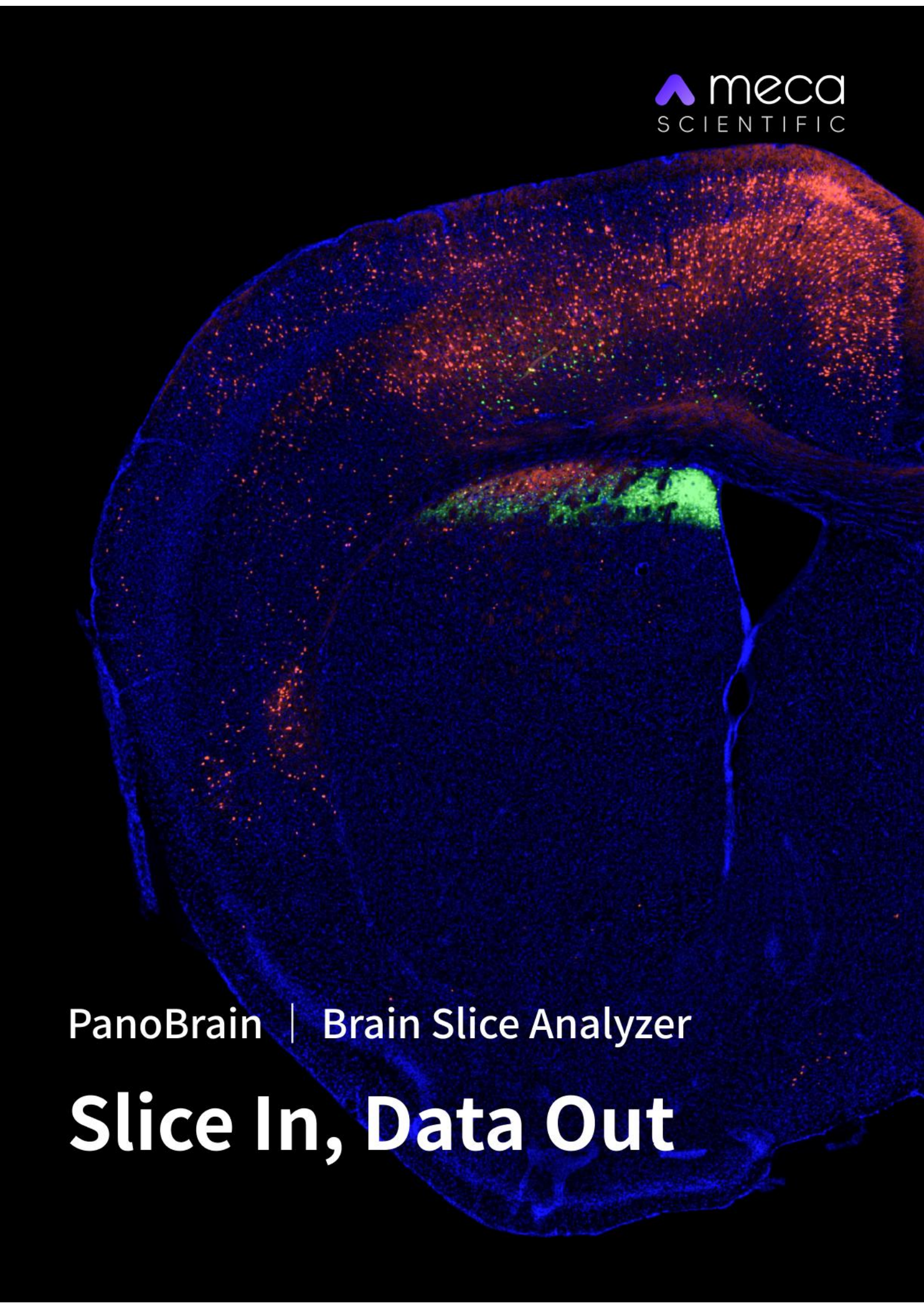
meca
SCIENTIFIC



PanoBrain | Brain Slice Analyzer

Slice In, Data Out

Accelerate Neuroscience Workflows

PanoBrain

PanoBrain is a fast, widefield scanner that produces high-resolution digital panoramic imaging. The system automatically performs brain region segmentation and atlas registration and includes cell counting capabilities for quantitative analysis. PanoBrain automation is a workflow revolution that frees time and leaves space for creativity and inspiration, which moves Neuroscience and science forward.

Why Choose PanoBrain

Rapid Brain Slice Scanning

Automatically recognizes the contour of brain slices, auto-focuses to achieve precise imaging, intelligently plans the scanning path, configures a parametric template – all with one click, enabling quick acquisition of beautiful, high-resolution widefield imaging of brain slices.

Streamlined Result Generation

Supports brain slice registration requirements in different scenarios, automates recognition and counting, reduces manual intervention, ensures data consistency and accuracy, and effortlessly obtains experimental results.

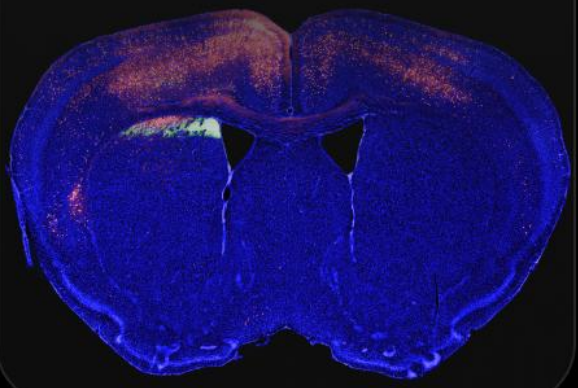
Seeing is Believing!

Mecca Imaging offers equipment trials, allowing you to see the benefit of PanoBrain for yourself. You’ ll be love the workflow, and be impressed by the image quality. We can’ t wait to hear about what PanoBrain can do for you. Join the workflow revolution!

Product Features

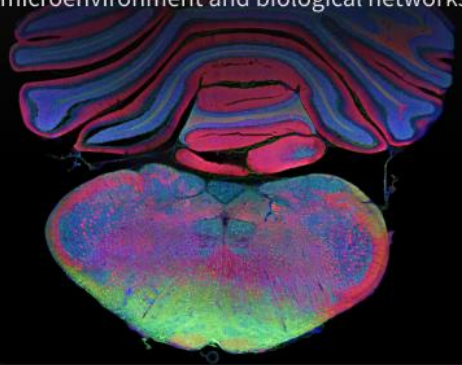
One Image Per Minute

AI-powered automation identifies samples and plans scanning paths, completing the imaging of a single brain slice in less than 60 seconds.



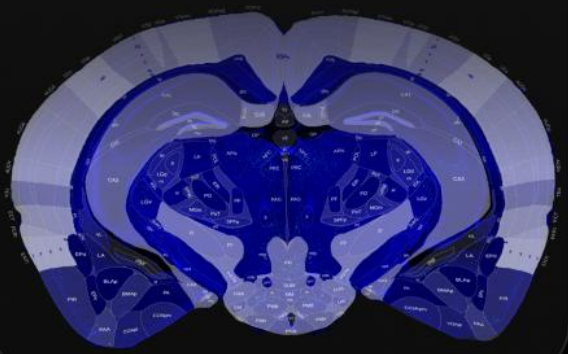
Multicolor Imaging

Breaking through the limitations of traditional equipment, the combination of hardware and software allows for over 20 colors of fluorescence imaging from a single slice, deeply analyzing the cellular microenvironment and biological networks.



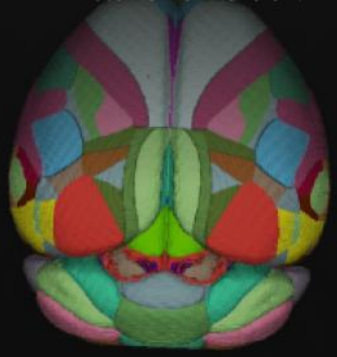
One-Click Atlas Registration

Automatically identifies brain slices and matches them with the Allen Brain Atlas.



3D Reconstruction

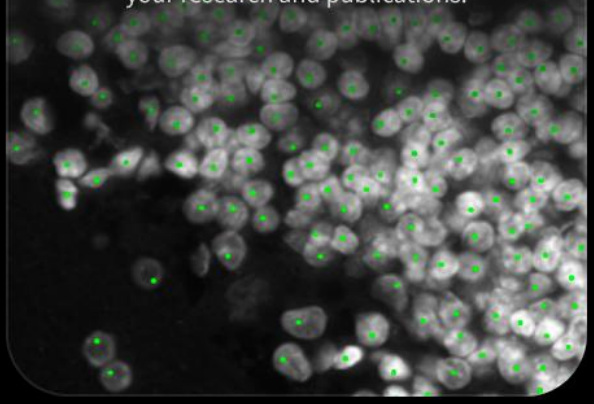
From a 2D plane to a 3D perspective, reconstruct continuous two-dimensional brain slice data into a three-dimensional brain tissue model. PanoBrain reveals a whole new dimension.



Product Features

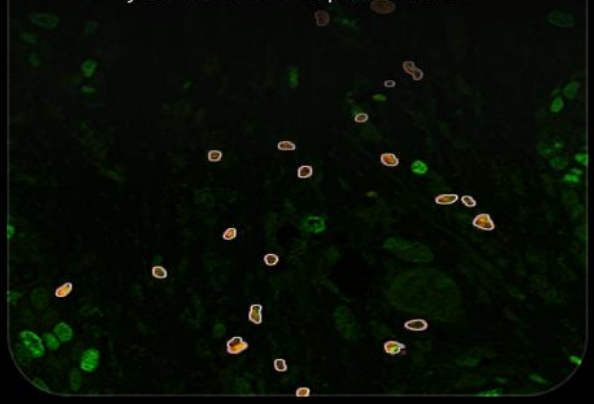
Automatic Quantitation

Minimizes human intervention, ensuring high consistency and accuracy in data results. PanoBrain efficiently generates reliable experimental data, and robustly supports your research and publications.



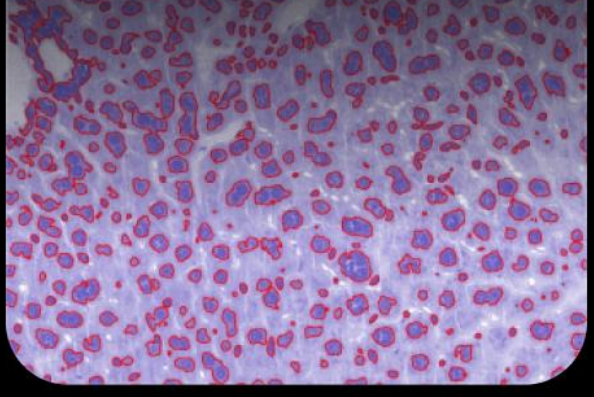
Classic Algorithms

Minimizes human intervention, ensuring high consistency and accuracy in data results. PanoBrain efficiently generates reliable experimental data, and robustly supports your research and publications.



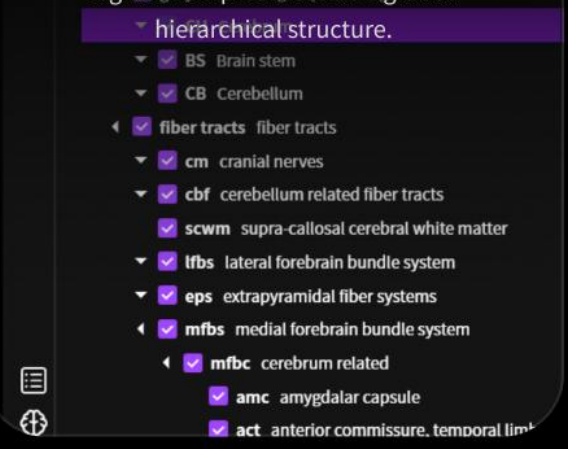
Machine Learning

Utilize advanced machine learning and deep learning algorithms to achieve intelligent recognition and quantification of complex and variable samples, providing deep data insights.



Regional Grading Statistics

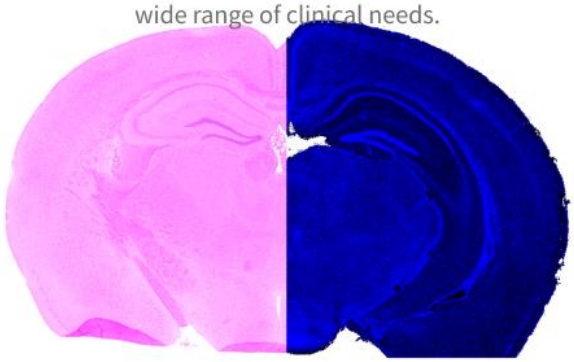
Supports hierarchical statistical analysis following whole-brain registration. Results are accurately traceable to lower brain regions and presented as a graded hierarchical structure.



Product Features

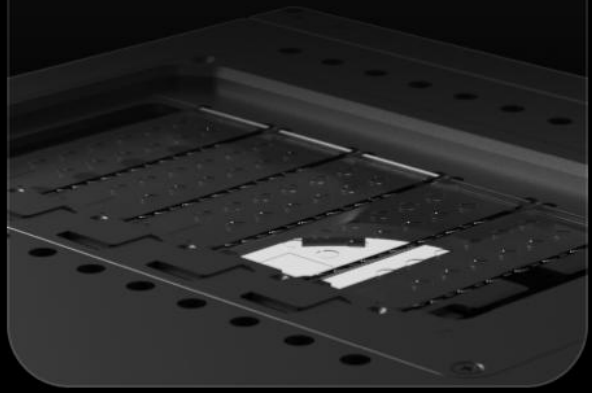
One Instrument, Two Modes

Bright-field mode offers high-resolution imaging, while the fluorescence mode comes with multi-channels, effortlessly meeting a wide range of clinical needs.



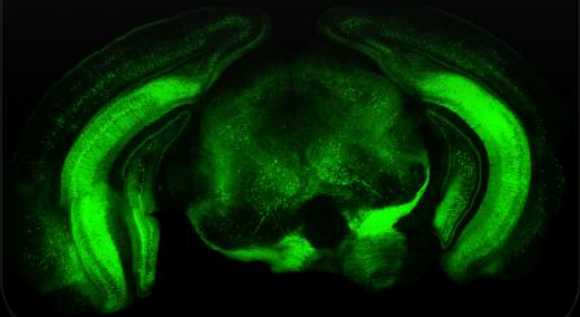
Large-Format Slide Scanner

Equipped with a 0.1 μm precision XYZ three-axis motion platform, supporting 125×50 mm large area scanning, enabling full slice scanning of large brain slices such as monkey and pig brains.



99% Uniformity

PanoBrain’ s novel optical path produces Uniform illumination, which, when combined with global fluorescence background correction, achieves up to 99% fluorescence background uniformity, easily obtaining seamless panoramic images.



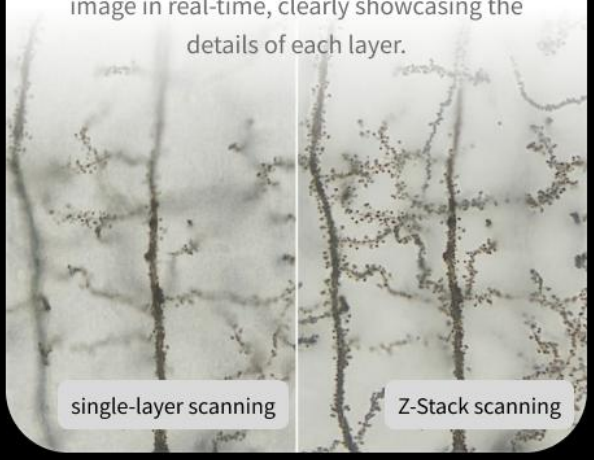
Low Phototoxicity

Real-time control supports strobe light source-triggered imaging, providing high instantaneous power illumination at the millisecond level only during camera exposure, significantly reducing fluorescence quenching, and the scanned samples can still be used for confocal imaging.

Product Features

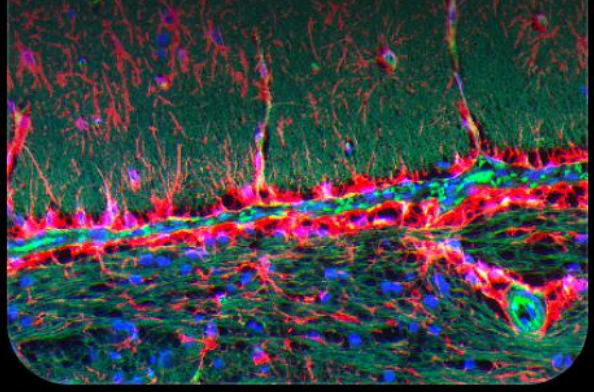
Z-Stack Imaging

With the depth-of-field extension feature, images from different focal planes within the same FOV are fused to create a fully focused image in real-time, clearly showcasing the details of each layer.



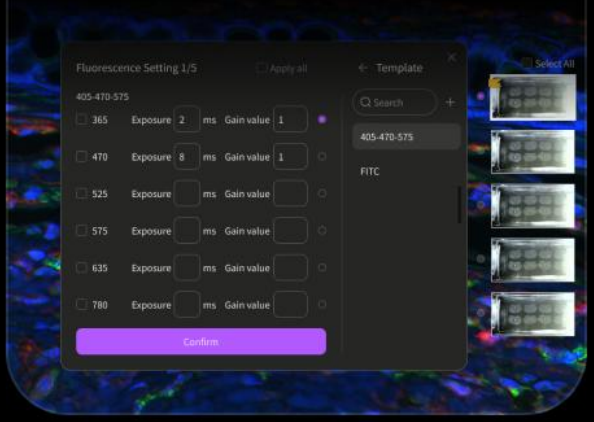
Thick Brain Slice Imaging

Precise focus upon the surface of thick brain slices to quickly capture clear on-target imaging. Ensures all channels stay in the same focal plane, producing high-quality multichannel fluorescence images.



Parameter Templates

Customizable preset parameter templates for quick exposure parameter configuration ensure consistency in exposure settings and significantly enhance work efficiency.



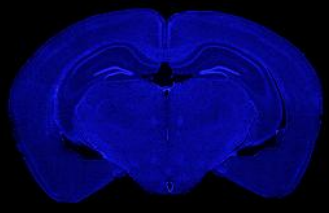
Scanning Progress Display

Different colored ring lights display scanning progress and status in real-time, making it easy to grasp the progress of the experiment.

Brain Atlas Registration

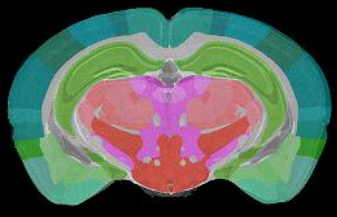
Registration Process

Step 1



DAPI Original Image

Step 2



Automated Registration Atlas Stack

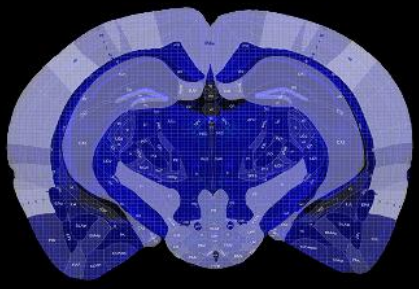
Step 3

Registration Contour Diagram

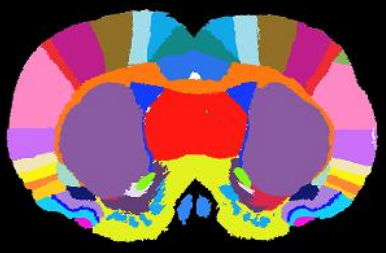
Step 4

Manual Registration Fine-tuning

Standard Brain Atlas



The Allen Mouse Brain



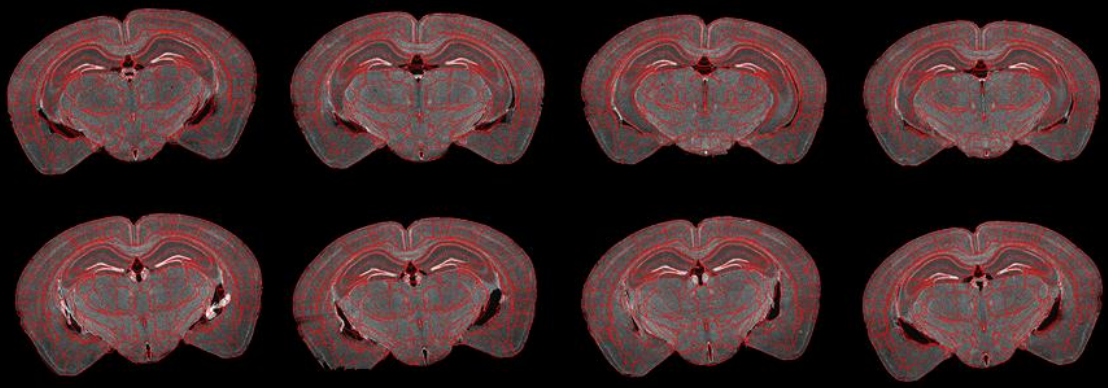
The Sprague Dawley Rat Brain

The Bacaque Brain

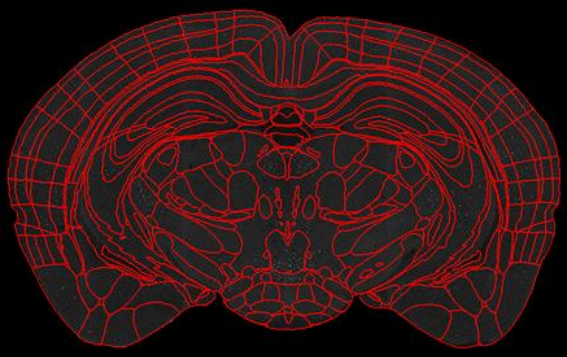
The Ferret Brain

Brain Atlas Registration

One-Click Matching of Multiple Brain Slices



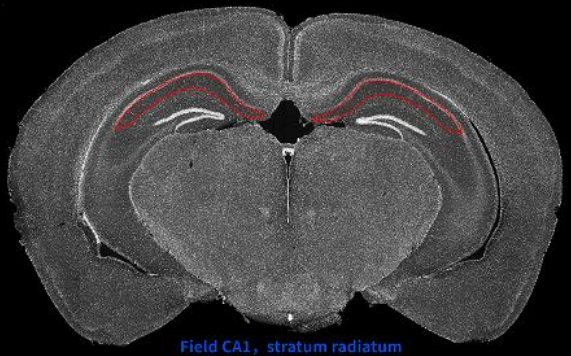
Registration without DAPI



Tilted Brain Slice Registration

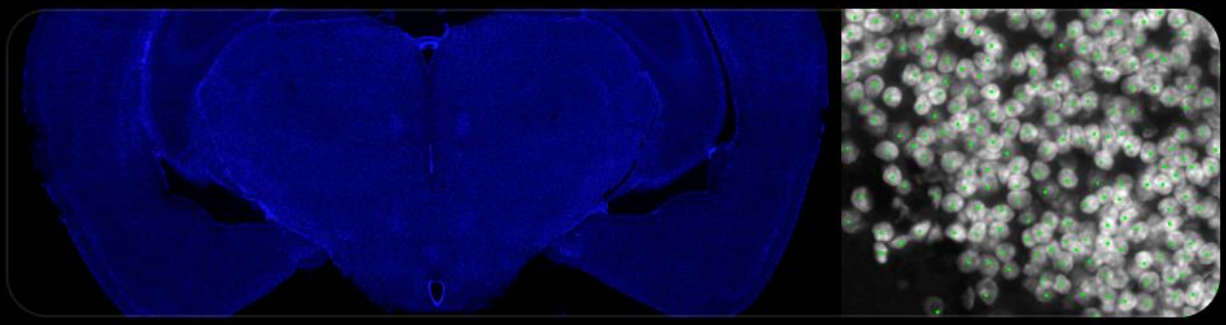
Incomplete Brain Slice Registration

Real-Time Display of Brain Region Information

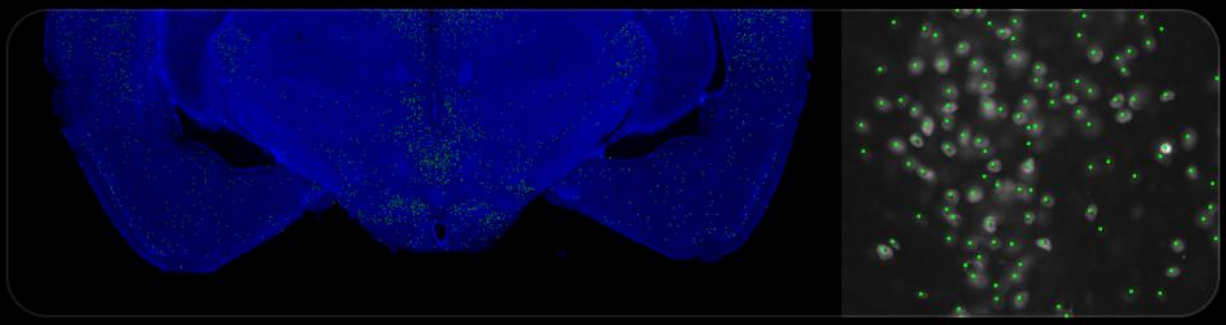


Quantitative Counting Analysis

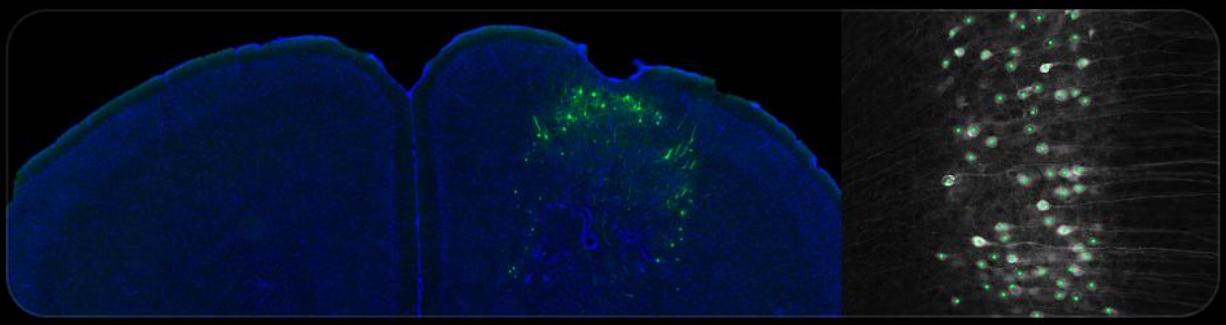
DAPI Automatic Recognition and Counting



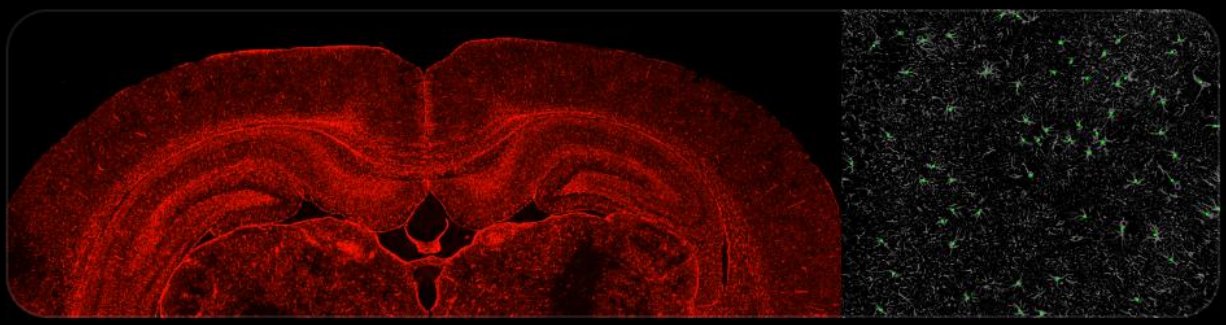
c-Fos Automatic Recognition and Counting



Sparse Virus Marker Recognition and Counting

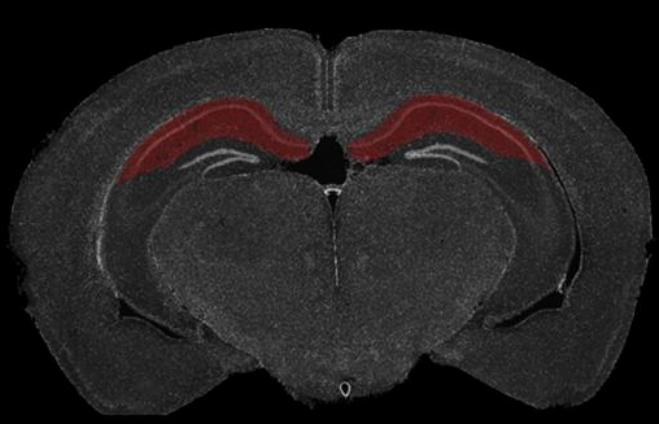


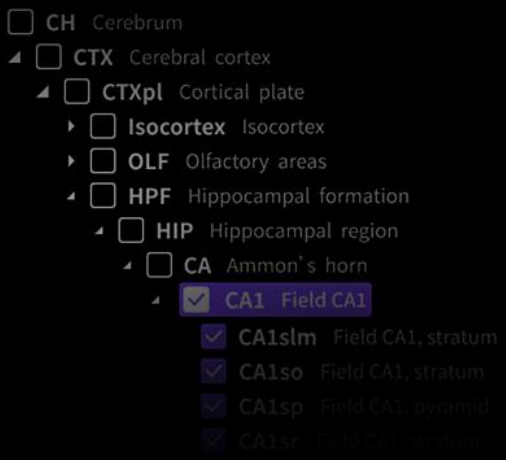
Glial Cell Recognition and Counting



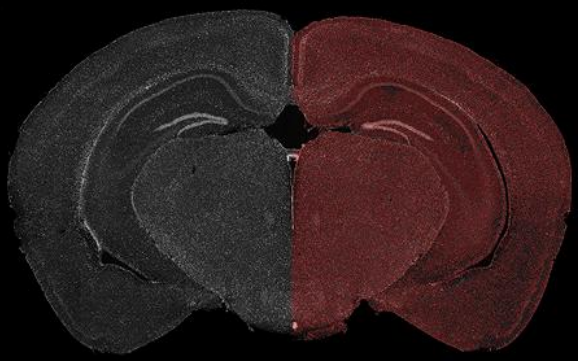
Quantitative Counting Analysis

Optional Brain Region Counting

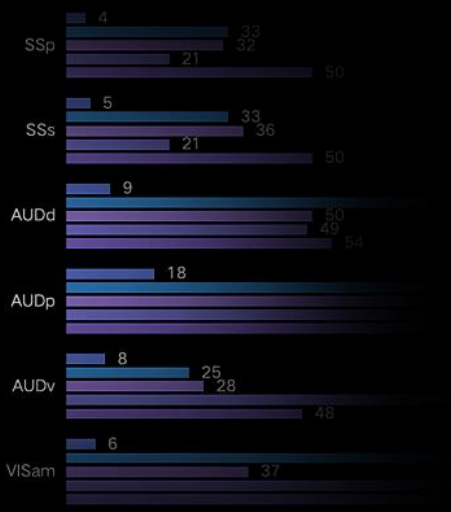




Counting for Left and Right Brain Separately

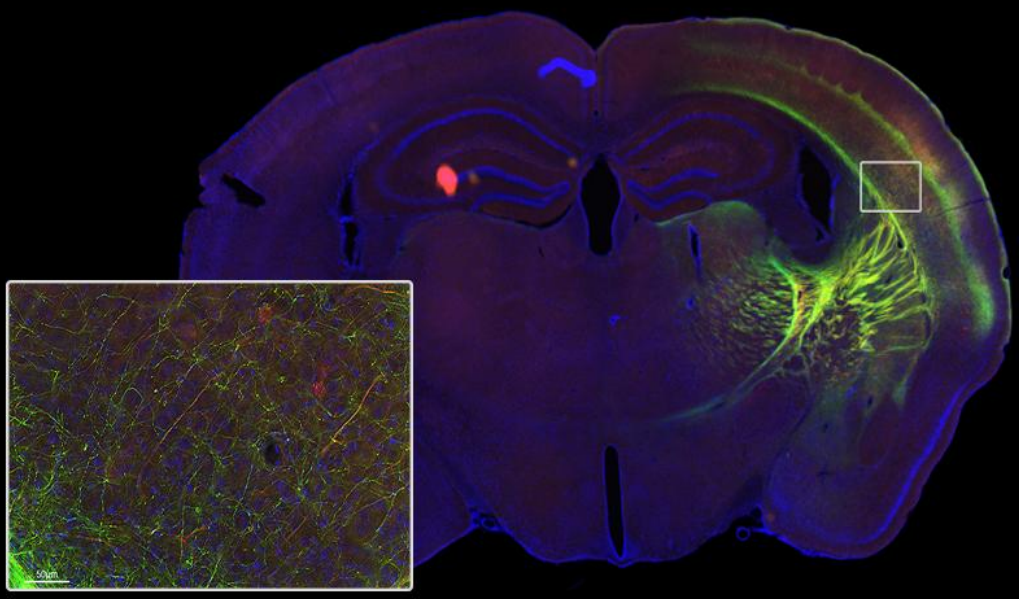


Graded Statistical Analysis of Counting Results



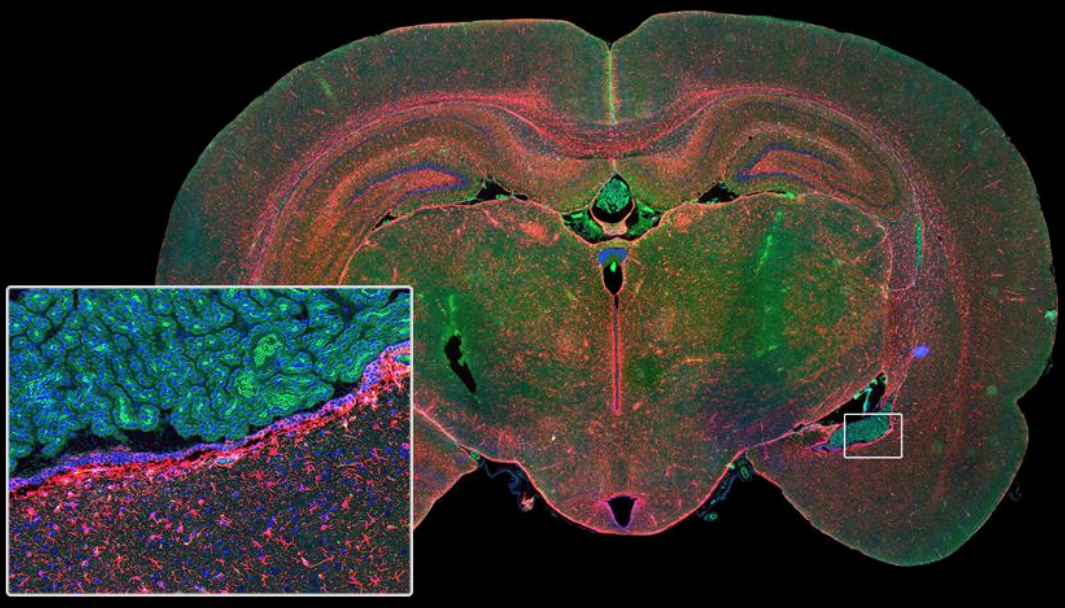
Multicolor Fluorescence Imaging

Three-color Brain Slice Imaging



Mouse brain slice, 10X, DAPI, GFP, DsRed

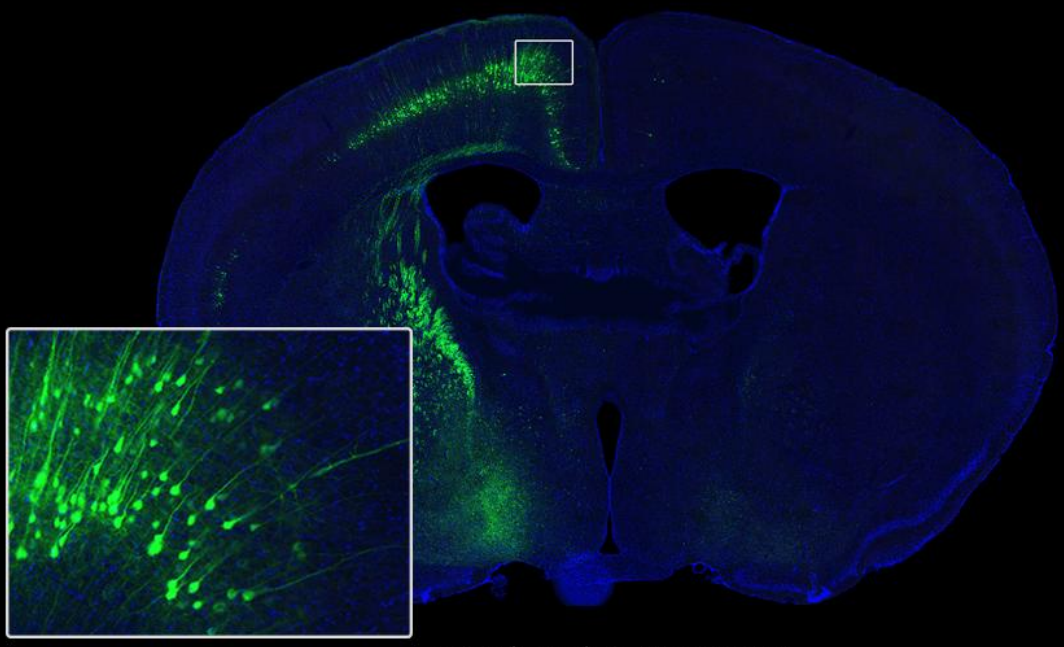
Cell Body, Blood Vessels and Glial Cell Imaging



Mouse brain slice, 20X, DAPI, CD31, RFP

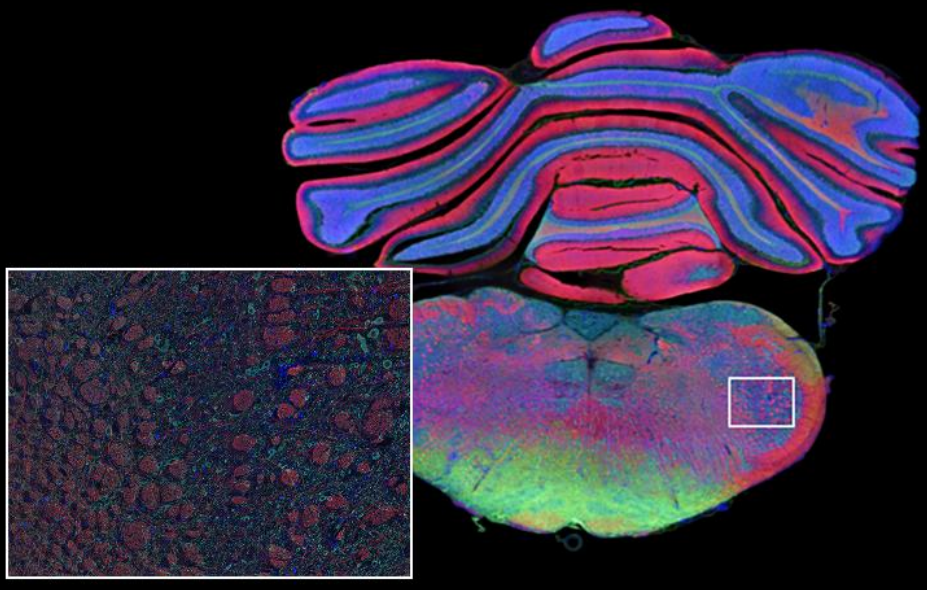
Multicolor Fluorescence Imaging

Neural Fiber Imaging



Mouse brain slice, 10X, DAPI, GFP

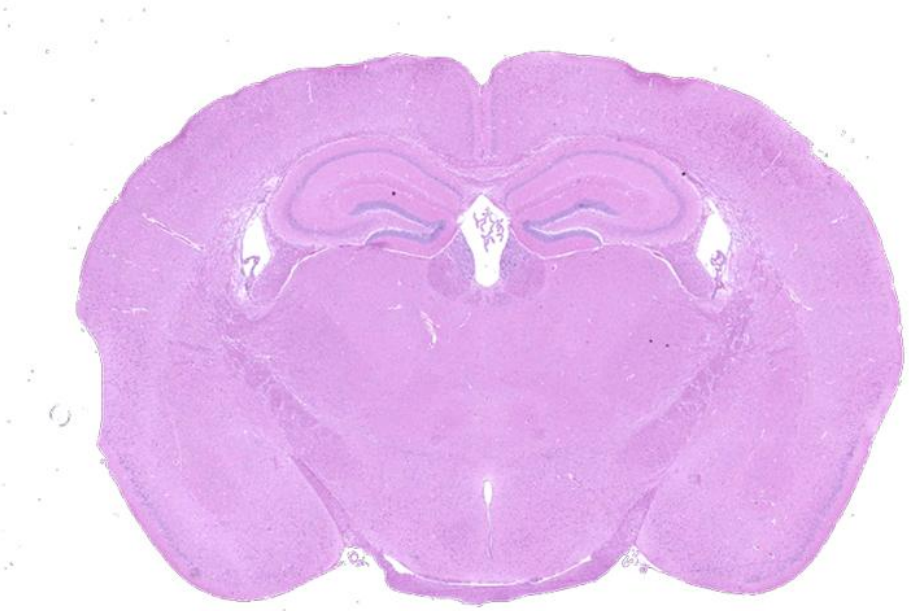
Twelve-color Fluorescence Tissue Imaging



Mouse brain，20X，DAPI，MAP，IBA1，Neun，α-syn，
MBP，SOX2，GFAPNF-H，S100B, NF-L，CD56

High-definition Bright Field Imaging

HE Staining Imaging

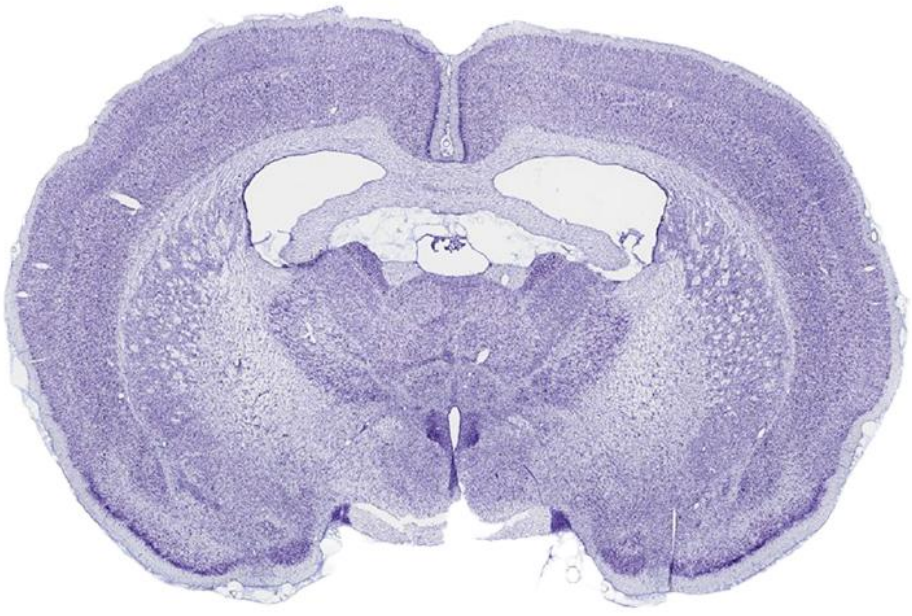


Golgi Staining Imaging

High-definition Bright Field Imaging

Immunohistochemical Staining Imaging

Nissl Staining Imaging



Optical System

Motorized Switchable Objective Lens

UPlanApo
10X/0.40, 20X/0.75, 40X/0.95

Light Source

LED light source with a peak power exceeding 30 W, supporting stroboscopic operation mode.

Pixel Resolution

Bright Field	Fluorescence
0.240 μm/pixel @20X	0.540 μm/pixel @10X
0.120 μm/pixel @40X	0.270 μm/pixel @20X
	0.135 μm/pixel @40X

Software

Functions of PanoPanel Scanning Software

Automatic filter switching, automatic barcode reading, multi-channel fluorescence scanning imaging, freely definable number of scanning channels, automatic registration of multi-channel images, seamless stitching of fluorescence images, background correction, multi-layer scanning, multi-layer fusion, automatic exposure, one-click scanning.

Functions of PanolyzerPro Analysis Software

Atlas Analysis
Compatible with Allen Brain Atlas for atlas mapping and browsing; supports coronal registration, non-DAPI registration, and tilted brain slice registration.
Supports counting, statistical grading, and multi-slice mixed analysis of left and right brain and custom brain regions.

Routine Analysis
Fluorescence channel switching and display, fluorescence signal intensity and contrast adjustment.
Slice information display, image rotation, label image display, mini images.
Arbitrary magnification scaling, length measurement, real-time display of multiple points on images.
Saves images in TIFF format of any size.

Imaging Modes

Imaging Types

Bright Field, Fluorescence

Z-Stack Functionality

Supports Z-axis scanning and depth-of-field fusion.

Fluorescence Channels

Standard Channels	Expandable Channels
DAPI, FITC, Texas Red	CFP, Cy3, Cy5, mKate2, Cy5.5, Cy7, etc.

*Supports up to 7 channels.

Scanning System

Scanning Time

Bright Field	Fluorescence
< 46 s @20X	< 35 s @10X
< 123 s @40X	< 70 s @20X
	< 150 s @40X

*Scanning area is 15×15 mm^2. Bright field corresponds to 2 ms exposure time, fluorescence corresponds to 5 ms exposure time.

Platform Travel

The X - axis stroke of the fully electric translation stage is 170 mm, and the Y - axis stroke is 58 mm.

Scanning Area

125×50 mm^2

Grating Feedback Accuracy

0.1 μm

Image Processing

Resolution

Maximum supported resolution 10 billion pixels.

Image Formats

BSD, SVS, TIFF, QPTIFF

Image Correction

Global fluorescence background correction

Image Storage

Local storage, cloud storage

PanoBrain Standard Package

What's Included

Brightfield Illumination Module ×1
Fluorescent Modules ×3
Objectives×3 (10X/NA 0.40, 20X/NA 0.75, 40X/NA 0.95)
Standard 5-slide Holder ×1
Brightfield Camera ×1 , Fluorescent Camera ×1

PanoBrain Compatible Workstation

What's Included

Monitor ×1
Keyboard ×1
Mouse ×1
Workstation Host ×1
*Workstation configuration customized according to user needs

PanoBrain Optional Accessories

Slide Tray Options

Depending on the sample type and experimental requirements,
various slide clip options are available,
supporting slides of 25 mm × 75 mm,
50 mm × 75 mm, and 100 mm × 75 mm.

Filters Options

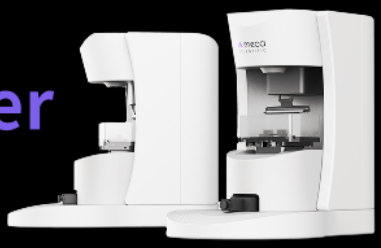
Universal filter configurations cover various fluorescence imaging applications,
and filters can also be highly customized according to customer needs, eliminating color crosstalk anxiety.

Cyclical Imaging Solution

Paired with its dedicated reagent kit, the fluorescence quenching device efficiently eliminates both residual and autofluorescence from previous rounds. This provides clean, interference-free conditions for subsequent staining, facilitating accurate multicolor fluorescence imaging for complex and diverse needs.

Vibro Lunar

Intelligent Vibration Slicer



Product Features

Intelligent Positioning

Built-in automatic brain atlas registration function; simply input the target brain region, and the system can intelligently plan and execute high-precision slicing tasks automatically.

Seamless Closed Loop

Seamlessly integrate with brain slice analysis to establish a fully automated closed-loop workflow from slicing to imaging, 3D reconstruction, and analysis.

Minimal Interaction

Simple interactive interface, intuitive and convenient adjustment of core parameters such as blade angle and vibration frequency.

Brain Slices Symmetry Assurance

Integrates horizontal detection and dynamic adjustment to ensure symmetrical, high-quality brain slices for research.

High-efficiency

Precise temperature control preserves brain slice viability, boosting electrophysiological experiment success and efficiency.

Ultra-large Tissue Slices

The maximum slicing range can exceed 100 mm, easily accommodating the slicing needs of large organs such as the human brain.

Technical Parameters

- Vibration slicing frequency range: 0.5-200 Hz
- Slicing speed: 0.025-2.5 mm/s
- Z-axis error ⩽ 2.5 μm
- Tissue slice thickness: 20-200 μm
- Sample size for slicing: 50 mm × 50 mm × 80 mm (Customizable)

Partner

We are honored to collaborate with the following universities and research institutions. Through these collaborations, our products have been continuously optimized, and at the same time, we are able to give back the most cutting-edge technologies to them, thereby advancing the development of the life sciences field.

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What We Do

We use optics, robotics, and artificial intelligence to enhance life science research workflows. By automating imaging and data processing, we improve research efficiency, unleash scientists' creative potential, and accelerate progress in neuroscience, pathology, and other life science fields.

Who We Are

Meca Scientific is an innovative leader in life science instrumentation.

We are committed to helping researchers improve data efficiency and accelerate groundbreaking scientific discoveries.

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Email: hello@mecascientific.com
Company Name: Tinyphoton (Wuhan) Technology Co., Ltd.

Website: mecascientific.com

Welcome to apply for a product trial through the official website.