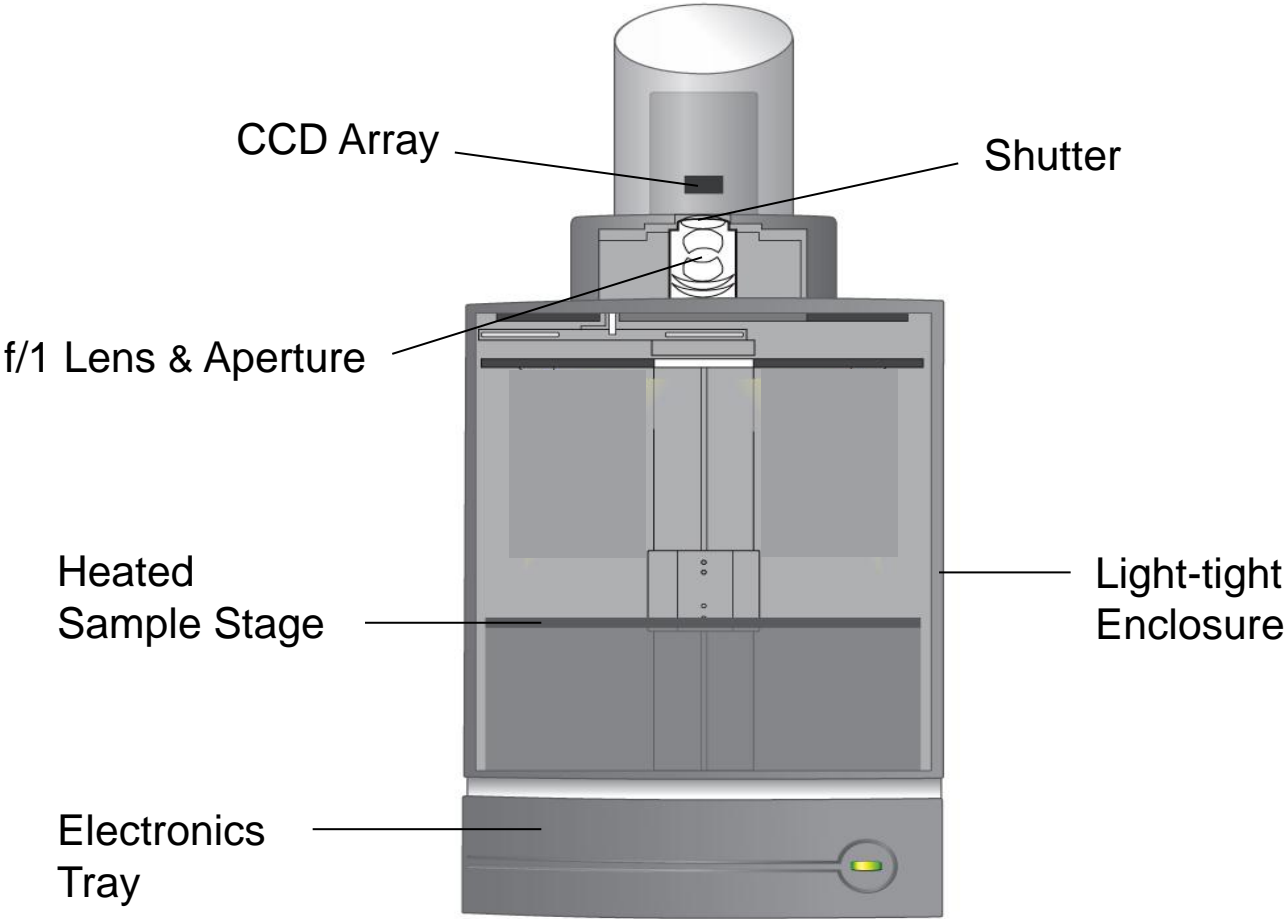


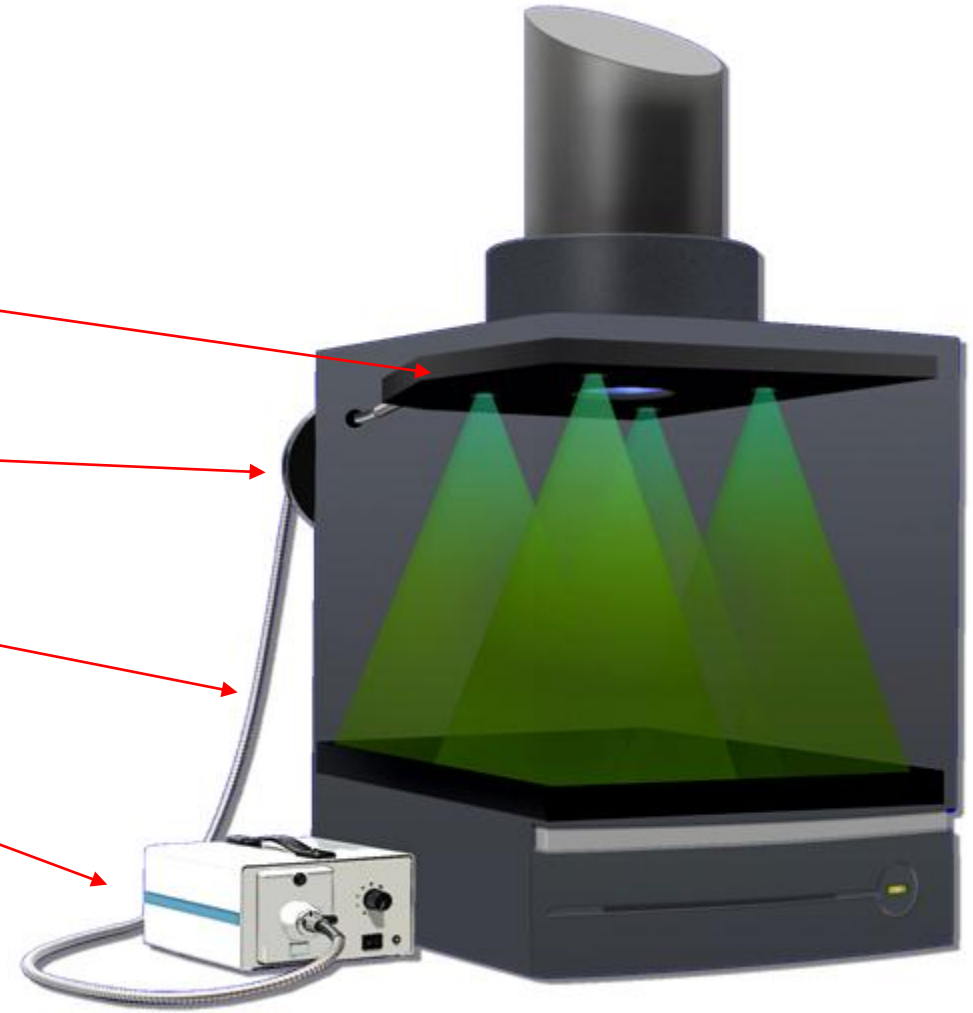


- Customized for *in-vivo* imaging
- Bioluminescence and fluorescence
- High sensitivity from 300-900 nm
- Large dynamic range

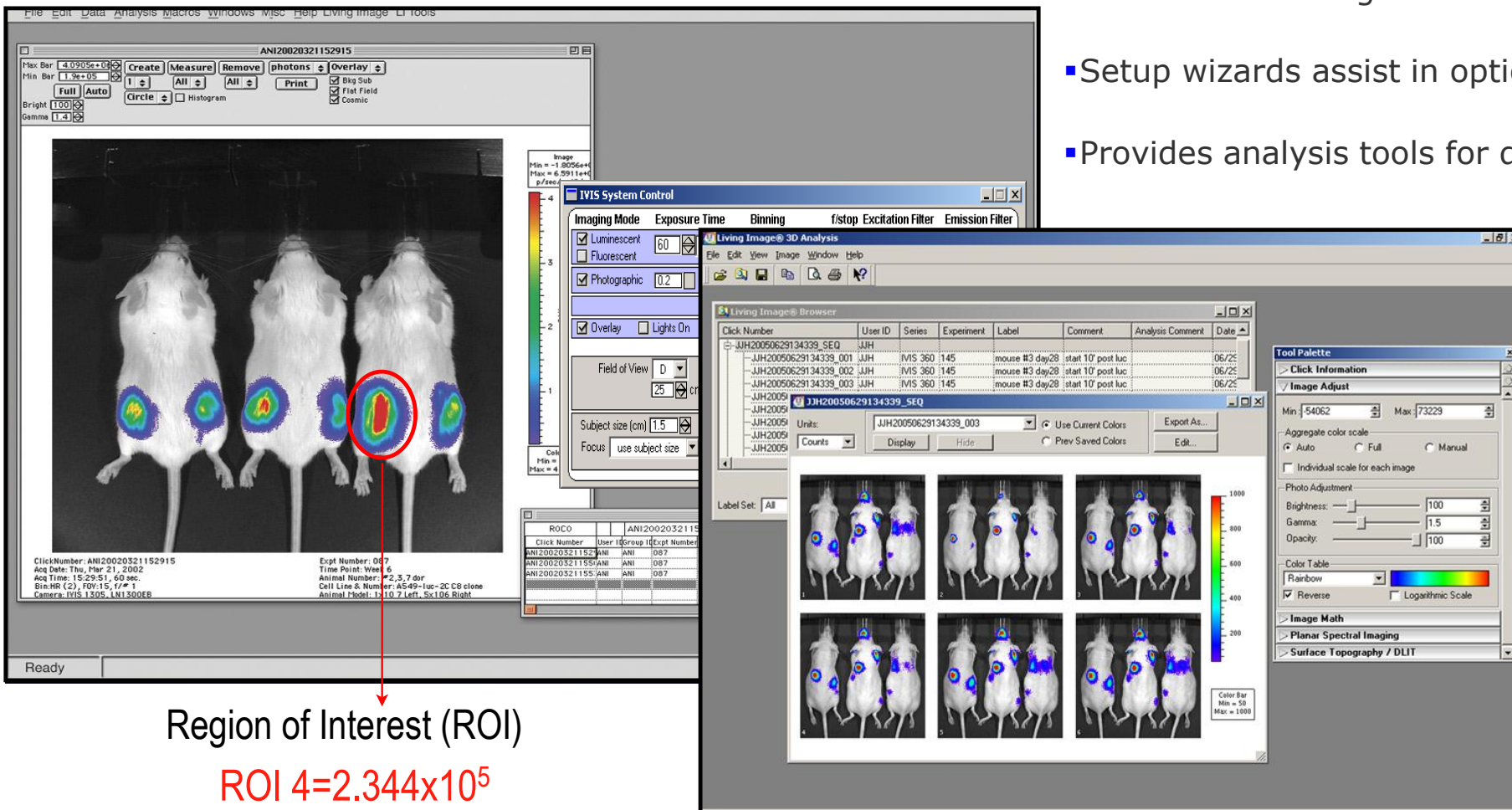
Lumina II Bioluminescent Components



- Fully computer controlled
- Emission filter wheel (user changeable)
- Twelve position Excitation filter wheel
- Low Auto-Fluorescence optics and fibers
- 150 Watt Tungsten/Halogen lamp with computer controlled intensity



- Controls all settings in the IVIS[®] system
- Setup wizards assist in option selections
- Provides analysis tools for quantification



The screenshot displays the Living Image software interface. The main window shows three mice with bioluminescence images overlaid on their bodies. A red circle highlights a specific region of interest (ROI) on the third mouse. The software interface includes various control panels and windows:

- Top Panel:** Contains menu options (File, Edit, Data, Analysis, Macros, Windows, Misc, Help, Living Image, LT Tools) and a toolbar with buttons for 'Create', 'Measure', 'Remove', 'photons', 'Overlay', 'Print', 'Histogram', 'Circle', 'Bright', and 'Gamma'.
- IVIS System Control:** A panel with tabs for 'Imaging Mode', 'Exposure Time', 'Binning', 'f/stop', 'Excitation Filter', and 'Emission Filter'. It includes checkboxes for 'Luminescent', 'Fluorescent', 'Photographic', 'Overlay', and 'Lights On', along with numerical input fields for 'Exposure Time' (60), 'Binning' (0.2), 'Field of View' (D), 'Subject size (cm)' (1.5), and 'Focus' (use subject size).
- Living Image® 3D Analysis:** A window with a menu bar (File, Edit, View, Image, Window, Help) and a toolbar.
- Living Image® Browser:** A window displaying a table of data:

Click Number	User ID	Series	Experiment	Label	Comment	Analysis Comment	Date
JJH20050629134339_SEQ	JJH						
JJH20050629134339_001	JJH	JVIS 360	145	mouse #3 day28	start 10' post luc		06/25
JJH20050629134339_002	JJH	JVIS 360	145	mouse #3 day28	start 10' post luc		06/25
JJH20050629134339_003	JJH	JVIS 360	145	mouse #3 day28	start 10' post luc		06/25
JJH20050629134339_SEQ	JJH						
JJH2009							
JJH2009							
JJH2009							
JJH2009							
JJH2009							

Below the browser window is a grid of six thumbnail images showing the mice with the ROI highlighted. To the right of the grid is a 'Color Bar' with a scale from 0 to 1000. The 'Tool Palette' on the far right includes sections for 'Click Information', 'Image Adjust' (with sliders for Brightness, Gamma, and Opacity), 'Image Math', 'Planar Spectral Imaging', and 'Surface Topography / DLIT'.

Region of Interest (ROI)

ROI 4 = 2.344×10^5

Absolute Calibrated Data in: $\text{photons s}^{-1} \text{cm}^{-2} \text{sr}^{-1}$

Bioluminescence

- High sensitivity and contrast
- Low signal requires sensitive CCDs
- Requires luciferin injection
- Useful for tumor labeling and studying gene expression in transgenic animals

Fluorescence

- Brighter signal but autofluorescence limits sensitivity
- Multiple wavelength reporters available
- Dyes and imaging agents extend into the NIR
- Potential uses include tracking antibody and drug distributions

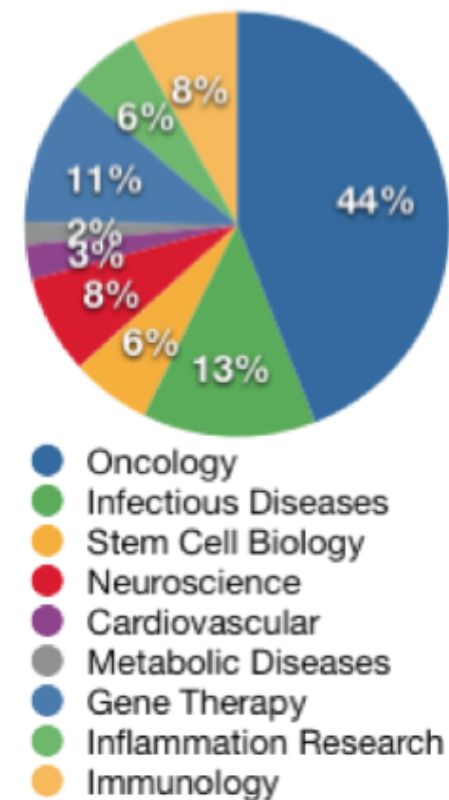
IVIS Preclinical Imaging

- All therapeutic areas
- Mode of action
- Efficacy studies
- PK/PD Readouts
- Dosing and treatment

IVIS imaging performance is measured by your results:

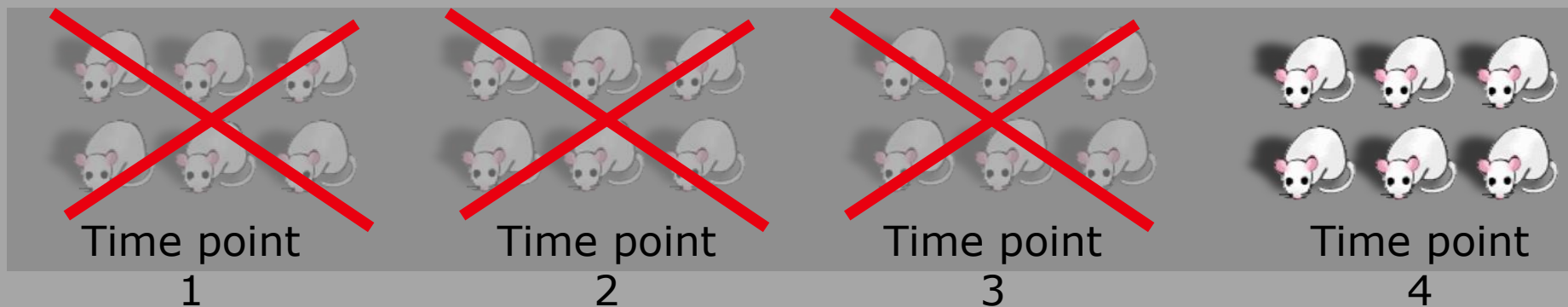
- 1000+ systems in laboratories worldwide
- Thousands of peer-reviewed publications
- 14 drugs in clinical trials (published)

Disease Areas

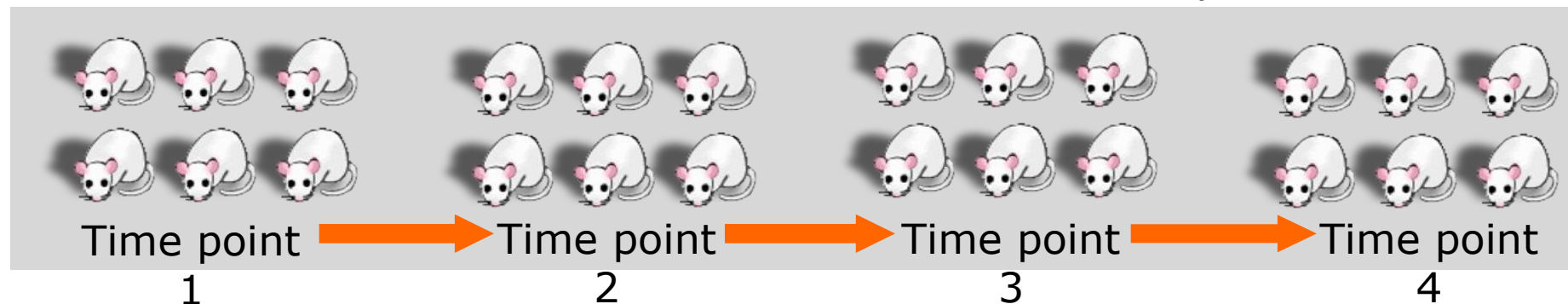


Traditional Methodology versus IVIS Methodology

Traditional Methodology = **24 animals**
4 cohorts, 6 animals per cohort, 4 treatment points

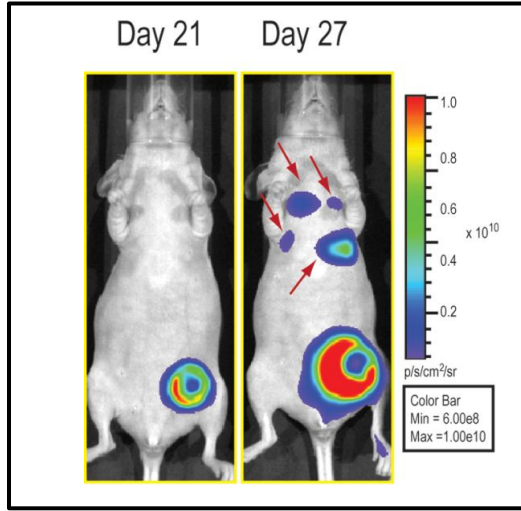


IVIS Methodology = **6 animals**
1 cohort of the same 6 animals, 4 treatment points

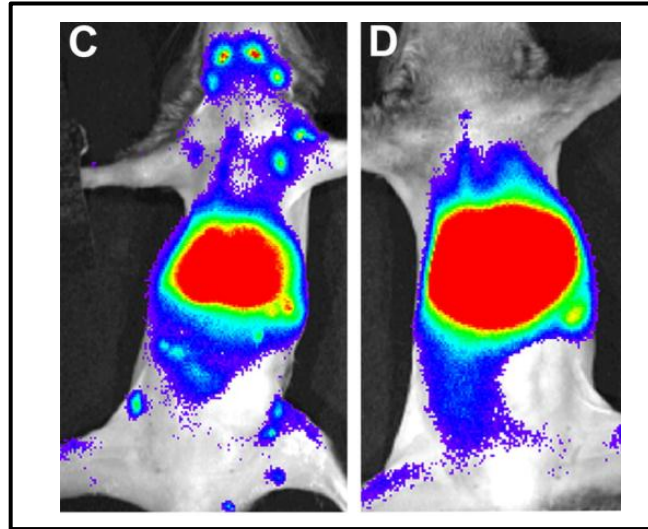


Better Data • Faster Data • Lower Cost

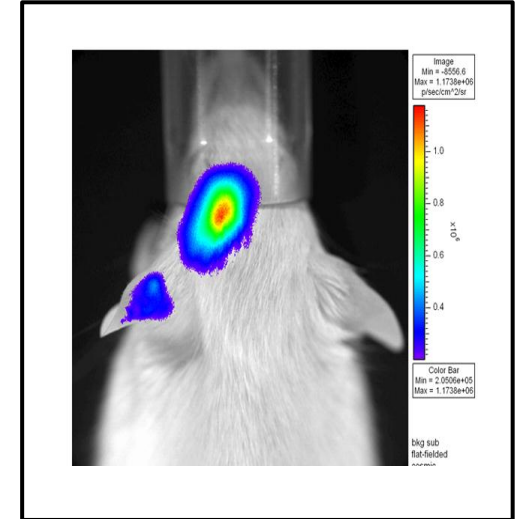
Sample Imaging Applications in Some Key Therapeutic Areas



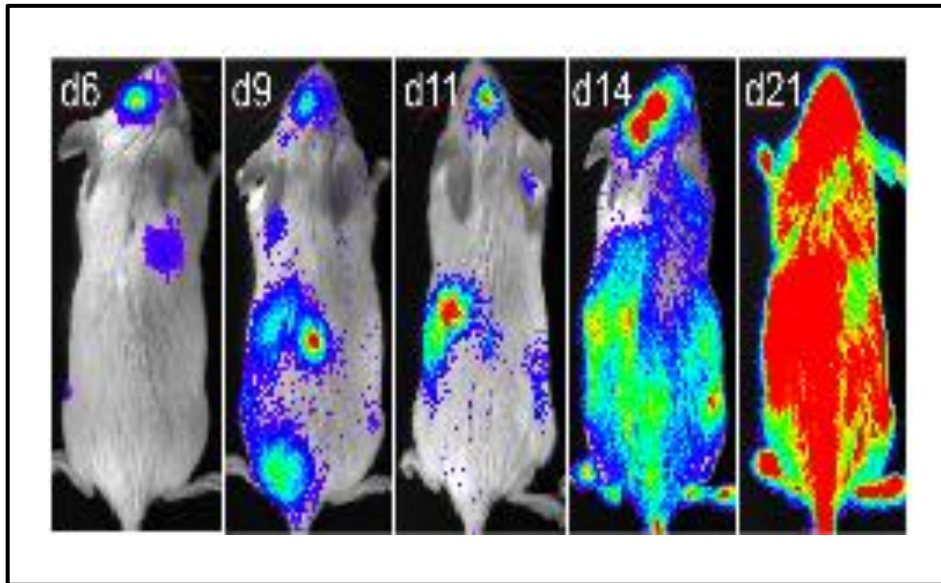
Monitoring progression of primary tumors and metastases. Kim et al, pLoS One (2010)



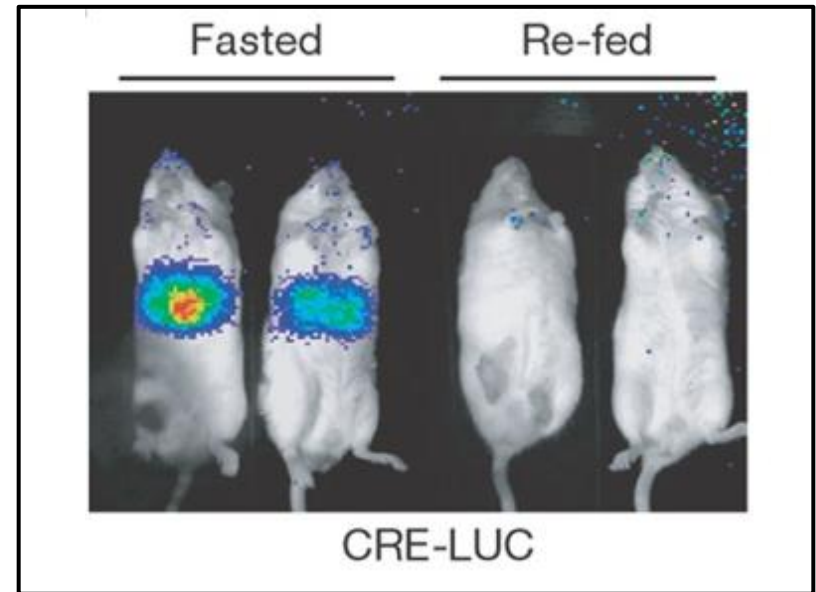
T-cell trafficking in bone marrow transplantation studies. Ophir et al, Blood (2010)



Imaging gene (GFAP) expression patterns underlying neurodegeneration. Cordeau et al, Stroke (2008)



Monitoring stem cell hematopoiesis in lethally irradiated recipients. Cao et al, PNAS (2004)



Imaging TORC2 modulation in the liver during feeding and fasting. Dentin et al, Nature (2007)