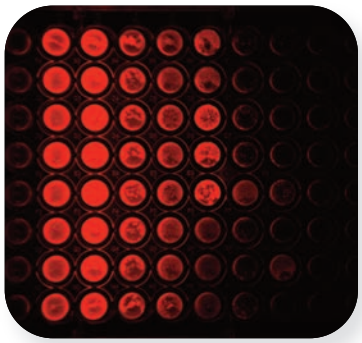
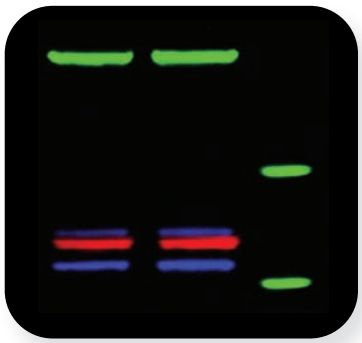
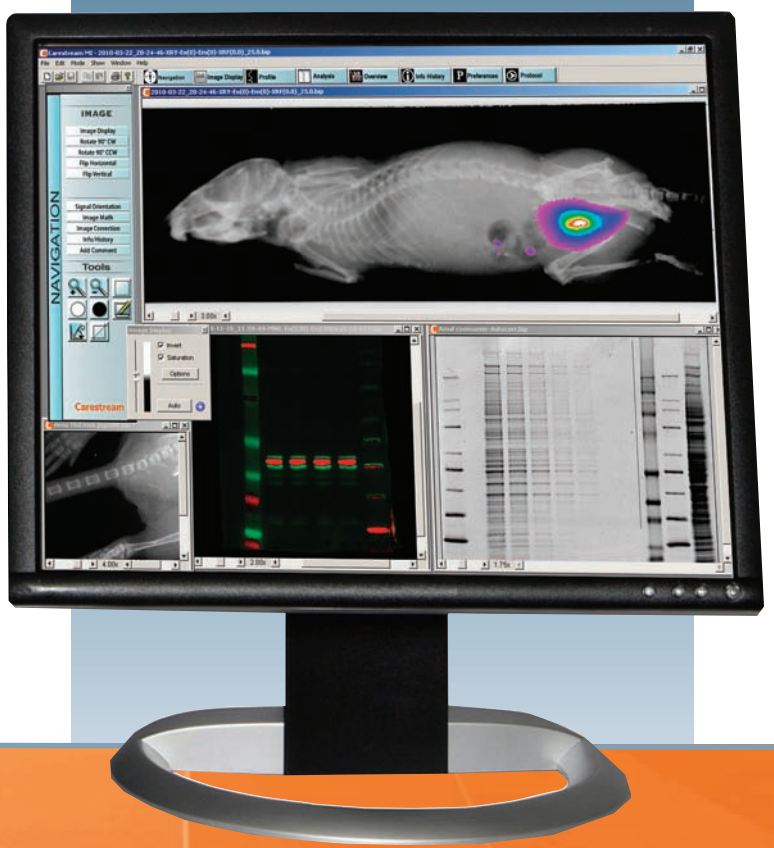
Carestream
Molecular Imaging

# Molecular
## IMAGING SOFTWARE

**High Performance**
**Image Analysis**
**and Publication Tools**







# Carestream

## Molecular Imaging Software

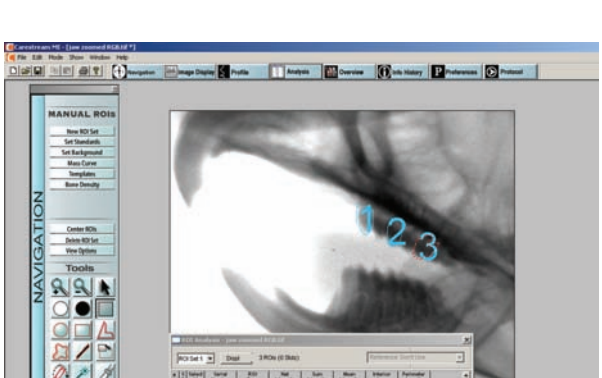
Carestream Molecular Imaging (MI) Software provides high-performance image analysis for a wide range of molecular imaging applications. With a comprehensive set of tools for quantitation, image display, databasing, and reporting, Carestream MI Software improves the quality and ease of image analysis for gels, blots, plates, small animals, and more. An intuitive navigational structure featuring workflow-driven tool palettes further streamlines the optimization and analysis of images.

- **Supplied with all Carestream In-Vivo, Image Station and Gel Logic imaging systems;** also compatible with TIFF or JPEG image file formats
- **Advanced image display control** including image filters, pseudocolors, feature masking, histogram adjustment and image overlay capabilities.
- **Comprehensive image analysis tools** for quantitation of data within electrophoresis gels, Western blots, microplates, and other features of interest such as tumors, cells, etc.
- **User-friendly navigation** features a palette-driven interface for convenient access to toolbars and commands
- **Windows 2000/XP 7 and Macintosh OSX** single user, network and regulatory versions available

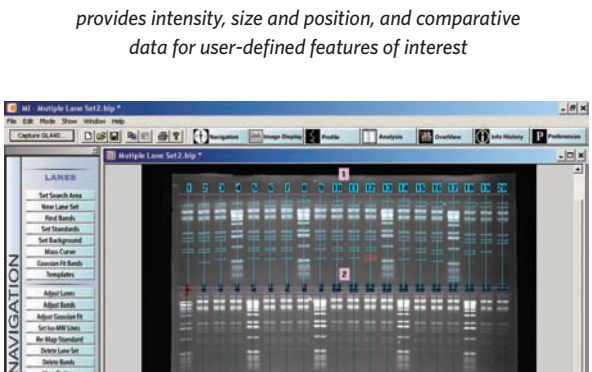
## Powerful Tools, Just a Click Away

Carestream MI Software sets the standard for high-performance image analysis and simplicity of operation. The key? An innovative, user-friendly navigation system that uses a collection of workflow-driven tool palettes. Carestream MI Software provides fast access to specific tool sets for manipulation and analysis of gels, blots, arrays, plate assays, small animals, and more.

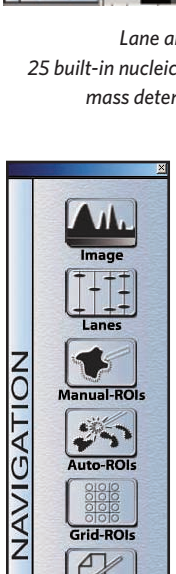
Better results, faster results, easier results—they're all within your grasp with the Carestream MI Software suite of products.




*Comprehensive region of interest (ROI) analysis capability provides intensity, size and position, and comparative data for user-defined features of interest*




*Lane and band analysis tools provide over 25 built-in nucleic acid and protein standards for fast sizing and mass determination of single or multiple lane sets*




*Carestream MI provides users pushbutton access to its many tools and applications through the Navigation bar:*

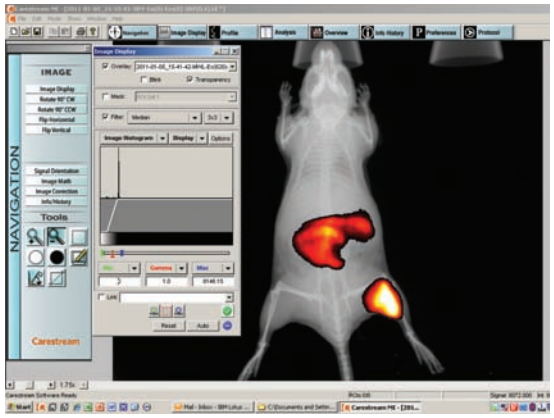
***Image*** *- Tools for optimizing image presentation*
***Lanes*** *- Tools for quantifying gels and blots*
***Manual ROIs*** *- Applications for drawing regions of interest and quantify imaging data*
***Automatic ROIs*** *- Functions for automatically finding and quantifying regions of interest*
***Grid ROIs*** *- Functions for quantifying plate and array data*
***Annotation*** *- Tools for presenting imaging data in notebooks and publications*
***Database*** *- Functions for searching and storing imaging datasets*

## Image Panel

**Gain precise control of image appearance on screen and in print**

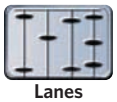

Image

— **Image display** provides access to image histogram, brightness/contrast/gamma control, filters, pseudocolors, and more
— **Feature masking** and **image overlay** allow features of interest to be selected and merged with other image files
— **Rotate, flip,** and **crop tools** allow proper orientation and display of features of interest
— **Image math** and **image correction** provide mathematical tools that can be applied to a single image or pair of images

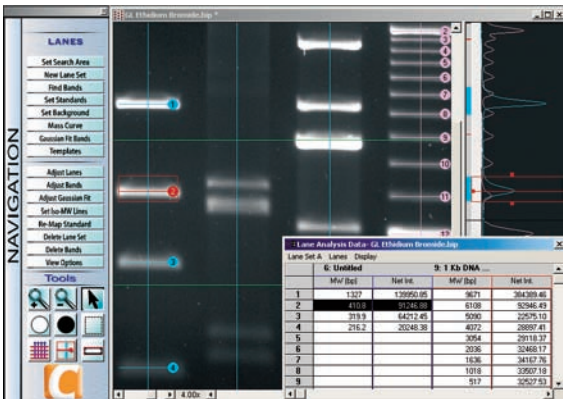



## Lanes Panel

**Provides comprehensive analysis of nucleic acids and proteins in gels and blots**


Lanes

— **Auto-lane definition** and **auto-band finding** make analysis of electrophoresis gels fast and easy
— **Multiple lane set capability** allows rapid analysis of high-throughput gel formats
— An **intensity profile** window allows viewing and editing of band boundaries and background definition for each lane
— **Gaussian deconvolution** improves analysis accuracy of saturated and overlapping bands
— Over 25 nucleic acid and protein **molecular weight and/or mass standards** are conveniently pre-defined for use in quantitating unknown bands. New standards can be added and saved quickly and easily




## Region of Interest (ROI) Panels

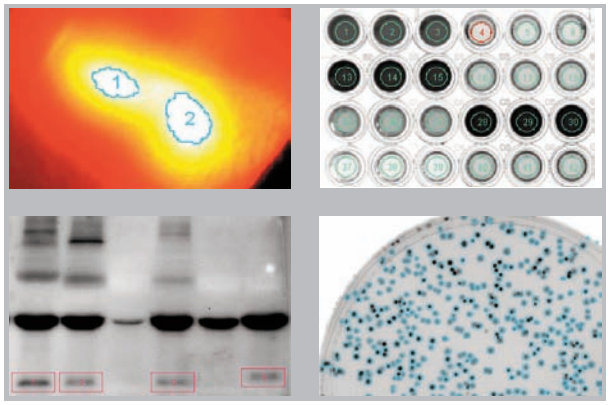
**Define, measure, and count specific regions of interest such as bands, spots, bacterial colonies, arrays, tumors, cells, and more**


Manual-ROIs


Auto-ROIs

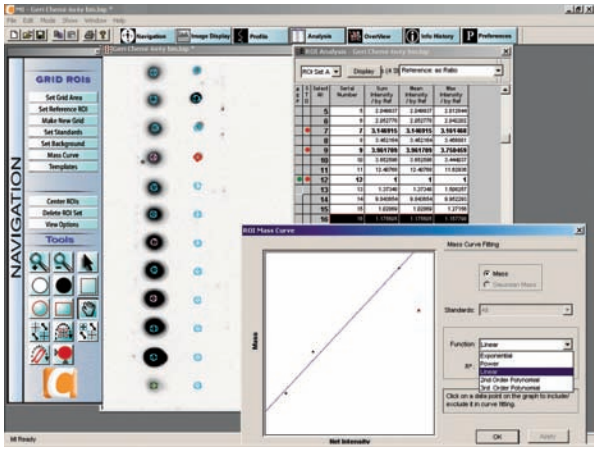

Grid-ROIs

— **Select ROIs manually,** utilize the **magic wand tool,** or use an **automated detection algorithm** (edge detection, threshold, density slice, or peak finder) to define specific image features



*MI Software's manual and automated ROI definition tools allow fast and easy identification of a wide variety of features of interest*

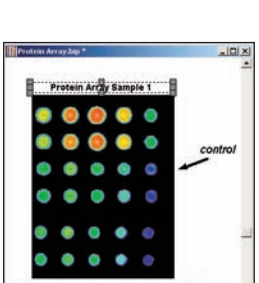
— **Selectively display a wide range of quantitative values** for each ROI, including intensity, geometry, and positional values
— **Produce comparative values** versus a reference ROI for rapid determination of relative intensity, size, etc.




— Set two or more ROIs as **mass standards** from which mass values for experimental ROIs can be derived
— Select proper fit for data points within a selected mass curve

## Annotation Panel

**Provides a canvas for formatting images, text, graphics, and data for publication purposes**

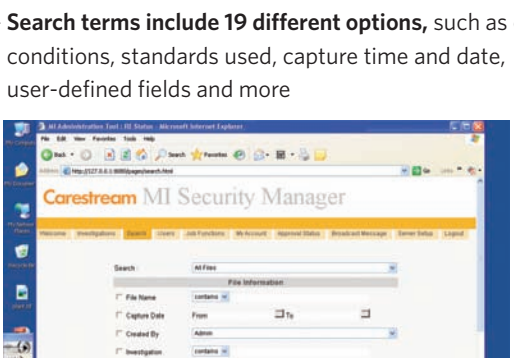

— **Images** can be cropped or zoomed to highlight specific features
— **Drag & drop** quantitative values from the analysis window; or type lane labels, figure legends, and other text information using a variety of colors and fonts
— **Intensity profile, mass curve,** and other project elements can be added to the annotation canvas as desired
— An **intensity scale** can be displayed to provide a quantitative map of pseudocolor intensity

## Database Panel—Project Database

**Utilizes image and file information to identify specific projects stored in the database**




— **Search terms include 19 different options,** such as capture conditions, standards used, capture time and date, user-defined fields and more

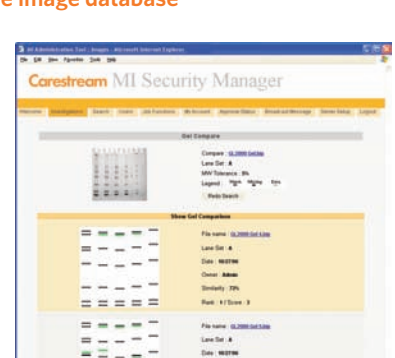



— **Image thumbnails and key file attributes** for each project meeting the search criteria are displayed; one or more projects can be launched directly from the database results window

## Database Panel—Gel Comparison

**Identifies the presence or absence of bands across multiple gels in the image database**


— **Allows user-defined molecular weight tolerances** to be used to identify a band match
— **Displays results in sorted order,** with the closest matching results first

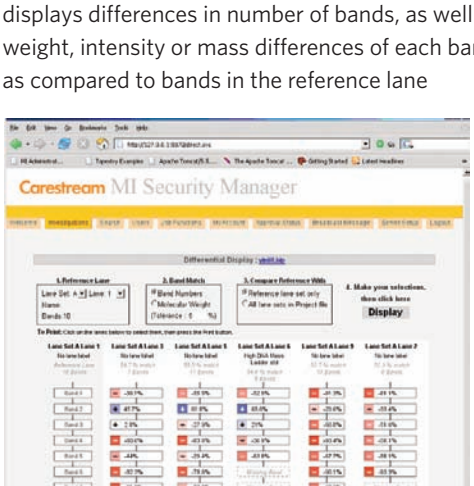



## Database Panel—Differential Display

**Uses a single lane as a reference to which other lanes in the image are compared**




— **Compares lanes on a band-to-band basis** and graphically displays differences in number of bands, as well as molecular weight, intensity or mass differences of each band in the image as compared to bands in the reference lane




— **Results for each band compared are graphically represented as color-coded band boxes,** which are scored to indicate the degree of matching to the bands in the reference lane

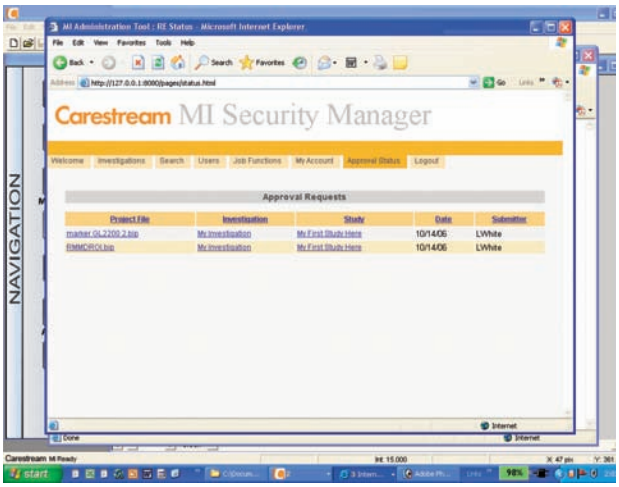
# Special Editions for Advanced Applications

## Carestream MI Software Regulatory Edition

**Supports your compliance with U.S. FDA Code of Federal Regulations, 21 CFR, Part 11**

— **Security features** include user identification, data management, change logging, digital signatures, and more to assist with U.S. FDA 21 CFR, Part 11 compliance

— **Seamlessly stores images, image meta-data, and analysis results** within Carestream MI Software and Carestream *in vivo* and *in vitro* imaging systems




— **Intuitive controls** make it easy to submit, review, and approve electronic records

— **Audit trail tools** maintain and preserve a record of all raw data and create a complete audit trail of any changes made to the file specifying user ID, time, and date

— **Cross-platform** supports either Macintosh or Windows users and is fully upgradeable from Kodak 1D or MI Software versions

## Carestream Bone Density Software

**Perform bone density analysis of small animals in vivo**

The Bone Density Software Module is designed for a wide range of applications ranging from the study of bone diseases, such as arthritis and osteoporosis, to the efficacy of drugs and other treatment options that may affect bone mineral and other densities. Sophisticated numerical analysis using a cylindrical model provides measurements not only of the density of the bone, but also of the bone marrow, the size of the bone and the thickness of the bone wall, all important parameters for tracking and monitoring disease development.

Designed for use with the In-Vivo MS FX PRO, In-Vivo FX PRO and In-Vivo DXS PRO Systems.

## Carestream Multispectral Software

**Supports spectral modeling and unmixing of fluorescent sample elements, both in vivo and in vitro**

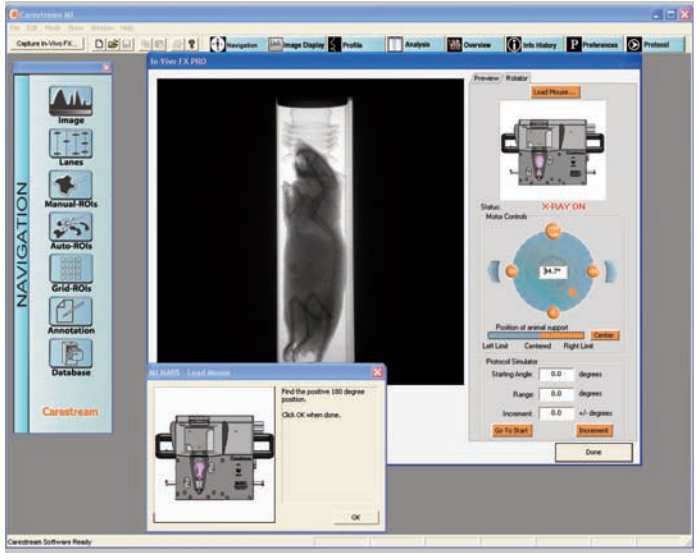
Carestream Multispectral Software provides spectral modeling of fluorescent sample elements (i.e. fluorescent agents, tissue fluorescence, etc.) for both in vivo and in vitro sample imaging. This allows for improved use of multiple fluorescent agents (i.e. multipexing) in a single sample as well as the removal of non-specific fluorescence. Custom spectral models for various elements can be generated via a graphical user interface that also facilitates simple management of spectral models.

Pushbutton launch into the complementary Carestream Molecular Imaging Software allows for optional analysis of spectral elements and a continuous workflow. Multi-modal data sets including multispectral, X-ray, luminescent, and/or radioisotopic detections are displayed in registration and with image presentation features provided. Carestream Multispectral Software is designed for use with the Carestream In-Vivo MS FX PRO system.

## MARS Rotation Software

**Supports 360° imaging of your subject so that you never miss an optical signal due to animal position**

MARS rotation software, for use with the MARS Multimmodal Animal Rotation System, enables automatic co-registration and visualization of multimodal and multispectral data sets from all acquired angles. Increase sensitivity by quantifying the perfect image or simply export an entire rotation movie.



## Imaging System Compatibility

**Carestream Molecular Imaging Software** contains integrated interfaces for Carestream In-Vivo, Image Station and Gel Logic cameras. MI Software supports image acquisition using TWAIN-compliant scanners and cameras. In addition, MI Software is compatible with TIFF and JPEG image files captured using other imaging devices. MI Software's n-bit file format capability and floating point data utilize all image file data for quantitative analysis.

## System Requirements

| | |
|---|---|
| Operating Systems (Windows) | Windows XP Professional (sp 3 or greater)<br>Windows 7 Professional |
| Operating Systems (MAC) | OS X (10.5 or higher) |
| Memory | 2 GB (4 GB recommended) |
| Monitor | 1280 x 1024 minimum |
| Required Ports | USB, Built-in Gigabit Ethernet |

## Available Software Configurations

Carestream MI Software is supplied as copy-protected single or multi-user packages for Windows and MAC operating systems. Multi-user network packages are also available. Carestream MI Software Regulatory Edition is available in network versions only.

## Worldwide Service, Training 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:

- A comprehensive warranty, backed by an expert service team
- 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 skill levels.

PROTECTED BY Carestream SERVICE one *Service that fits your needs.*

## Digital imaging is in our DNA

At Carestream, we have been providing advanced digital molecular imaging systems to preclinical researchers around the world for a very long time. With decades of expertise and hands-on experience in preclinical imaging, we understand your needs and the challenges you face. Because at Carestream, preclinical imaging isn't just an afterthought. It's our life's work.

## Find out more

For more information or to place an order,
call 1-877-747-4357, exp. code 7.
Outside the U.S.: +1-203-786-5657.
Or visit us at

**mi.carestream.com**

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