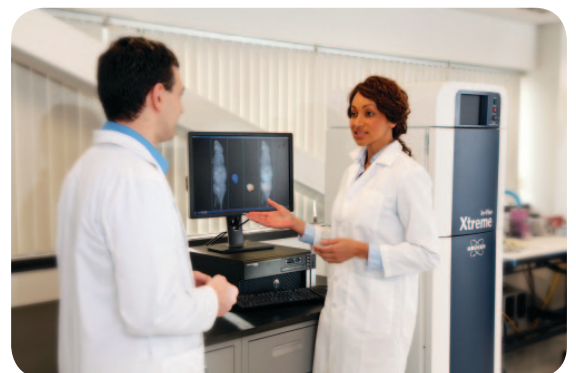
When your small animal imaging experiments demand the most from you, count on the In-Vivo Xtreme. A full featured imaging system with unparalleled specifications, the Xtreme is the ideal choice for complex preclinical imaging applications. With more imaging modalities combined in one system (fluorescence, luminescence, radioisotopic, and X-ray) limitless experimental possibilities are at your fingertips, when and where you need them. Xtreme's high throughput capability and ease of use, combined with the ability to switch effortlessly between modalities, puts control of your research back into your hands. Never be limited by technology again.

The Power to Choose

We have designed Xtreme with an innovative system architecture that gives you the opportunity to select a camera, coupled with an ultra-fast, high sensitivity lens to meet your research needs, performance criteria and budget. You can configure your system with a back-illuminated 4 MP camera . Or you may select a front-illuminated 16 MP camera. The choice is yours.

Expect Nothing but the Best

- Very high sensitivity for bioluminescent & fluorescent imaging
 - Fast f/1.1 lens coupled to cooled camera
 - Powerful 400W Xenon light source
- Rapid (one second) high resolution X-ray acquisitions
 - True microfocus X-ray source
 - Patented ultra-thin, ultra-uniform radiographic phosphor screen
- Unmatched imaging versatility & rapid multimodal acquisitions
 - Four modalities in one system - fluorescence, luminescence, radioisotopic and high resolution X-ray
 - Precise co-registration of optical signal with high resolution X-ray
 - Powerful broad-spectrum Xenon light source excites any relevant fluorophore
 - Patented high-sensitivity radioisotopic screen
- Modular, upgradeable systems protect your investment
 - Select between back-illuminated and front-illuminated cameras to meet your performance requirements
 - Choice of system with and without X-ray
 - Upgrade pathway for any system configuration
- High throughput molecular imaging
 - Rapid acquisition of fluorescence, luminescence, and radioisotopic images
 - Image multiple subjects simultaneously — large 19 cm FOV
- Fast, convenient workflow
 - Automatic co-registration between imaging modalities
 - Full automation of all image capture settings
- User-friendly acquisition and analysis software
 - Standard and advanced user interfaces
 - Quantitative image analysis tools
- World-class service, training and technical support
 - On-site service for your convenience
 - Remote access, technical and applications support
 - Complete installation, calibration and training



The Power of the Technology Inside

Your laboratory is a strategic asset, and the research that you perform for yourself and others requires the highest quality standards, performance and functionality in the imaging system that you purchase. At Bruker, we take that seriously. Under its sleek, modern tower design, we engineered and built Xtreme to be one of the most

dependable, reliable and versatile imaging systems on the market today. With Xtreme, you have the greatest choice of imaging modalities in one easy-to-use system that delivers the highest quality images with the speed, sensitivity and resolution that you demand, each and every time. Take a look inside. You won't be disappointed.

X-ray Source

- True microfocus X-ray head
- Geometric magnification stage for high resolution imaging
- High speed X-ray head 500 μ A

Animal Management

- Easy, automated change between X-ray and optical imaging modalities without moving or disturbing the subject
- Large 19 cm FOV for multi-subject imaging
- Ultra-thin, highly uniform radiographic screen
- Warm air delivery to regulate animal temperature
- Light-tight ports for catheter injections
- Compatible with gas anesthesia systems

Camera, Lens & Emission Filters

- Choice of back-illuminated 4 MP camera or front-illuminated 16 MP camera
- Large, fast f/1.1 lens coupled to the largest sensor in its class
- 6 patented, high-sensitivity wide angle emission filters
- Automated 8 position filter wheel
- Camera configurations are upgradeable

Fluorescence Light Source & Excitation Filters

- Powerful 400W Xenon illuminator
- 28 narrow band excitation filters
- Excite fluorophores from the visible to the NIR

Small Footprint

- Compact size - requires only 73 x 86 cm of floor space
- Large, lockable casters for easy positioning
- Integrates into any laboratory



The Power of Imaging Your Way

Your research needs are diverse and you do not want to be constrained by not having the right imaging modality at your fingertips when you need it. Bruker has a long tradition of building preclinical multimodal, high-throughput imaging systems that remove these constraints and put the power where it belongs — with you. Xtreme's four imaging modalities are all nicely tied together with the powerful MI software suite so you can select the modality required. Whether you need fluorescence, luminescence, radioisotopic, or X-ray, the versatility of the system is limited only by your imagination. Put Xtreme's power to work for you in research studies such as:

- High throughput pharmacodynamic studies in vivo
- Image low light signals such as bioluminescence or Cherenkov radiation
- Image real-time changes in biochemical pathways in live cells and animals
- High throughput screening of SPECT and PET probes
- Use, development, and validation of probes and biomarkers
- Quantifying changes in bone and soft tissue structure
- Track migration of cells in vitro and in vivo
- Easily co-register functional images (optical and radioisotopic images) with anatomical X-ray images

Two Systems to Choose From

The *in vivo* Xtreme imaging system comes in two models, each with a computer loaded with MI software, on-site installation, calibration, training and technical support. All you need to do is select the camera.

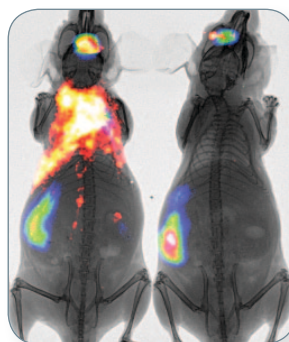
- Back-illuminated 4 MP camera
- Front-illuminated 16 MP camera

And your decision does not lock you in — should you decide to upgrade your camera, it can be done at your convenience, right in your lab.

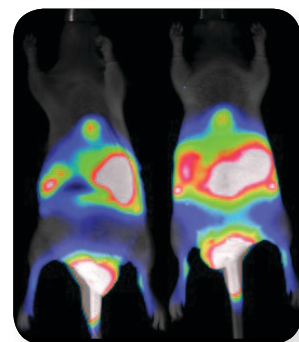
Robust Software Suite

Xtreme comes with Molecular Imaging (MI) Software, a powerful suite of tools for acquisition, visualization, and precise quantification of imaging data. Features include:

- Single-click multimodal acquisitions
- Preloaded and read-only acquisition settings
- Easy-to-use standard and advanced user capture interfaces
- Simple export options allow data analysis with any 3rd party software
- Powerful protocol builder for complex multimodal imaging
- Multiplex feature for simultaneous visualization and analysis of multiple images
- Powerful multispectral software for unmixing overlapping fluorescent signals and eliminating autofluorescence



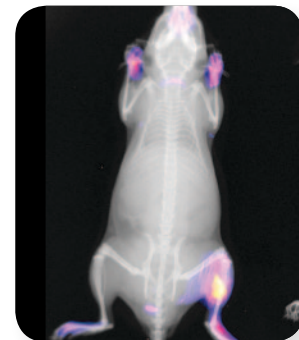
NIR fluorescent and luminescent imaging of inflammation & cell death



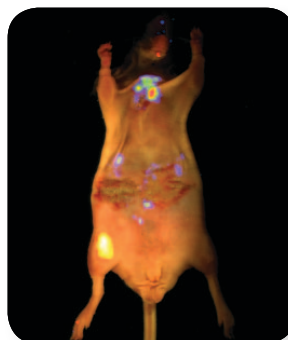
In vivo imaging of ICG distribution after subcutaneous injection



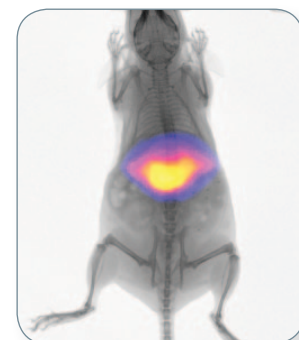
High resolution X-ray of a mouse paw



Multimodal NIR fluorescence co-registered with X-ray



Multimodal fluorescence and luminescence image of a skin irritation model



NIR fluorescence imaging of liver uptake of ICG

In-Vivo Xtreme System Specifications

Camera and Lens

Detector Type	1) Interline front-illuminated (FI) 16 MP CCD detector 2) Back-thinned, back-illuminated (BI) 4MP CCD detector
CCD Pixel	1) FI 16MP: 4872 x 3248 2) BI 4MP: 2048 x 2048
CCD Size	1) FI 16MP: 36 x 24 mm 2) BI 4MP: 27.6 x 27.6 mm
Size of Pixel on Sensor	1) FI 16MP: 7.4 μm 2) BI 4MP: 13.5 μm
Read Noise	1) FI 16MP: 8 e- 2) BI 4MP: 3 e-
FOV	1) FI 16MP: 10 x 6.6 cm to 19 x 13 cm 2) BI 4MP: 7.2 x 7.2 cm to 19 x 19 cm
Lens	f/1.1 – f/16, 58 mm lens, fixed
Luminescence Sensitivity	1) FI 16MP: <4600 photons/sec/cm ² and <112 photons/sec/cm ² /sr 2) BI 4MP: <650 photons/sec/cm ² and <50 photons/sec/cm ² /sr

Fluorescence Specifications

Light Source	400W Xenon illuminator
Excitation Filters	28
Excitation Wavelength Range	410 nm – 760 nm
Emission Filters	6 filters, 8 position wheel
Emission Filter Wavelength Range	535 nm – 830 nm
Patented High-Sensitivity Wide Angle Filters	Yes

X-ray Specifications

Maximum Resolution	1) FI 16MP: > 25 lp/mm 2) BI 4MP: > 18 lp/mm
X-ray Spot Size (Nominal)	<60 μm
Energy Range	20-45 kVp
Max Current	500 μA
Filters	0.1 mm, 0.2 mm, 0.4 mm, 0.8 mm, or no filter

Physical Specifications

Footprint (W x D x H)	72 x 84 x 183 cm
Imaging Modalities	Fluorescence, luminescence, radioisotopic, and radiographic
Catheter Ports	Yes
Compatible with most commercial gas anesthesia	Yes
Animal Warming	Warm air 20°C – 40°C
Computer Supplied	Yes

Worldwide Service, Training and Technical Support

At Bruker, we want your research programs to succeed, so we are here to support you with a comprehensive suite of service, training and technical support programs that are second to none.

Comprehensive Support and Protection for your Investment

We help you protect your investment by offering:

- A comprehensive warranty, backed by an expert service team, so you are covered from day one
- A choice of service packages from basic to pre-mium and preventive maintenance
- A range of technical support options including phone support and remote access support
- Application support by our team of PhD scientists
- Problem solving assistance by our imaging experts and highly responsive world-wide support team

Training Programs for Users at all Levels

We help you achieve more by offering training programs that are custom designed to meet your specific imaging and application needs. Select from cost-effective options for users at all levels: from basic introductory skills to in-depth techniques for advanced users. From one-on-one instruction to a full classroom – it's your choice.



Seven Imaging Modalities in Two Compact Instruments

The In-Vivo Xtreme, with its unique combination of fluorescence, luminescence, radioisotopic and X-ray, is the perfect complement for Albira, our revolutionary preclinical PET/SPECT/CT imaging system. With the power of Xtreme and Albira, you can support your discovery and development research from concept to completion for rapid hypothesis testing, quantitative in vivo validation, and rapid translation to clinical trials.

About Bruker Corporation

Bruker Corporation, a public company with 6,200 employees worldwide, is a global technology and market leader in magnetic resonance imaging (MRI), magnetic particle imaging (MPI) and X-ray micro computer tomography (micro CT) and more. With the addition of high resolution In-Vivo optical/X-ray and Albira PET, SPECT and CT systems, the Bruker preclinical imaging portfolio becomes unparalleled in the market, offering you the most diversified choice of imaging modalities for small animal preclinical research.



Get seven imaging modalities in two compact instruments with the In-Vivo Xtreme and Albira.

● Bruker BioSpin

44 Manning Road
Billerica, MA 01821

www.bruker.com/Xtreme