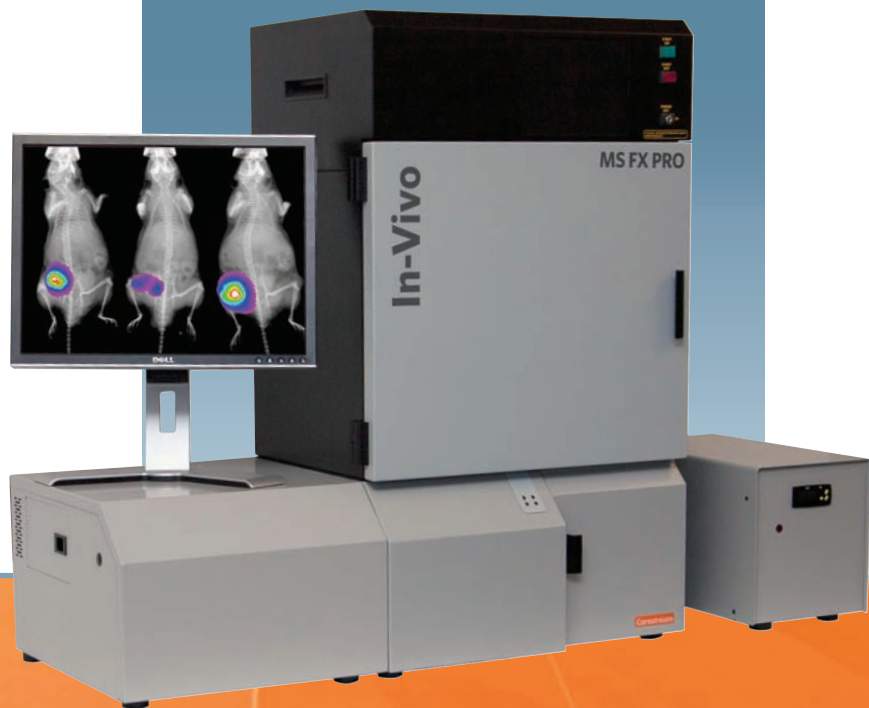
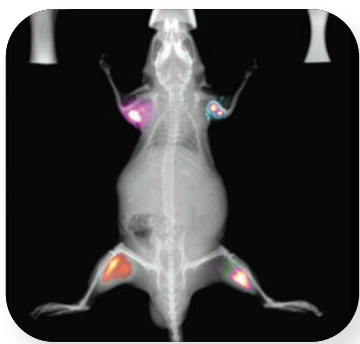
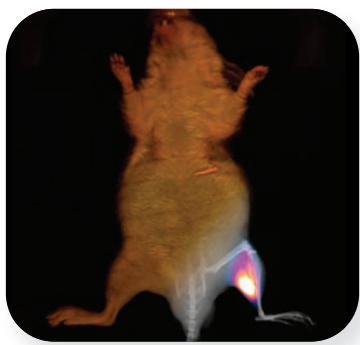


In-Vivo

IMAGING SYSTEMS

A complete line
of high resolution
optical & X-ray systems
for pre-clinical imaging



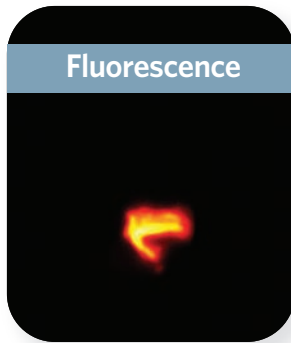
Carestream

In-Vivo Imaging Systems

Carestream is a strong, successful, multi-billion dollar, international company providing innovative *in-vivo* and *in-vitro* digital imaging systems to our customers around the world. A highly respected leader in molecular imaging solutions, we were the first to offer an innovative combination of luminescence, fluorescence, radioisotopic, and radiographic imaging in a single, award-winning instrument specifically designed for the pre-clinical, small animal researcher.

Our In-Vivo product line consists of several different systems: the entry level In-Vivo F PRO, the mid-level In-Vivo FX and FX PRO systems, our unique DXS Digital X-ray system, and our full-featured, flagship In-Vivo MS FX PRO. This variety of products allows you to choose the one system that best meets your particular imaging needs. The combination of high sensitivity optical imaging and high-resolution digital X-ray in a single, multimodal system, allows for unmatched versatility, superior image quality and streamlined workflow.

At Carestream, digital imaging is in our DNA. With decades of expertise and hands on experience in preclinical small animal imaging, we understand your needs and the challenges you face. Because at Carestream, pre-clinical imaging isn't just an afterthought. It's our life's work.



Fluorescence imaging.



X-ray imaging.



Precise co-registration of the fluorescent image with the anatomical X-ray.

This is what makes our In-Vivo systems great:

- **Unmatched imaging versatility with rapid multimodal acquisitions**
 - ▼ Rapid imaging of fluorescent & radioisotopic labeled molecules in combination with luminescent and X-ray imaging
 - ▼ Precise co-registration of optical images with high resolution X-ray images
 - ▼ Ideal for both in vivo and in vitro assays
 - ▼ Powerful broad spectrum 400W Xenon light source; excite any relevant fluorophore
- **Very high resolution and superior image quality**
 - ▼ Exclusive wide angle emission filters enhance detection sensitivity and image quality
 - ▼ Unique imaging geometry improves image clarity by providing a flat focal plane
 - ▼ Advanced 4 megapixel camera and cooled CCD technology
- **Precise, automatic image co-registration**
 - ▼ Patented multimodal design means the subject never moves
 - ▼ Accurately co-register images from any of four modalities
- **Fast, convenient workflow**
 - ▼ Single click acquisition of complex imaging protocols
 - ▼ High throughput imaging of multiple animals in all modalities
 - ▼ Live preview facilitates easy subject positioning and focusing
- **High performance discovery**
 - ▼ Enables longitudinal study and rapid localization of biomolecules of interest
 - ▼ Validate and discover new molecular imaging probes and pre-clinical biomarkers
- **User friendly, state-of-the-art software suite**
 - ▼ Automated Region of Interest tools make image analysis fast and easy
 - ▼ Sophisticated software algorithms remove autofluorescence
- **World-class service, training and technical support**
 - ▼ Choice of extended service packages to maximize instrument performance
 - ▼ Expert training for users at all skill levels
- **Complete turnkey imaging solution**
 - ▼ All-inclusive system includes everything you need to begin imaging
 - ▼ Complete installation, calibration and initial training included

Complete digital imaging solutions

When you invest in a Carestream In-Vivo Imaging System, or any other Carestream imaging product, you are doing more than just purchasing an instrument. You are getting an entire team dedicated to making sure your research is successful. From our powerful, easy-to-use software, to our knowledgeable and professional technical support team, to customizable training programs, you are getting an entire turnkey solution to meet your molecular imaging needs.

Superior molecular imaging software

Our new Carestream Molecular Imaging Software optimizes your system's performance and your productivity with integrated image acquisition, quantitative analysis and image databasing capabilities. An all new navigational structure features workflow driven tool palettes for improved ease of use.

- Powerful, easy-to-use capture & visualization
- Simple, automated analysis and reporting
- Intuitive user interface for managing workflow
- Unified platform for managing all in vitro & in vivo images
- Superior data protection and image integrity

Worldwide service and technical support

At Carestream, 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. We help you protect your investment by offering:

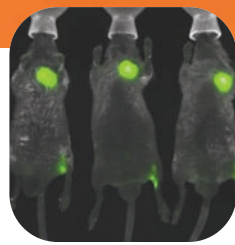
- A comprehensive warranty, backed by an expert service team, so you are covered from day one
- A choice of service packages from basic to premium and preventive maintenance
- A range of technical support options including phone support and remote access support
- Application support by our team of PhD 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, on-site or on-line — it's your choice.





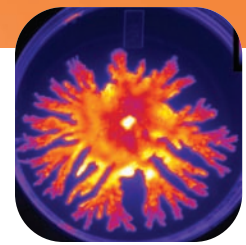
Detection of green fluorescent dyes *in vivo*



High resolution NIRF and X-ray imaging



X-ray of mouse pup paw (with geometric magnification)



Swarm plate of fluorescent *Pseudomonas aeruginosa*

Specifications

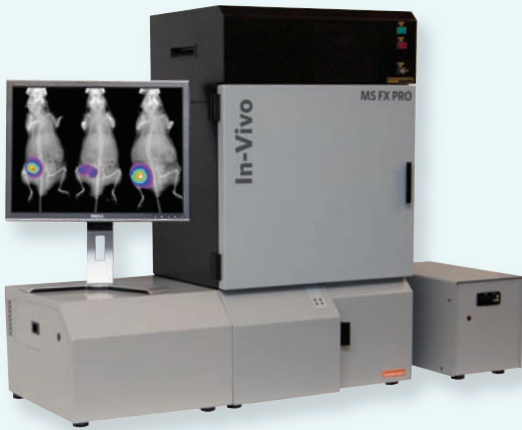
Camera		Performance	
CCD	Monochrome interlined CCD	Imaging Area	2 x 2 cm to 20 x 20 cm, continuous zoom
Pixel Density	2048 x 2048 pixels	Resolution	10 micron/pixel (max.)
Lens	10X zoom, 20-20 cm, f2.5	Pixel Size	7.4 μ m
Illumination		Data Acquisition	16-bit single capture n-bit data acquisition
Source	Manual systems: 150W Halogen (std), 175W Xenon (optional) Automated systems: 400W Xenon	Dark Current Noise	$\leq 5 \times 10^{-5}$ e-/pixel/sec (@ -29°C absolute)
Fluorescence	Selectable multi-wavelength, epi-illumination, Xenon Selectable multi-wavelength, epi-illumination, Halogen	Read Noise	<7 e-rms (nominal)
White Light	Epi-illumination Transillumination	Dynamic Range	>4.0 orders of magnitude
		Binning	1x2, 2x2, 1x4, 2x4, 4x4, 1x8, 2x8, 4x8, 8x8, 16x16
Digital X-ray		Exposure Modes	
Resolution Contact	≥ 25 lp/mm (nominal)	Single Capture	0.175 sec-100 min (X-ray min 1.125 sec)
Energy Range	Approximately 12-35 kVp	Multiple Capture	0.175 sec-100 min, 32 accumulations max
Maximum Current	Approximately 150 μ A	Progressive Exposure	0.175 sec-100 min per frame, minimum increment = 1 sec
Spot Size	< 50 μ	Time Lapse Exposure	0.175 sec-100 min per exposure, minimum interval = 0.675 sec
Target Material	Tungsten	Animal Management	
Window Filtration	Beryllium		Animal management chambers
Cone of Illumination	>33 degrees		Automated animal heater (optional for DXS PRO)
Filtration	Aluminum		Atmospheric ports
		System Requirements	
		Computer	PC and monitor supplied standard
		Interface	Ethernet
		Operating Systems	Windows XP; Macintosh OS X

Standard & Optional Filters

	In-Vivo FX	In-Vivo DXS PRO	In-Vivo F PRO	In-Vivo FX PRO	In-Vivo MS FX PRO
Excitation Filters					
Filter Positions	5	NA	15	15	29
Filters Provided	4	NA	14	14	28
Standard Filters	465 nm - 720 nm	NA	410 nm - 760 nm	410 nm - 760 nm	410 nm - 760 nm
Additional Filters Available	385 nm - 755 nm	NA	390 nm - 770 nm	390 nm - 770 nm	390 nm - 770 nm
Emission Filters					
Wide Angle	Yes	NA	Yes	Yes	Yes
Filter Positions	4	NA	4	4	4
Filters Provided	4	NA	6	6	6
Standard Filters	535 nm - 790 nm	NA	535 nm - 830 nm	535 nm - 830 nm	535 nm - 830 nm
Additional Filters Available	440 nm - 850 nm; custom	NA	440 nm - 850 nm; custom	440 nm - 850 nm; custom	440 nm - 850 nm; custom

Select your *in vivo* imaging solution from five high performance systems

Carestream Molecular Imaging offers a selection of In-Vivo Imaging Systems so you can choose one that best meets your particular imaging needs. Each system provides exceptional resolution, sensitivity and image quality for accurate quantification of your data.



In-Vivo MS FX PRO

Our flagship system, the In-Vivo MS FX PRO, further combines advanced multispectral imaging capabilities with all four imaging modalities in one system. The In-Vivo MS FX PRO features automated image capture including powerful excitation based spectral unmixing. The resulting enhanced sensitivity enables identification and separation of multiple fluorophores and removal of autofluorescence background. The MS FX PRO automatically generates multispectral image "cubes" with spatially co-registered X-ray and white light images for improved localization of biomarkers *in vivo*. Elegant visualization and rendering capabilities enable co-registration of multiple modalities or fluorophores in the same image.



In-Vivo DXS PRO

The DXS PRO System is ideal for X-ray imaging of small animals, plants, and more. It features a state-of-the-art radiographic phosphor screen that generates images with outstanding 25 line pair per millimeter resolution contact. 10X continuous zoom provides the flexibility to optimally image a variety of specimen sizes and zoom in on features of interest. The DXS PRO comes as a full energy calibrated system allowing for true quantification of your X-ray, and enabling bone density software. The DXS PRO also features automated controls and filters for simplified workflow.



In-Vivo FX

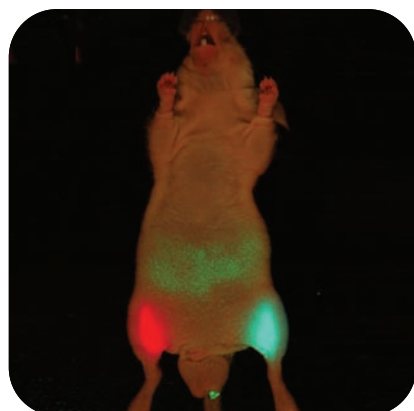
The In-Vivo FX provides high performance optical molecular imaging of near-IR fluorescent, radioisotopic and luminescent labels in small animals. It features cooled CCD technology, selectable multi-wavelength illumination, and an X-ray module for sensitive radiographic imaging, enabling precise anatomical localization of biomarkers of interest.



In-Vivo F PRO and FX PRO

The In-Vivo FX PRO combines high sensitivity optical molecular imaging and high resolution digital X-ray to deliver precise anatomical localization of molecular and cellular biomarkers. Precision automation simplifies complex multimodal imaging protocols and takes sensitivity, throughput, and ease of use to an entirely new level. The In-Vivo F PRO offers the same automated functionality without the X-ray capability.

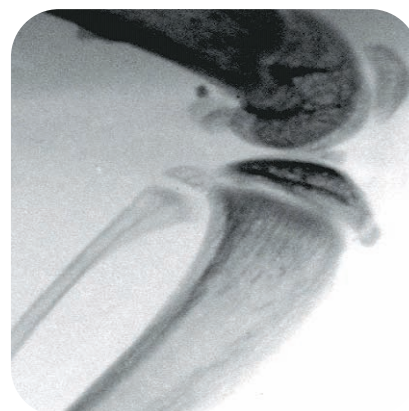
Imaging capabilities include:



Spectral unmixing of NIR probes



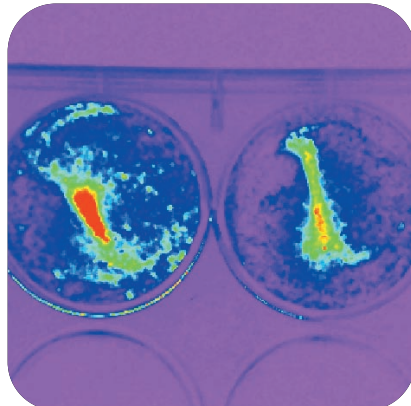
Spectral unmixing of live fluorescent-labeled bacteria



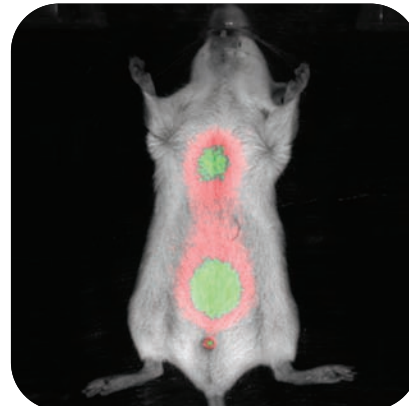
X-ray of mouse knee joint (zoomed)



Three fluorescent images co-registered on X-ray image of a mouse



Luminescence in a 96 well plate (zoomed)



¹⁸F Radioisotopic image of FDG co-registered with white light image

Product Selection Chart

Instrument	Modalities				Features		
	Fluorescence	Luminescence	Radioisotopic	Radiographic (X-ray)	Automation	Spectral Unmixing	White Light Reflectance
In-Vivo FX	★	★	★	★			★
In-Vivo DXS PRO				★	★		
In-Vivo F PRO	★	★	★		★		★
In-Vivo FX PRO	★	★	★	★	★		★
In-Vivo MS FX PRO	★	★	★	★	★	★	★

Find out more

For more information, to request pricing, an in-lab demo, or to place an order, call 1-877-747-4357, exp. code 7. Outside the U.S.: +1-203-786-5658.

 mi.carestream.com

Carestream's pre-clinical imaging systems are not licensed to perform certain optical imaging applications that involve the in vivo imaging in mammals of (i) genetically expressed bioluminescent or fluorescent protein or (ii) conjugates of cells and light generating molecules, such applications are covered by patents owned or controlled by Caliper Life Sciences, Inc. Such patents include the following: U.S. Patents Nos. 5,650,135; 6,217,847; 7,198,774; 6,649,143; 6,939,533; 6,916,462; 6,923,951; 6,890,515; 6,908,605; 5,824,468; 6,638,752; 6,737,245 and 6,867,348; U.S. Patent Application No. 11/818,208; European Patent No. 0861093 and European Patent Application No. 991246406; Japanese Patent Nos. 3786704 and 3786903; Canadian Patent No. 2237983; Singapore Patent No. 53708; Hong Kong Patent No. 1018747; and Chinese Patent No. 951980068.

Carestream
Molecular Imaging

one source
for all your molecular imaging needs