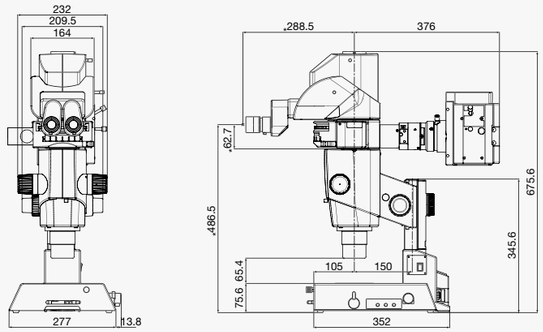
## ■ MVX10 specifications

| | | | | |
|---|---|---|---|---|
| Zoom microscope body MVX-ZB10 | Zoom | Mono-zoom variable magnification system | | |
| | Zoom ratio | 1:10 (0.63x-6.3x) | | |
| | Aperture iris diaphragm | Built-in | | |
| Observation heads MVX-TTRS | Features | Tilting trinocular head that allows switching between standard and stereo observation | | |
| | Field number (F.N.) | 22 | | |
| | Tilting angle | 0°-23°continuously variable system | | |
| | Light path selection | 2-step binocular 100%/photo 100% | | |
| Reflected light fluorescence unit MVX-RFA | Illumination mode | Coaxial reflected light | | |
| | Filter selection | Turret 3 filter + BF | | |
| | Fluorescence mirror unit | For CFP, GFP, YFP, RFP separation high quality mirror unit<br>For GFP and GFP separation mirror unit | | |
| | Light source | 100W mercury apo lamp housing and transformer, 100W mercury lamp housing and transformer, or 75W xenon apo lamp housing and transformer | | |
| Magnification changer MVX-CA2X | Magnification | 1x, 2x selection | | |
| Objectives (when used with eyepiece WHN10X) | | MVPLAPO 0.63X | MVPLAPO 1X | MVPLAPO 2XC |
| | Total magnification | 4.0x-40x | 6.3x-63x | 12.5x-125x |
| | Working distance W.D. (mm) | 87 | 65 | 20 |
| | Numerical Aperture (N.A.) | 0.15 | 0.25 | 0.5 |
| | Field of view (mm) | 55-5.5 | 34.9-3.5 | 17.6-1.7 |
| Stands, Transmitted illuminators | Stands, Transmitted illuminators | High-level transmitted light illuminator for MVX10 MVX-ILLB, High-level transmitted light illuminator SZX-ILLB2, Transmitted light illuminator SZX-ILLK, BF/DF transmitted light illuminator SZX-ILLD2, Large stand SZX-STL | | |
| | Focusing unit | Fine focusing unit MVX-FOF, Motorized focusing unit SZX-FOA2 | | |
| | Stage | Large stage plate, Thermoplate | | |

Dimensions







Weight: approx. 22kg
Power consumption: 408VA
The length marked with an asterisk (*) may vary depending on interpupillary distance and tilting angle.

Photo courtesy of: Chi-Bin Chien PhD, University of Utah (spread 1: top)
Richard Drosky PhD, University of Utah (cover: bottom, spread 1: left, spread 2: left)
Mark Ellisman PhD, Hiroyuki Hakozaki MS, Natalie Maclean MS,
University of California, San Diego, NCMIR (cover: top, spread 1: bottom, spread 2: middle and right)
Adam Cliffe PhD, European Molecular Biology Laboratory (cover: left)

Specifications are subject to change without any obligation on the part of the manufacturer.

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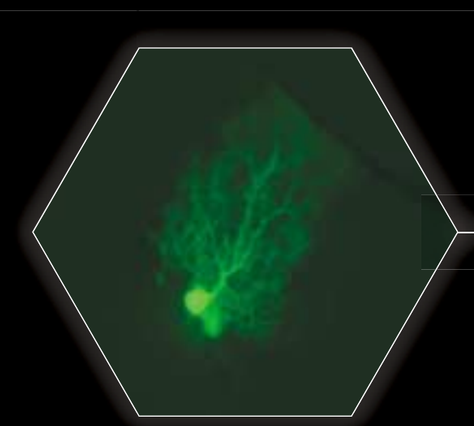
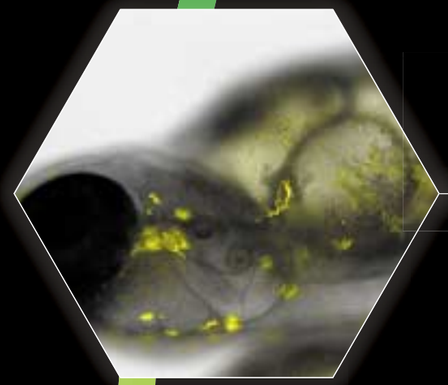
# MVX10

## Macro View



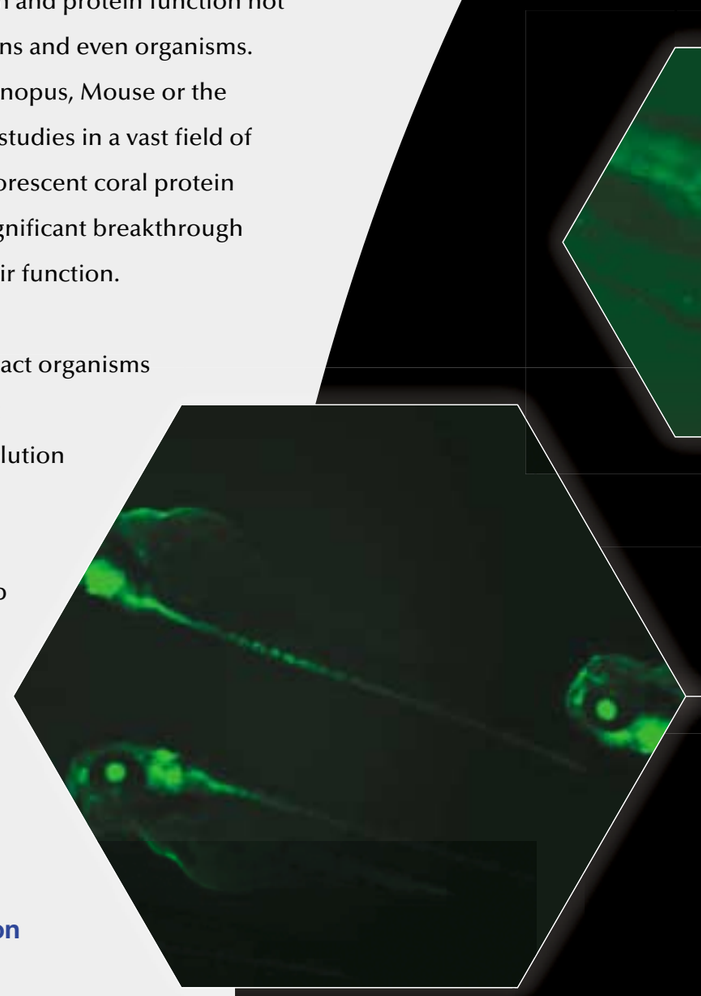
The first true macro fluorescence imaging system

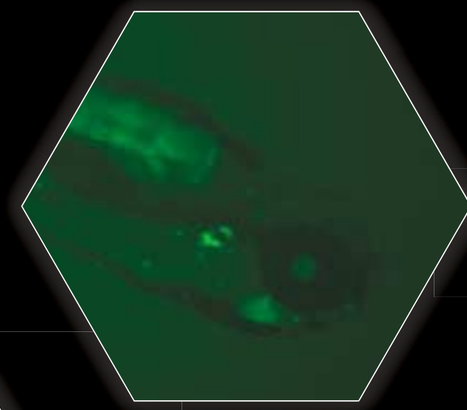


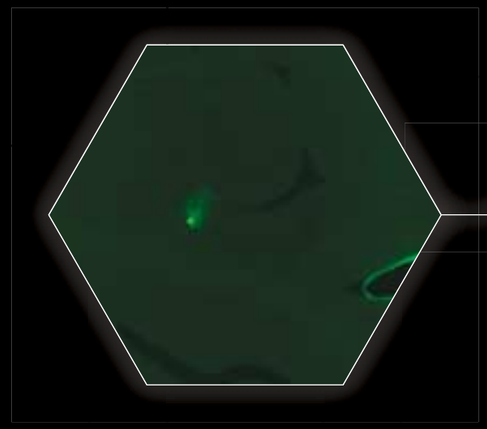
# The ultimate in macro fluorescence imaging. The new MVX 10 MacroView from Olympus.

Researchers are interested in the impact of gene expression and protein function not only at the cellular level but also within whole tissues, organs and even organisms. Hence organisms like C. elegans, Drosophila, Zebrafish, Xenopus, Mouse or the plant Arabidopsis are used as biological models for in *vivo* studies in a vast field of research applications. The introduction of the naturally fluorescent coral protein markers, such as Green Fluorescent Protein (GFP), was a significant breakthrough since proteins can now be labelled without influencing their function.

The perfect microscope for fluorescence observation in intact organisms must combine maximum detection sensitivity at the lowest magnifications with a high magnification zoom for the resolution of fine details within organs, tissues and even cells. The Olympus MVX10 MacroView brings both of these factors together with many other unique features to bridge the gap between macro and micro observation, providing unprecedented brightness, resolution and precision.







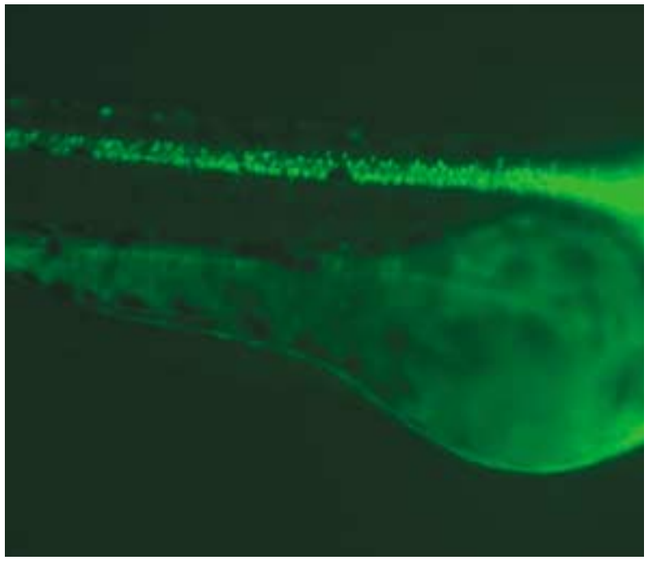

- **High fluorescence efficiency plus stereo observation**
- **Seamless observation from 4x to 125x**
- **Zoom factor up to 31 times**
- **Long WD for observation at optimum magnification**
- **Maximum specimen protection due to short exposure time**
- **Complete system solutions for optimized recordings**

# Bright fluorescence imaging with seamless macro to micro zooming.

## High fluorescence efficiency plus stereo observation

Up until now, stereo microscopes have been the instruments of choice for fluorescence observation at low magnifications. For the stereoscopic effect, two optical paths are used — one for the left and one for the right eye. Stereo microscopy though, is not very well suited to imaging the weak light generated by fluorescence, since the light collected by the objective is split in two. The Olympus MVX10 MacroView on the other hand, employs a single-zoom optical path with a large diameter, which is optimized to collect light with unprecedented efficiency and resolution at all magnifications. From fluorescent observation of whole organisms such as zebrafish at low magnification to the detailed observation of gene expression at the cellular level at high magnification — the MVX10 helps you to see it all.

What's more, the MVX10 features a unique pupil division mechanism in the light-path to mimic the effect of stereo microscopy. So you can get the best of both worlds — high light efficiency and stereo observation — in one system just by moving a slider. This puts the MVX10 in a class of its own.



Zebrafish spinal cord expressing green fluorescent protein

### Dedicated to fluorescence

All components of the light path contribute to the phenomenal fluorescence performance of the MVX10. Using the latest technologies and new materials, the MVX10 objectives produce almost zero autofluorescence. Together with very high numerical apertures this results in an extremely good signal-to-noise (S/N) ratio, ensuring excellent contrast for observation of even the faintest fluorescence signals. Moreover, the S/N ratio is further enhanced by two novel proprietary features:

- A new coating technique gives the Olympus HQ filters an exceptional edge steepness and very low autofluorescence.
- All the filter cubes are equipped to absorb stray light.

Light collection efficiency is also maximized with an aspherical fluorescence collector, which bundles the light for minimum intensity loss.

Reflected light fluorescence unit + fluorescence mirror unit

## Smooth and Parfocal objectives for seamless observation from macro to micro

### A unique objective line

The MVX10 provides the same working distance and large field of view as stereo microscopes, but with much higher resolution due to the increased numerical aperture (NA). Specially designed for the MVX10, the 0.63x, 1x and 2x planapochromatic objectives produce the highest image quality. All three objectives are pupil-corrected for best image flatness and show high transmission to NIR and superior chromatic aberration correction. This produces great flexibility for efficient, fast and precise fluorescence observation, screening and imaging — from low to high magnification over time.

Objective lineup

### Dynamic

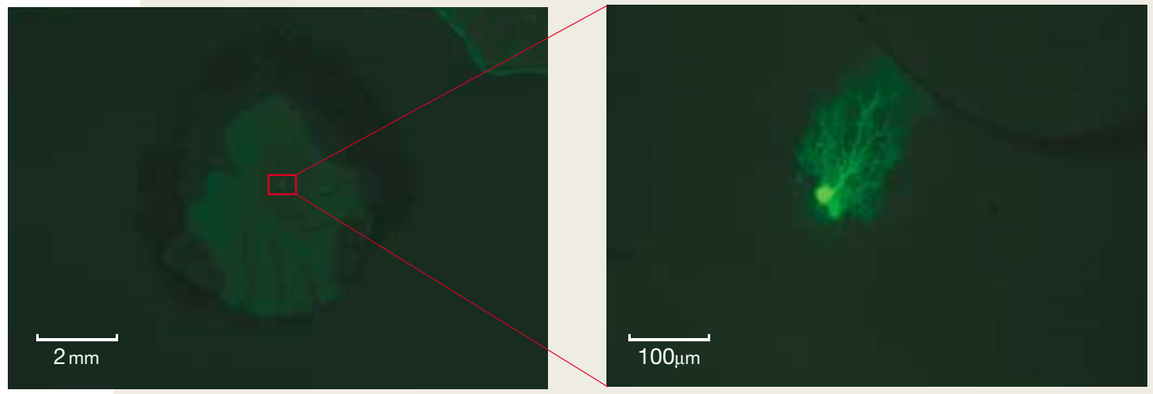
The 0.63x objective has a maximum field of view of 55 mm, making it easy to track fast-moving specimens over time. With its exceptionally high NA of 0.15, fluorescence from large objects, such as whole embryos, can be viewed with perfect brightness at all magnifications.

### Gentle

The peerless NA and S/N ratio values of all the optical components mean that specimens can be exposed to fluorescent light for shorter periods. This is also true at near-infrared wavelengths where the MVX10 has superior transmission properties and thus fluorochromes throughout the entire spectrum can be used with minimal sample damage.

### From macro to micro

Using the 2-position revolving nosepiece with the 0.63x and 2x objectives expands the usable zoom range up to 31.
The objectives are parfocal corrected, making refocusing after objective switching very quick and easy. Only a small amount of fine focusing is necessary to return to the optimal focus position, making macro to micro changes seamless. The 2x objective is also equipped with an additional correction collar to adjust the image quality independently of the specimen medium.




Purkinje cell of sliced mouse brain with Lucifer Yellow injected, at 0.63x (left) and 12.5x (right) magnification

### Long working distance (WD) ensures more efficiency in screening and observation

In comparison with stereomicroscopes, the MVX 10 provides the same working distance and a much higher NA (65mm WD and maximum 0.25 NA when using a 1x objective). This makes fluorescence screening and verification of gene expression especially efficient, improves speed and precision, reduces judgment errors, and eliminates the need to switch back and forth between a stereomicroscope and inverted microscope.

## Seeing is believing: tailor-made system solutions from Olympus

Olympus imaging system solutions make sure that you always get the best possible results. Highly sensitive and dynamic cameras ensure data acquisition in the shortest possible time and with the highest fidelity. The intuitive software allows easy control of all functions and experimental parameters, including processing and analysis of images. The systems are also capable of supporting prolonged visualization of samples requiring careful environmental control with the addition of accessories, such as a heating stage.

MVX10+DP30BW

## Comprehensive refinement for ultimate comfort and efficiency

Tilting head

### Fatigue-free operation via ergonomic design

The tilting binocular head is designed to minimize the stress associated with long-term observation. The zoom dial and focusing knob fit comfortably in your hand for smooth magnification and focus control.

## Illuminators for various observation methods

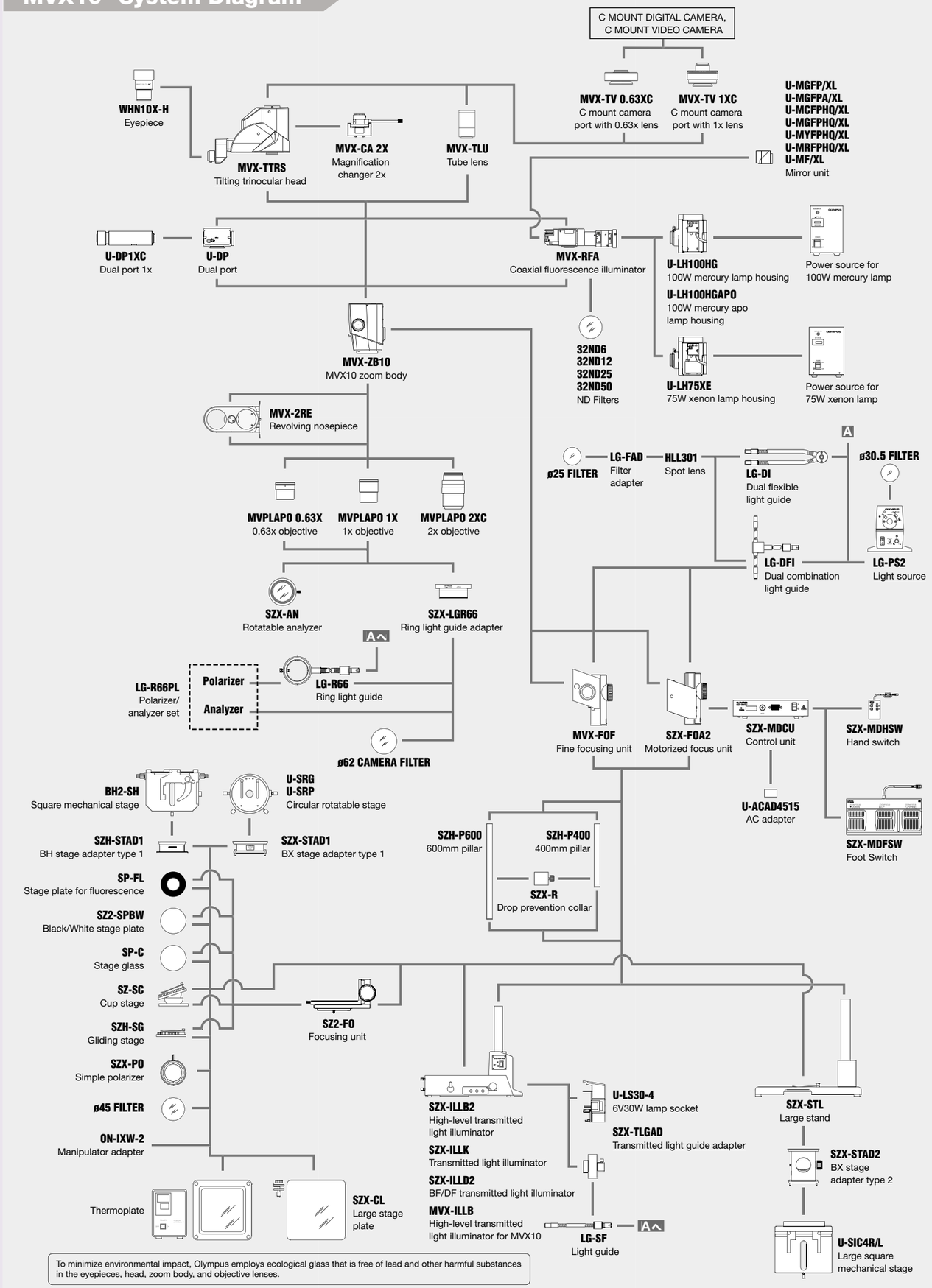
### High-level transmitted light illuminator MVX-ILLB (patent pending)

The unique, slit-stop oblique illumination is ideal for various types of samples. Light intensity and color temperature are adjusted effortlessly using the three built-in filters.

### Large stand SZX-STL1

This large stand exhibits excellent stability, making it highly suitable for imaging or for observation of large specimens.

## MVX10 System Diagram




To minimize environmental impact, Olympus employs ecological glass that is free of lead and other harmful substances in the eyepieces, head, zoom body, and objective lenses.