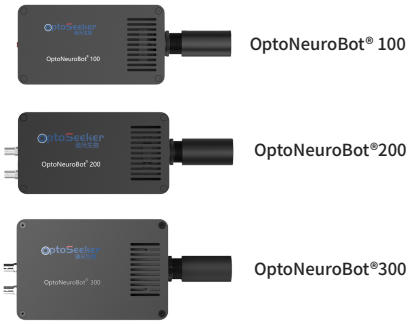
Product Introduction

The OptoNeuroBot® Patterned Illuminator utilizes Digital Micromirror Device (DMD) technology to achieve precise spatiotemporal light control with subcellular resolution. This device is compatible with both upright and inverted microscopes, enabling patterned illumination for various microscopic applications. The integrated NeuroMind™ software provides an intuitive interface for users to design illumination patterns, control the device, and acquire images. At present, the available models in the product lineup are the OptoNeuroBot® 100, OptoNeuroBot® 200, and OptoNeuroBot® 300.



OptoNeuroBot® 100

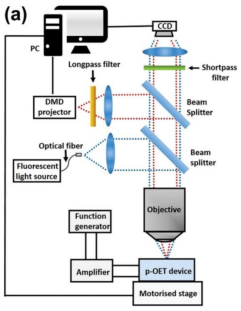
OptoNeuroBot®200

OptoNeuroBot®300

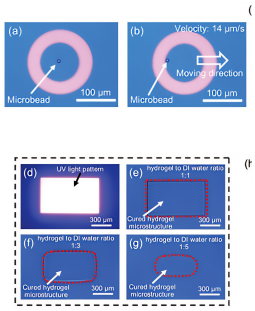
Key Features

- Compatibility: Seamlessly integrates with major brands of upright and inverted microscopes.
- Synchronization: Synchronizes with other laboratory instruments such as patch clamps and two-photon microscopes.
- Camera Support: Works with third-party cameras, although adjustments in the software settings may be needed for specific models.
- Multi-Wavelength Support:Supports up to three integrated LED light sources.
- Multi-Wavelength Illumination: Enables simultaneous illumination of multiple regions of interest with different colors.
- Precise Control:Offers fine-grained control over light onset, duration, and intensity.

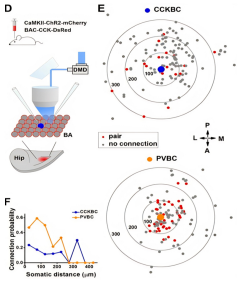
Application Fields



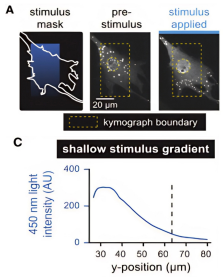
Optogenetics and optoelectronic experiments



Topographic micropattern fabrication through photopolymerization



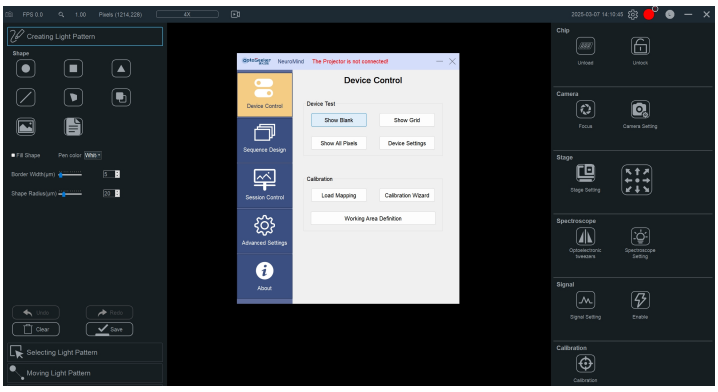
Cellular-resolution circuit mapping using optogenetics



Study of protein phase separation with optogenetic tools

NeuroMind™ Software

The OptoNeuroBot® includes NeuroMind™, a user-friendly software developed by Optoseeker Biotech. This software offers a range of features for designing, controlling, and executing illumination patterns.



- Device Control: Test and calibrate the device.
- Projection Sequence Design: A sequence editor allows for the creation of dynamic illumination patterns.
- Projection Control: Execute designed sequences for animated illuminations.
- Settings: Configure software parameters.
- About: View software version and information.

OptoNeuroBot® Patterned Illuminator

Specifications

Parameter	Details
Optical Specs	DMD: 0.47-inch chip, 1920×1080 pixels, 5.4μm pixel size. LED options: 617nm (red), 520nm (green), 459nm (blue), 380nm (UV).
Electrical Specs	Power: 220VAC 10A adapter.
Physical Specs	OptoNeuroBot® 100: 178*96*92 mm (without lens) 275*96*92 mm (with lens) 1.6 kg OptoNeuroBot® 200 (with TTL): 193*96*92 mm (without lens) 290*96*92 mm (with lens) 1.6 kg OptoNeuroBot® 300 (with TTL): 216*120*100 mm (without lens) 313*120*100 mm (with lens) 2.1 kg

Customization Guide

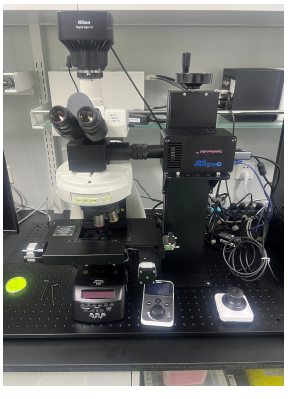
Selection Steps	
1.Light Source:	Wavelengths: 617nm, 520nm, 459nm, 380nm, or custom combinations. Other wavelengths can also be provided on request.
2.TTL Trigger Module: Optional.	
3.Microscope Adapter (Beam Combiner):	Upright microscope: 9:1 beam splitter with dichroic mirrors matching LED wavelengths. Inverted microscope: Custom beam splitters provided.
4.Microscope Flange Compatibility	Microscope Compatibility: Nikon, Olympus, Leica, Zeiss.
5.Projection Lens	100mm focal length recommended.

Nikon inverted microscope flange

Upright microscope flange

Olympus inverted microscope flange

Installation Steps



Upright Microscope:

1.Remove the trinocular module from the microscope;
2.Install the upright microscope adapter in place of the original trinocular module, and then mount the trinocular module onto the upright microscope connector;
3.Use a support rod (optional) to adjust the patterned illuminator module to the height of the upright microscope adapter, and insert the tube lens into the upright microscope adapter;
4.Connect the power cable, USB cable, and HDMI cable of the patterned illuminator module;
5.Place a high-reflectance glass slide under the microscope objective;
6.Turn on the microscope camera and adjust the objective height until the camera can capture the glass slide;
7.Power on the patterned illuminator module, open the computer software, and draw the illumination pattern. The patterned illumination spot can be observed under the objective;
8.Rotate and adjust the tube lens position and the mounting position of the patterned illuminator module until the projected image is clear, then secure the corresponding screws;
9.Perform calibration in the software and proceed with the experiment.

Inverted Microscope:

1.Remove the light source from the microscope;
2.Install the patterned illuminator in place of the original light source;
3.Use a support rod (optional) to adjust the patterned illuminator module to the appropriate height;
4.Connect the power cable, USB cable, and HDMI cable of the patterned illuminator module;
5.Place a high-reflectance glass slide under the microscope objective;
6.Turn on the microscope camera and adjust the objective height until the camera can capture the glass slide;
7.Power on the patterned illuminator module, open the computer software, and draw the illumination pattern. The illumination light spot can be observed under the objective;
8.Rotate and adjust the tube lens position and the mounting position of the patterned illuminator module until the illumination image is clear, then secure the corresponding screws;
9.Perform calibration in the software and proceed with the experiment.

Contact Us

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