Cephla

*Accelerate discoveries & solutions with **open** and **scalable** bespoke microscopes*

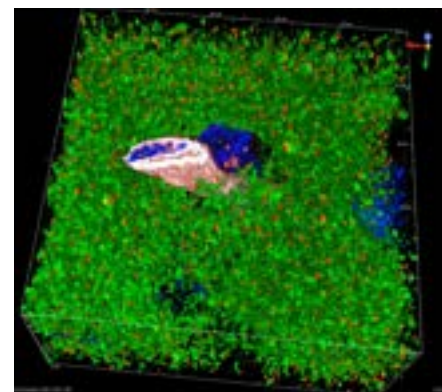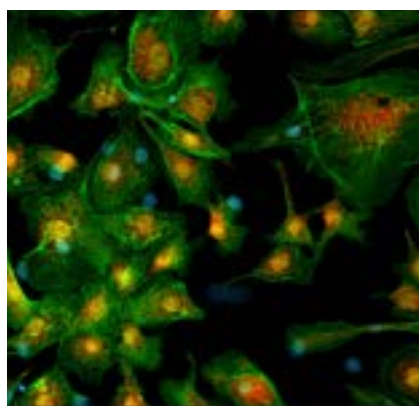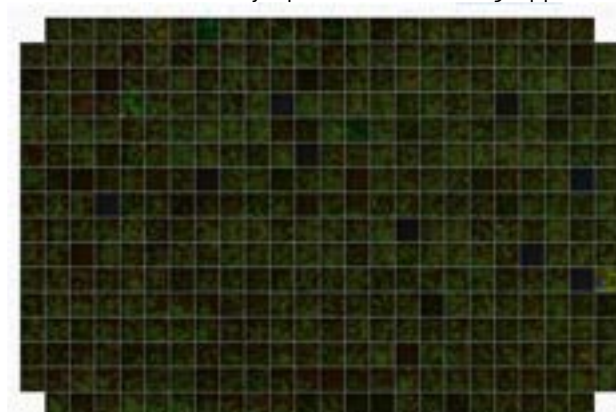- 5 epi-fluorescence excitation channels (405/470 or 488/550/640/730), LED or Laser
- LED array for differential phase contrast
- 850 nm laser autofocus (optional)
- Motorized objective changer (optional)
- Motorized filter wheel (optional)
- Fluidics system (optional)
- For 4 glass slides, 6-1536 well plates
- Stage-top incubator available for live cell imaging
- Open source, python-based software for total control and easy customization

| Nucleus | Nucleoli + cytoplasmic RNA | F-actin + Golgi apparatus | Mitochondria | ER |
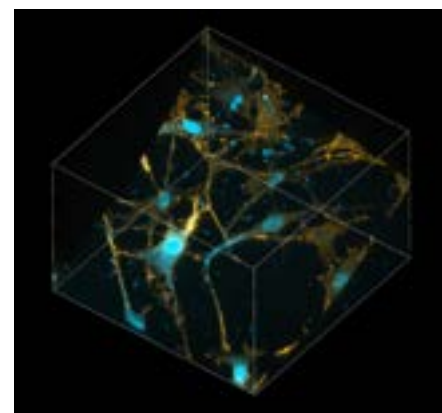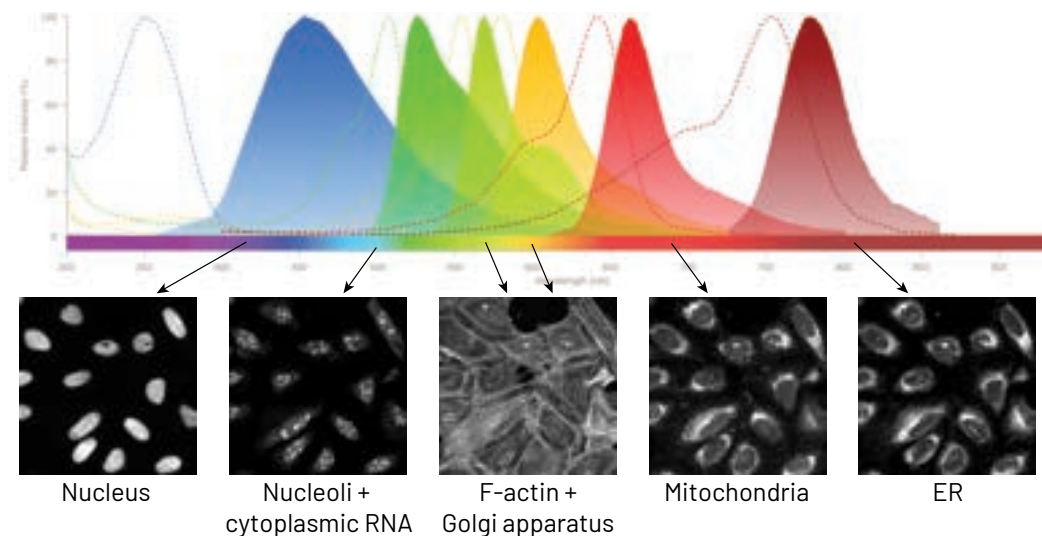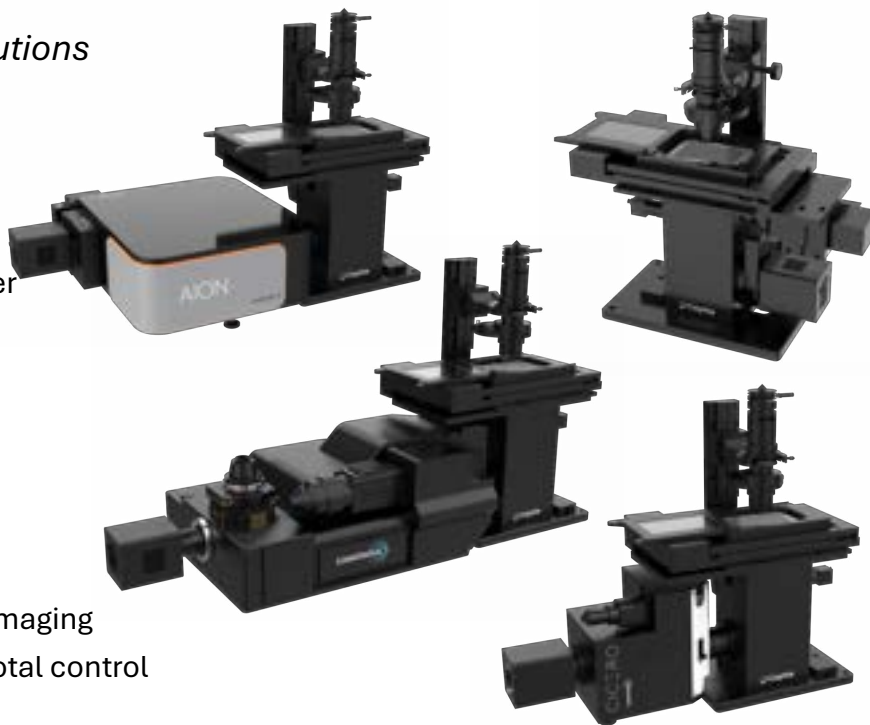
3D cell culture, 60x/1.2 water

Images courtesy of Pharmaceutical Bioinformatics group, Department of Pharmaceutical Biosciences, Uppsala university, Sweden. And also Phenaros Pharmaceuticals AB, Uppsala, Sweden

Mouse brain, 4x expansion with *Magnify*
25 x 25 x 12 µm³ 60x/1.2 water

Recent publications

- Frey, Benjamin, et al. "Single-cell morphological profiling reveals insights into cell death." bioRxiv (2025): 2025-01.
- Zhang, Qing, et al. "Ice gliding diatoms establish record-low temperature limit for motility in a eukaryotic cell." bioRxiv (2024): 2024-11.
- Larson, Adam G., et al. "Inflation-induced motility for long-distance vertical migration." Current Biology 34.22 (2024): 5149-5163.
- Hall, R. Nelson, et al. "A genetic and microscopy toolkit for manipulating and monitoring regeneration in Macrostomum lignano." *Cell Reports* 43.11 (2024).

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Specifications

Optics	Olympus, Nikon, Zeiss, Leica or custom infinity corrected objectives
FN	Up to 26.5 for standard objectives
XY stage	Leadscrew stepper motor (default), 120 mm x 80 mm, compatible with robotic plate loading
Z stage	Stepper linear actuator (cross roller bearing) + piezo (optional) or brushless linear motor stage
Epi illumination	LED or laser (laser for spinning disk confocal) up to 5 channels (e.g. 405/470/555/640/730) for standard models
Laser autofocus	850 nm (optional)
Camera	Camera(s) of your choice (Examples: 26 MP Sony CMOS with 3.76 um pixel, Tucsen or Photometric 10.2 MP sCMOS with 6.5 um pixel size and 29.4 mm diagonal FOV, 95% peak QE and read noise down to 0.7 e-)
Confocal options	spinning disk confocal line scanning confocal point scanning confocal (coming soon)
Controller	6 camera triggers, 8 general purpose digital I/O, 8 16 bit DAC
Software	Squid open-source, python-based graphical user interface with Napari viewer Headless mode for scripting / automation integration coming soon
Add-ons	Motorized emission filter wheel Patterned illumination TIRF (coming soon) Automated water dispenser Squid fluidics system for multi-round imaging/reagent delivery Plate hotel and arm for automated plate loading (coming soon) and more to come

Customers and collaborators

About us and contact info

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As a spinout from Stanford University founded in 2022, Cephla designs and manufactures open and scalable automated microscopes for healthcare and life science research. By understanding the applications and optimizing hardware and software around them, our goal is to offer performance systems that users love. Working closely with our customers and through collaboration with our partners, we strive to make the latest technologies accessible and contribute to accelerating discoveries and solutions.