just as it is ...

FOBI

Fluorescence *In Vivo* Imaging System

NEO Science

FOBI is a device that can image and analyze fluorescent signals from tissues and organisms. Images of various fluorescent proteins and dyes are taken using 4 channels consisting of Blue, Green, Red, and NIR. Using an optimized light source, filter, and color camera for macro-imaging, FOBI can obtain intuitive, high quality images. This configuration clearly distinguishes between background and signal without further analysis and is also available through the live window.

The background caused by autofluorescence and reflected light is the biggest obstacle for fluorescence imaging. The NEOimage program analyzes fluorescence images easily by effectively removing these backgrounds. In addition, the uniform light intensity of the LED light makes it possible to measure certain quantity values. FOBI has a simple design, is easy to use, fast and reliable.

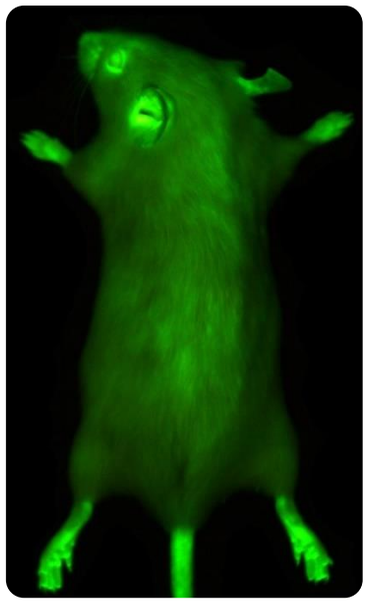
Compact size

The FOBI has a compact size (26 x 26 x 40 cm), so it is ideal for small spaces. Due to its convenient size and portability, it can be used for a wide variety of applications.

FEATURES

Real color data

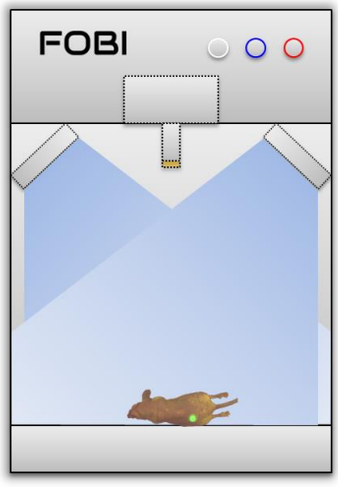
FOBI uses a color camera and optimized filter for the fluorescence signal through the live window without any special analysis. This live window allows you to intuitively identify the position and intensity of the fluorescence and to get image data as it shown.



[GFP transgenic mouse]

Fast

FOBI has a fast frame rate capable of recording videos. Due to the fast video speed, many samples can be processed quickly and instantly observed and responded.



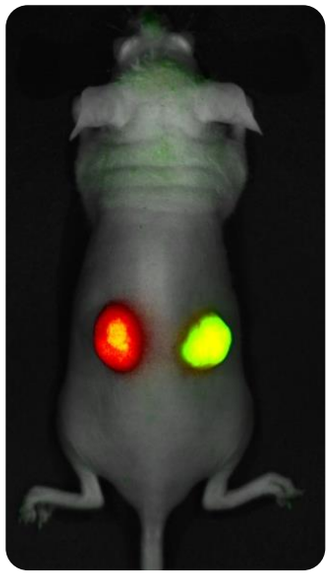
[Structure of FOBI]

Simple

FOBI utilizes a simple, optimized structure, making installation quick and easy. It is also easy to move, manage, and maintain.

Easy to use

Hardware and software are user-friendly. Filter mounting, exposure control, and image capture are all simple and easy to use.



[Tumor targetting]
Green: tumor, Red: Drug

Multi function

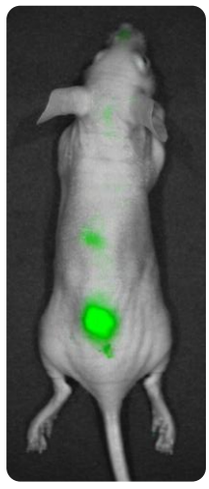
It is possible to apply most fluorescence proteins and fluorescence materials from GFP to ICG using four channels of Blue, Green, Red and NIR. Since more than one fluorescent substance can be imaged, different functions can be observed in one sample. For example, tumor imaging and drug imaging can be performed in the same animal, so targeting and tumorization can be observed simultaneously. You can also merge bright images in order to localization the fluorescence within the animal.

APPLICATIONS

Tumor imaging

GFP stable cell line can be used to confirm tumorization. The created GFP stable cell line can be imaged In Vitro using FOBI. GFP cells are injected into subcutaneous tissues and fluorescence images as cell proliferation. In this way, one can obtain images of metastasis to other tissues, in addition to quantifying and comparing tumor size.

Over time, the signal strength of the fluorescence changes, and the camera exposure time may vary accordingly. The NEOimage analysis program can quantify this change by taking into account different conditions such as exposure time and gain; the results of samples with differing images can also be compared and analyzed.

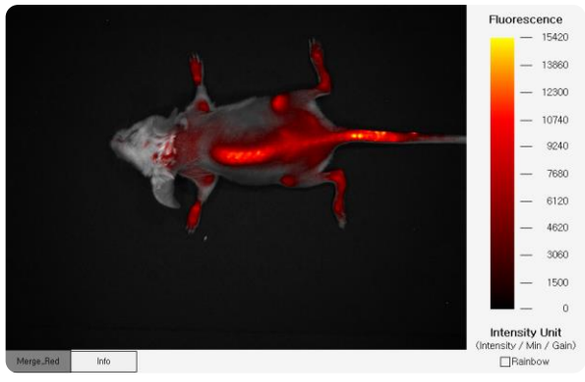


[GFP Tumor]
Tumor, subcutaneous

Cell tracking

Stem cells or immune cells with enhanced functions for various purposes can be imaged within the animal so as to ascertain their location and viability. Stem cells and immune cells are difficult to label with fluorescent genes. So, cells can be stained with fluorescent reagents in a variety of ways.

Stem cells and immune cells stained with a fluorescent reagent can be put into an animal using various methods such as intravenous injection, intraperitoneal injection, and subcutaneous injection. These cells can be located using FOBI imaging. One can determine cell survival using quantitative analysis.



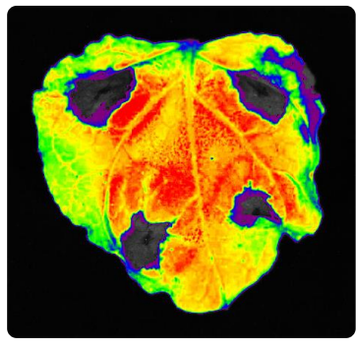
[Immune Cell]
Immune cell injected in tail vein. Dye: DiD

Plant imaging

FOBI can image GFP labeled plant leaves. Plant leaves are difficult to obtain images of due to the strong autofluorescence of Chlorophyll. Chlorophyll's autofluorescence can be removed and analyzed with GFP using a specific filter.

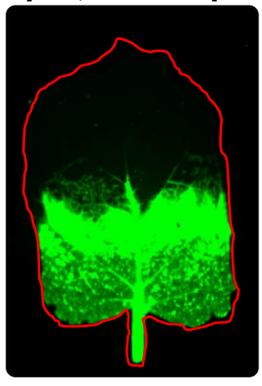
The autofluorescence of chlorophyll itself can also be used as data. The degree of activity of chlorophyll can be confirmed by the intensity of the autofluorescence.

In addition, images can be obtained from plant seeds and callus. Fluorescence imaging is possible with plants throughout their entire life cycle.

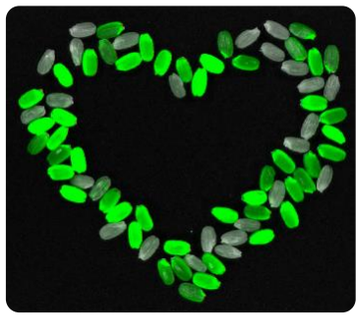


[Auto-fluorescence]
Auto-fluorescence from chlorophyll

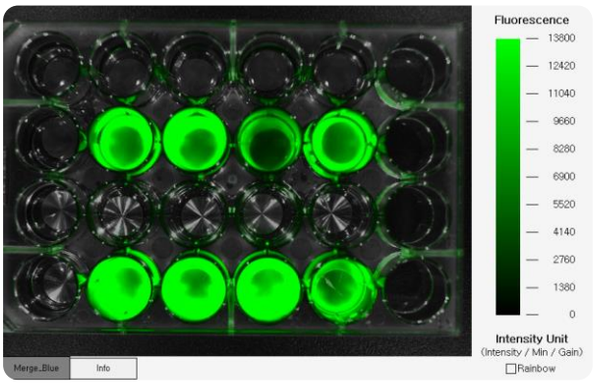
[GFP, Plant Leaf]



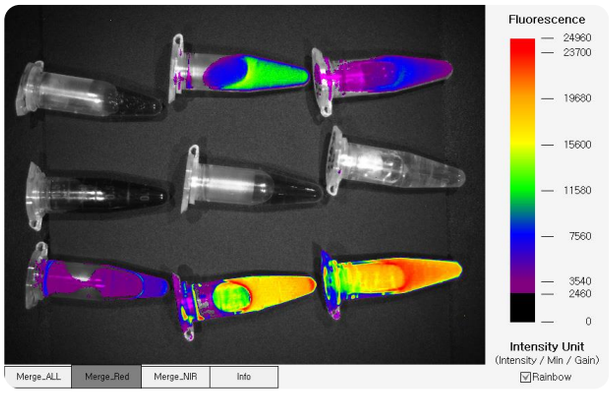
[GFP, Seed-Rice]



DDS (Drug Delivery System)

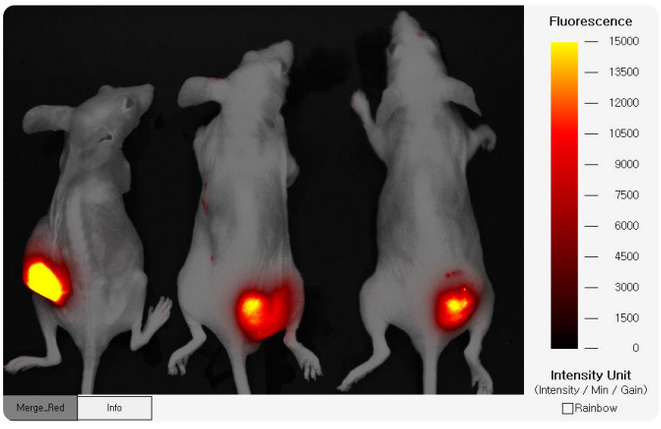


[Fluorescence Dye, Well plate]

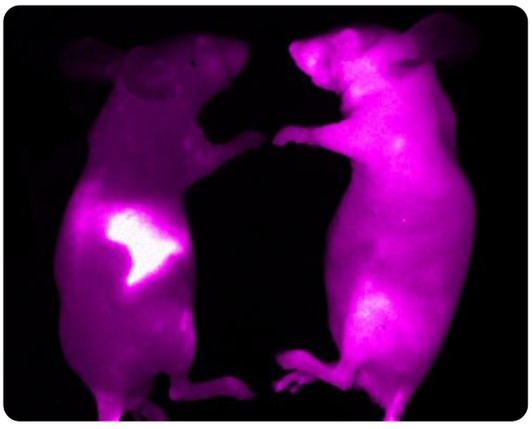


[Fluorescence labeled drug, Micro Tube]
Checking the drug labeling with fluorescence dye

Fluorescence labeled drugs or cells can determine the intensity of fluorescence In Vitro. This data can be used to confirm whether or not the fluorescent label is good for In Vivo imaging. This can be used as a basis for predicting or correcting the results of In Vivo experiments. This process can prevent experimental errors. In some cases, the In Vitro experiment can be important in and of itself.



[Drug Targeting, Tumor]
Fluorescent labeled drugs were injected to mice have tumor

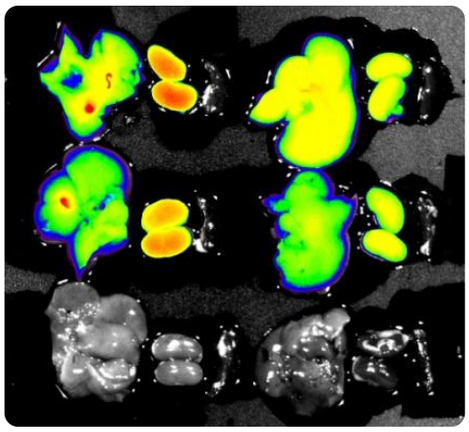


[Drug Targeting, Liver]
Fluorescent labeled drug moved to liver (left)

Drugs confirmed In Vitro can be injected into animals for experimental purposes. By taking images at certain intervals, you can check the movement and accumulation pattern of the drug in the living tissues of the animal.

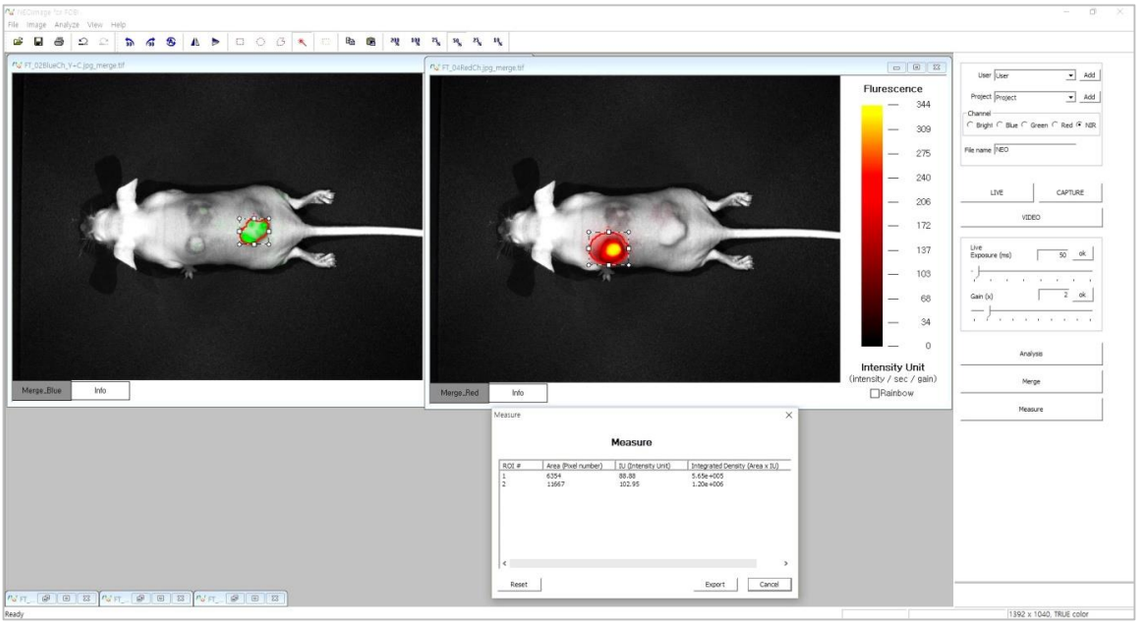
The image of the drug confirmed In Vivo can be checked again Ex Vivo. Because the fluorescence is still expressed even after the animal is sacrificed, it is possible to quantify each tissue separately.

The resulting Ex Vivo data, together with the In Vivo data, can provide excellent evidence for an experiment.



[Drug Targeting, Ex Vivo]

Software - NEOimage



[NEOimage, Quantitation]

The program for FOBI is intuitive and easy to use

The dedicated software, NEOimage, can capture and analyze fluorescent signals in a very intuitive and easy to use manner. The Live window displays the fluorescent image in real time. It helps determine the optimal exposure time and gain. The fluorescence live window helps you to find the fluorescence signal and observe the operation scene in real time. One can also record a video of the fluorescence signal. All function commands are available as icons in the Dialog bar for easy, intuitive access.

Background can be removed using a simple method. When the analysis is complete, a scale bar appears to show the degree of fluorescence. The color can be displayed in monochromatic, two-color, or rainbow colors range. You can also compare and analyze samples with different exposure times by adjusting the highest and lowest values of the scale bar.

Samples that have been analyzed can be merged with bright images. This helps to determine the location of fluorescence in the sample. You can set rectangles, circles, polygons, or automatically the region, and quantitative data can be displayed in tables. The data can be transferred to Excel or text programs.

Specifications

Image Sensor	½" 1.4 megapixel color CCD sensor
Effective Pixels	1392x1040, 4.65μm square pixels
Frame Rate	15 fps at 1392 x 1040 pixels
Digital Output	24-bit
Interface Connector	Standard USB 2.0 high-speed interface
Channel	Blue (GFP, FITC…), Green (RFP, Cy3…), Red (Cy5.5, DiD…), NIR (Cy7, ICG…)
Weight	9 kg
Size (W x D x H)	260 x 260 x 400 mm

FOBI

FOBI OP

FluoroMini

FOBI has four channels and is applicable to most fluorescent materials used in biological research. In Vivo Imaging System has three styles. FOBI OP is an open type device that can be used when operating the animal labeled by fluorescent. FluoroMini is a cameraless mini version that can be used to simply check fluorescent or as a fluorescence module of a stereo microscope.

FluoroMini

Mini In Vivo Imaging System

FluoroMini is available as a mini In Vivo Imaging system. Tumorization, Stem cell, Immune cell, DDS and Plant, Various applications can be applied. FluoroMini is a cameraless mini version of FOBI. But if you need an image, you can use normal camera to get the image and analyze.

Fluorescence Stereo Microscope

FluoroMini can be used as a fluorescence module for stereo microscope in conjunction with conventional stereo microscopes.

You can zoom in on the fluorescence-labeled experimental animal tissue, Zebra fish, and fruit flies.

It is an image device that enhances image data as an intermediate step between cell level image and organism level image.

FluoroMini

Stereo Microscope

just as it is ...

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