panluminate

PRODUCT OVERVIEW

Industrializing the connectome.

Chemistry, instruments, and software for synaptic-resolution brain mapping at scale.



3i | panluminate

IMAGE

panoptix™ AVAILABLE NOW

The first commercial light-sheet system purpose-built for expanded tissue. Built in partnership with 3i.

LIGHT SHEET
Axially swept lightsheet microscopy (ASLM)
420 nm sheet thickness (FWHM, 488 nm)

DETECTION
1.0 NA water objective, 5.45 mm WD, 48× total magnification

CAMERAS
Dual Kinetix sCMOS, simultaneous multi-color, 3200 × 3200, 135 nm pixels

ILLUMINATION
0.7 NA water objective, 10 mm WD

LASERS
Up to **8 lines**, 405 to 785 nm, up to 1 W (wavelength dependent)

SAMPLE CHAMBER
Patented, index-matched, **10 × 22 × 5.4 mm** max sample

SPEED
0.4 Gigavoxels/s total

EXPAND

panexpanse™ WAITLIST

Expands, pan-stains, and antibody-labels tissue in a single automated run, preparing it for 20× expansion.



CAPACITY
100 fly brains, or 9 hemisphere / 6 mouse brain sections per run

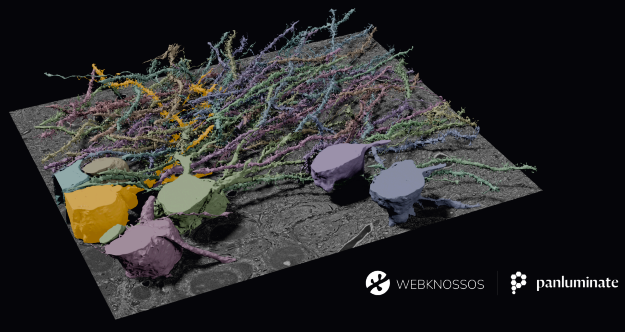
SAMPLE AREA
2.5 × 2.5 cm² pre-expansion

MAX THICKNESS
400 µm

MAP

cortex™ EARLY ACCESS

Turns pan-ExM image volumes into connectomes, with AI segmentation, synapse detection, 3D viewing, and team data access.



SYNAPSES
>0.9 F1 detection, mouse brain

CHANNELS
8 co-registered molecular labels

RECONSTRUCTION
Connectomic BETA

Signature Service AVAILABLE NOW

Pilot, production connectomics, and neurodegeneration studies by the team that invented pan-ExM. **See the back →**

Learn more

info@panluminate.com
panluminate.com

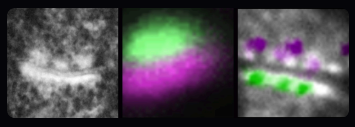
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MOLECULAR CONNECTOMICS

Wiring and molecular identity, together.

Molecular connectomics maps which neurons connect and uses protein markers to identify cell and synapse types. With pan-Expansion Microscopy (pan-ExM), we expand tissue 20× and pan-stain proteins throughout the tissue. We can then resolve individual synapses and image up to 8 molecular targets in the same sample using light microscopy.

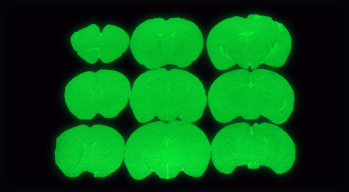
THE PROBLEMS WE SOLVE



PAN-EXM

Structure or molecules, rarely both

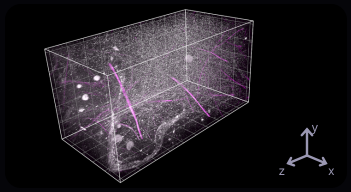
EM misses proteins; fluorescence misses ultrastructure. pan-ExM captures both.



PANEXPANSE

Expansion is slow and manual

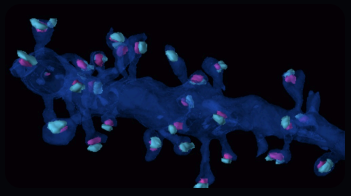
The first system to mass-expand tissue, across diverse formats.



PANOPTIX

Expanded tissue is hard to image

The first light-sheet system built for high-resolution expanded tissue imaging, with 2× better z-resolution than point-scanning confocal.



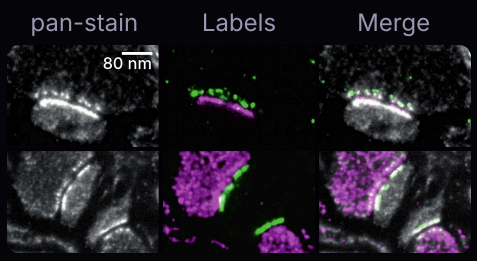
CORTEX

Analysis is the bottleneck

AI reconstruction with WEBKNOSSOS, plus a direct line to our team.

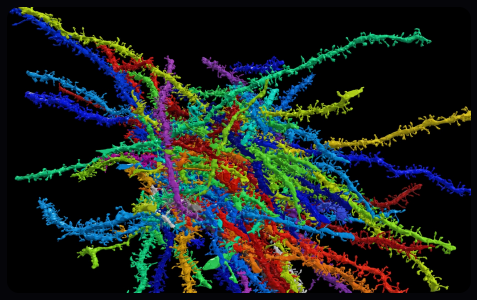
SIGNATURE SERVICE AVAILABLE NOW

Send us your tissue. We run the study.



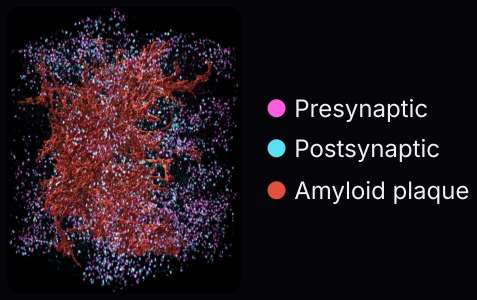
Pilot feasibility study

We check sample quality, labeling, and reconstruction readiness, then scope the full study. 20 business days.



Production connectomic study

From sample prep to proofread volumes, including imaging, reconstruction, and synapse assignment.



Neurodegeneration studies

Quantify synapse loss and protein pathology in AD, PD, ALS, HD, and FTD, in rodent and human tissue. In a mouse model: larger presynapses, smaller postsynapses near plaques.

EVERY STUDY INCLUDES

- Kickoff consultation
- Tissue optimization
- Expert results review

Start a project

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