

From Eye to Insight



## POWERFUL UPRIGHT MICROSCOPE SOLUTIONS FOR LIFE SCIENCE AND CLINICAL APPLICATIONS

DM4 B

DM6 B



SHORT TRAINING TIME,  
INTUITIVE USAGE AND  
HIGH QUALITY IMAGES  
ARE DECISIVE CRITERIA  
WHEN CHOOSING AN  
UPRIGHT RESEARCH  
MICROSCOPE.

I NEED A QUICK  
ORIENTATION ON THE  
SAMPLE RIGHT FROM  
THE START TO SAVE  
VALUABLE TIME.

Dr. Andreas Vonderheit  
Director of Core Facilities and Technology,  
IMB Mainz (Germany)



#### **Simplify your workflow**

The DM4 B and DM6 B utilize intelligent automation and integrated workflow-based software to provide users an easy-to-use imaging system that is suitable for individual or multi-user laboratories.

#### **Speed up your application performance**

Time is short. Speed up with our next generation of upright microscopes. The ability to use larger camera chips more effectively plus our deep integration of Navigator in LAS X for faster orientation and imaging of your sample, saving valuable instrument time.

#### **Stay ahead with flexibility**

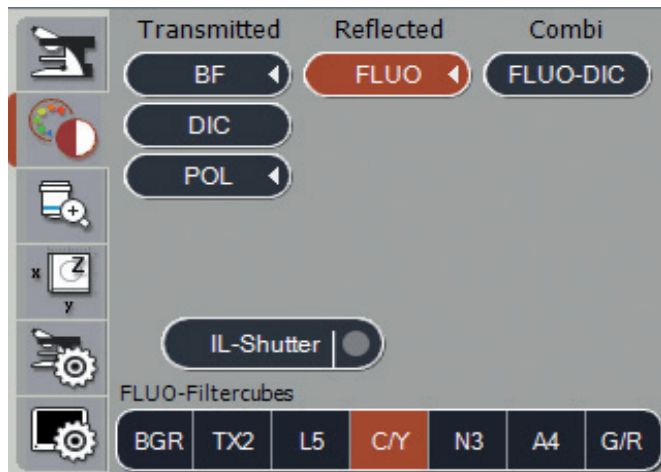
The DM4 B and DM6 B allow you to build the microscope that fits your need and budget. Whether selecting LED illumination, contrast techniques, or automation you are able to optimize your imaging system for your specific application.





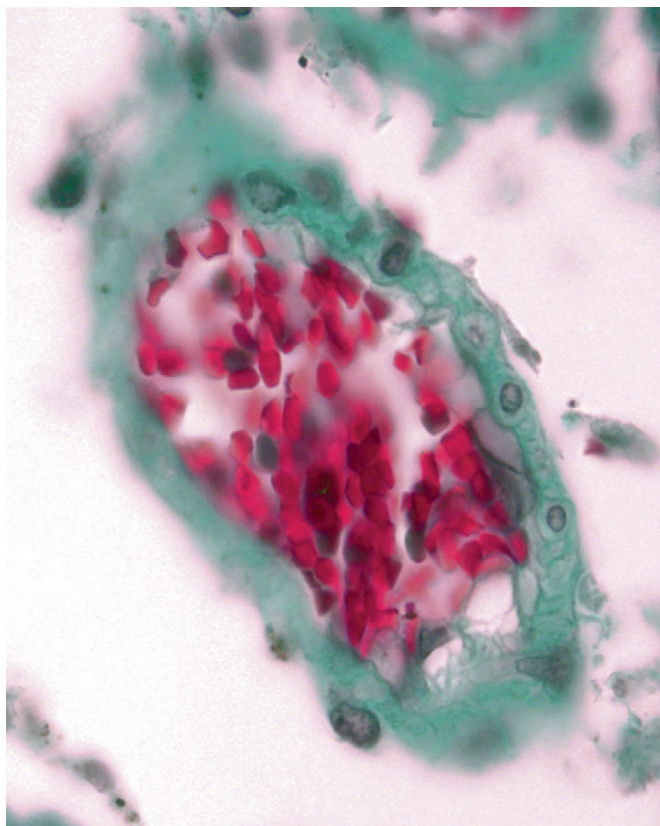


# MAKE YOUR LIFE EASIER WITH INTELLIGENT AUTOMATION



## Quickly change contrast methods with the press of a button

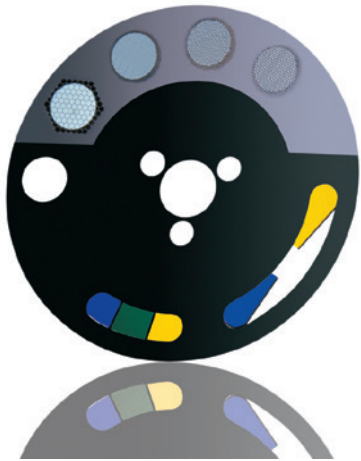
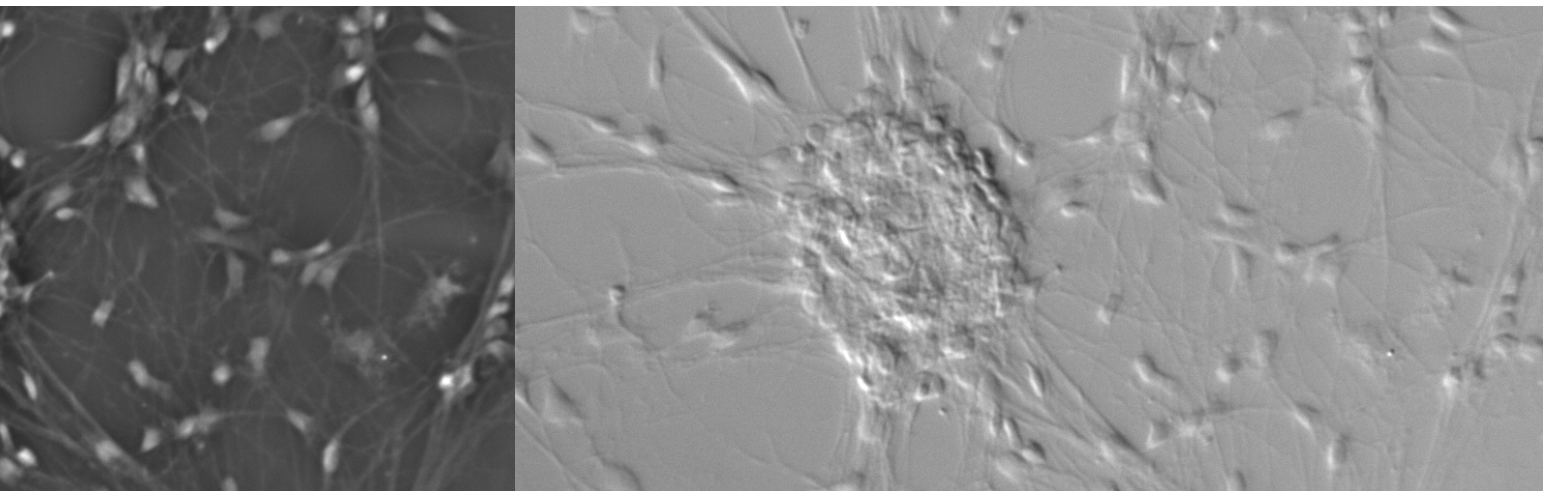
The Contrast Manager provides users with the ability to change contrast methods with just the push of a button. All necessary adjustments, including prisms and phase contrast rings, are automated. This allows you to focus on your experiment, and not have to worry about your microscope.



## Save time with automatic Koehler light management

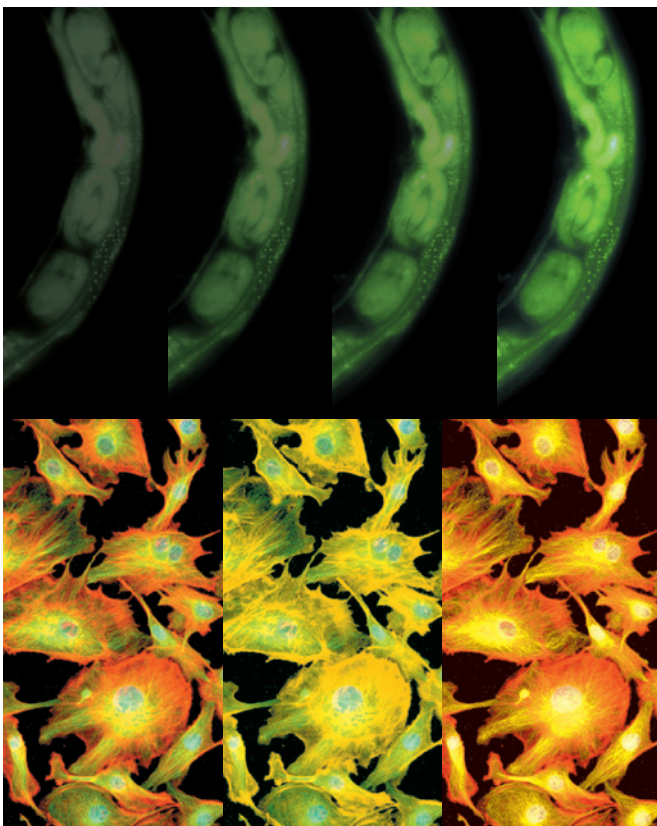
Automated Koehler light management ensures that your images are publication ready – everytime. Simply place the specimen on the microscope stage, focus, and it is ready to be viewed. **Leica Microsystems** upright microscopes detect the selected objective in use, automatically adjust the condenser head, aperture, and field diaphragm, and adjust the light intensity. You can alter these values at any time. Modified settings are automatically stored and imported as the microscope's new default values.





### **Constant color temperature ensures optimal publication quality images**

LED illumination provides constant color temperature at all light intensity levels.



### **Acquire fluorescence images with ease**

Intelligent Automation not only simplifies transmitted light techniques, but also fluorescence imaging.

The Fluorescence Intensity Manager (FIM) provides fast and reproducible regulation of the excitation light to effectively protect the specimen from photo bleaching.

The Excitation Manager is used to balance fluorescence when viewing multiple fluorophores simultaneously. The intensity of different wavelengths can be adjusted, and the fine coding ensures reproducible results. The fast Internal Filter Wheel (IFW) controls single excitation channels when using a dual or triple fluorescence cube. This allows very fast switching between different wave lengths. The extensive options of LED light sources ensure the right excitation for every sample and dynamic control limits photo bleaching.

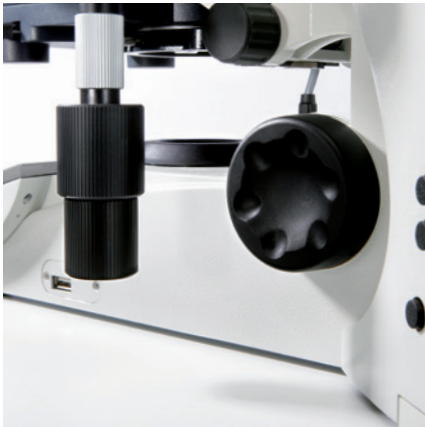


# COMFORTABLE CONTROL AND ERGONOMICS



## **Capture images with comfort**

Leica Microsystems' adaptable, ergonomic tubes can be adjusted perfectly to your seated height and posture. The adaptable stage for right or left handed people makes simultaneous focus and movement control easy and promotes a relaxed body position – even after hours of work at the microscope.





### **Teach the microscope your favorite functions**

Users can assign microscope functions to the stand function buttons. Program these easily accessible buttons to perform any desired function. Additional programmable function buttons are located on the external Leica STP8000 SmartTouch Panel control, on the Leica SmartMove remote control or the LMT multi-wheel control.

### **Control the microscope from any position**

The Leica STP8000 SmartTouch Panel can be used to control the microscope from any position at the laboratory workstation. All automated functions can be set intuitively from the external control panel. The SmartTouch Panel also offers a focus wheel for fine and coarse adjustment, controls for x,y stage adjustments, and eleven programmable function buttons.

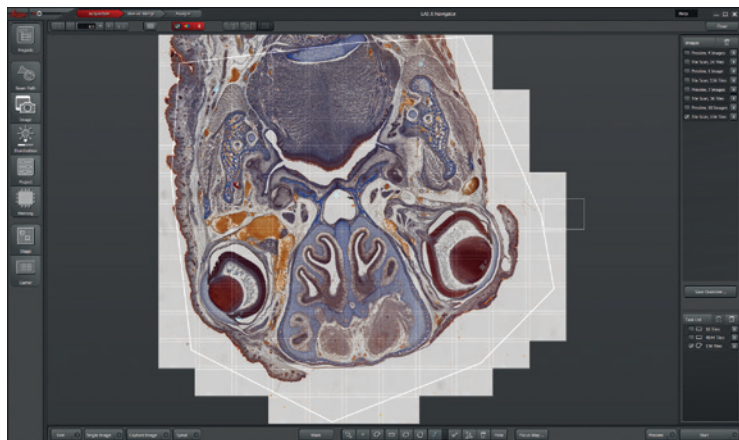






SEE MORE IN LESS TIME

Credit to IGBMC, Illkirch France



### LAS X for best results

The Leica Application Suite X (LAS X) software is the easy-to-use software platform for life science research for Leica Microsystems' widefield, stereo, confocal and super resolution systems. It provides users with a powerful imaging tool in an accessible workflow-based design.



### LAS X Navigator

The latest addition to LAS X software is the LAS X Navigator, key to all applications on Leica Microsystems' upright microscopes with motorized and coded hardware.

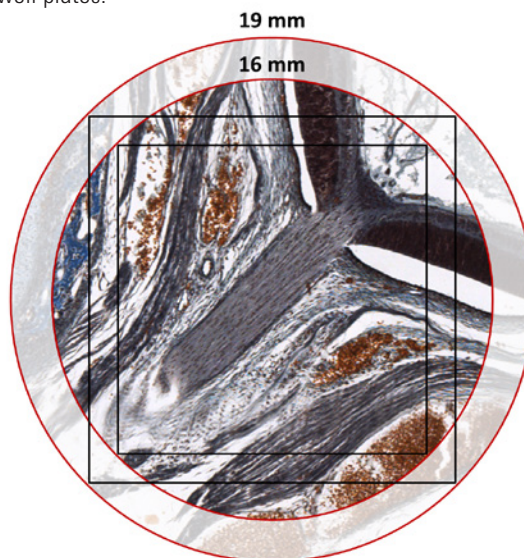
### See up to 10.000x more of your sample with LAS X Navigator

Switch from searching image by image to seeing the full overview of your samples. Like a GPS for your cells, LAS X Navigator ensures that you always have a clear roadmap to brilliant data. Create fast overviews of your samples and identify the important details instantly. Then set up high resolution image acquisition automatically using templates for slides, dishes and multiwell plates.

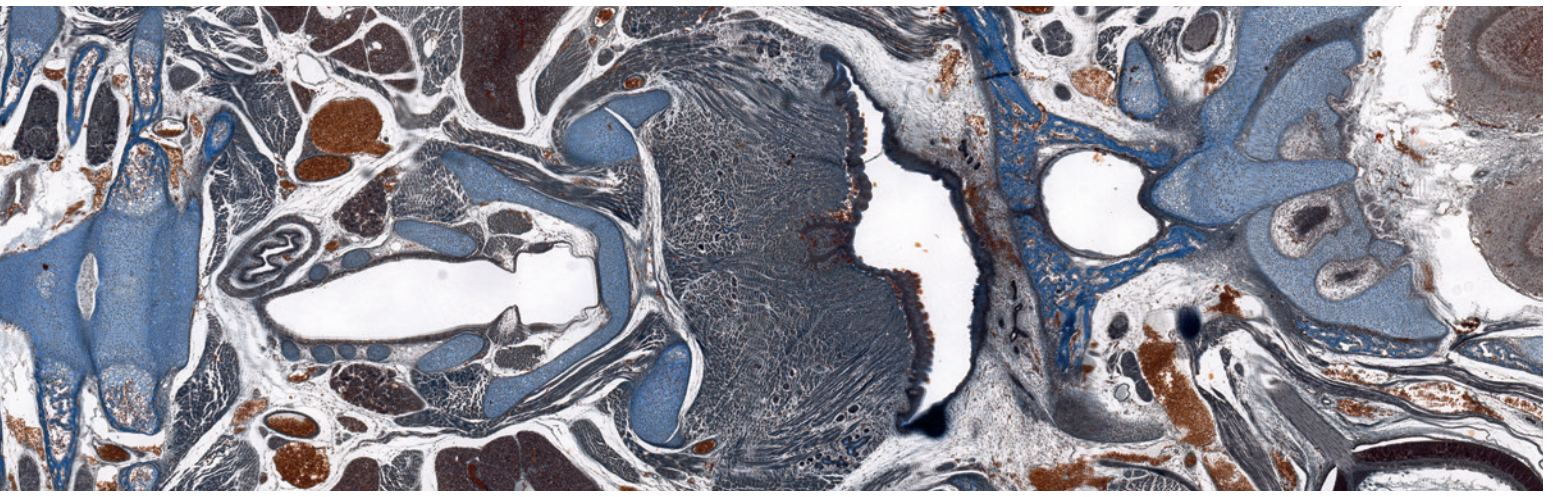
**Tuned to your application** – Use custom templates for different numbers and sizes of slides, like four or eight slides, petri dishes and multi well plates.

### See more with your sCMOS camera

The DM4 and DM6 are designed for sCMOS cameras by featuring a new 19 mm field of view camera port. This perfectly fits to the dimensions of common sCMOS sensors. Make your slide examination faster at the highest resolution!







### **Motorized field diaphragm for the best imaging results**

The motorized field diaphragm level features six round and square field stops of various sizes. When using a digital camera, the square field stops best match the image section to the chip size of the camera. This prevents bleaching of prepared sections that have not yet been imaged and improves the signal-to-noise ratio.

### **Benefit from our brilliant objective portfolio**

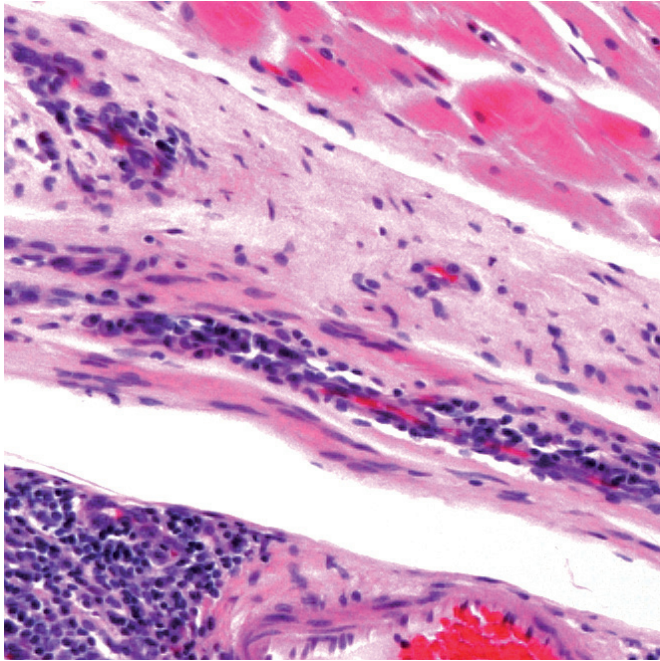
High performance optics is the key for amazing results in microscopy. Find the objective perfect for your application and choose from our broad selection.







# SYSTEM INTEGRATION FOR YOUR APPLICATIONS

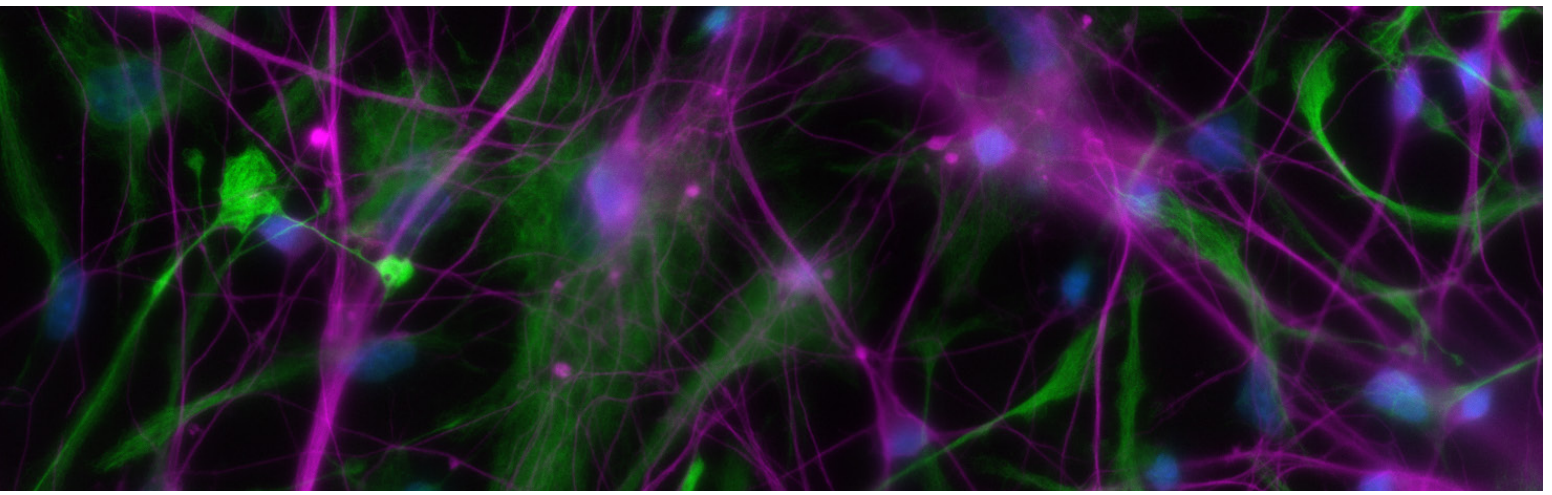


## **Flexible illumination configuration**

If incident illumination is not necessary, the DM4 and DM6 can be configured without a fluorescence axis, making the system more cost effective.

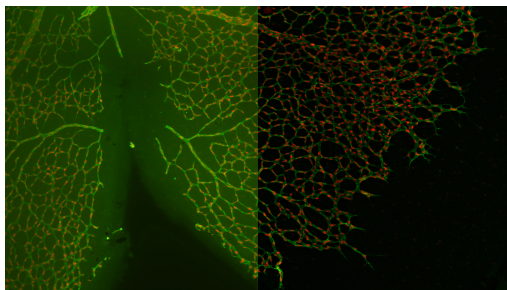
## **The advantages of LED illumination**

Transmitted light LED illumination provides constant color temperature at all light intensity levels for reliable results. With at least 25,000 hours lifetime, the LED illumination is very cost effective, as frequent bulb exchanges are no longer necessary. Multi-line LED light sources provide optimal excitation for your sample, maximizing excitation efficiency and minimizing imaging time. With hardware synchronization, you can minimize overexposure and limit photobleaching.



### Software seamlessly integrates the entire microscope system

An integrated imaging system gives the best results if all components seamlessly work together. Leica Microsystems offers a complete imaging system from one source: microscope, camera, and software – customized and perfectly matched to work together.

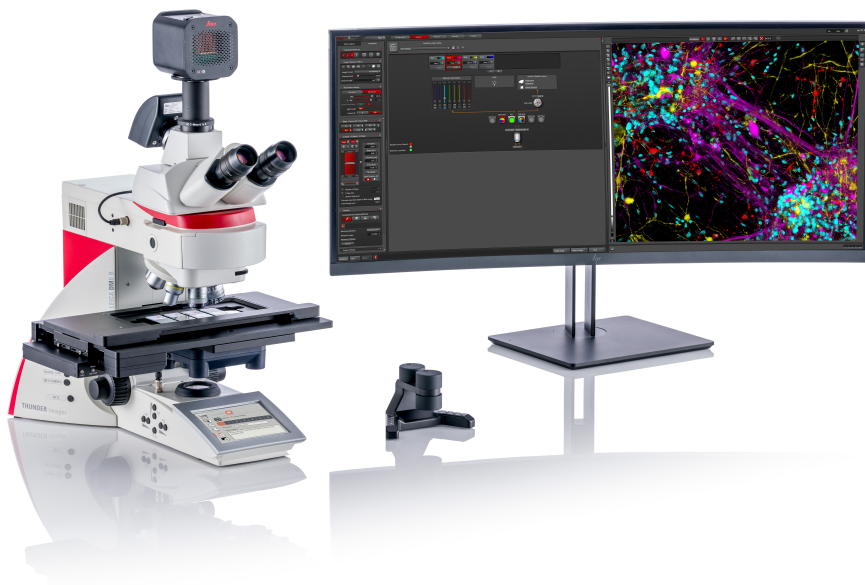


Left: Original  
Right: Deconvolved image with THUNDER Imager Tissue

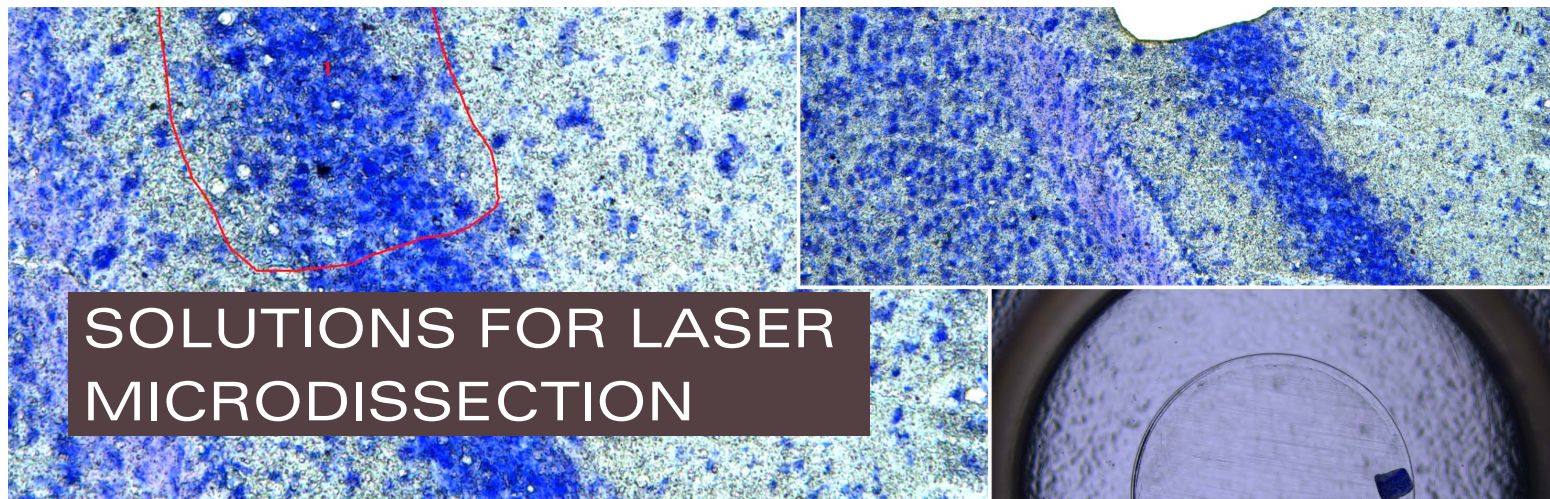


### Digital cameras for every requirement

You can choose from Leica Microsystems' portfolio or third-party cameras. The range of options extends from color or black and white imaging for medical and biological applications up to longer recordings with several minutes of exposure time for fluorescence microscopy with low light intensity. The enlarged Field of View (FOV) also supports efficient usage of highly sensitive, high speed, and larger format sCMOS sensors to capture greater details than ever before.





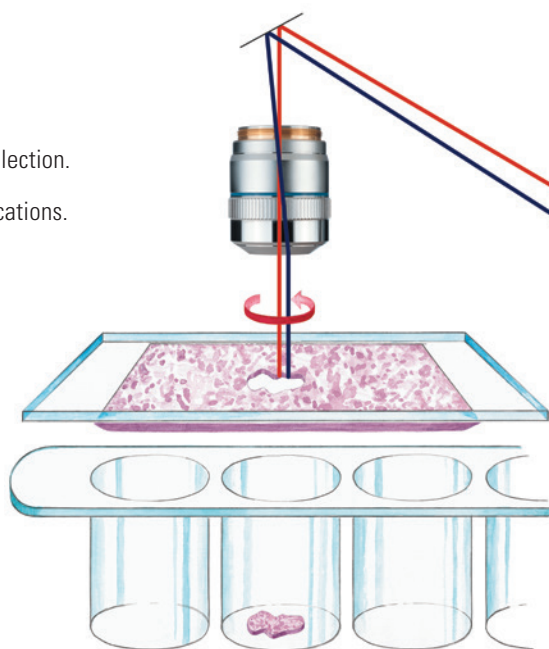


# SOLUTIONS FOR LASER MICRODISSECTION

The DM6 stand is also platform for advanced microscopy techniques. The LMD6 and LMD7, based on the DM6 B, cut samples with the highest precision and throughput utilizing up to 1536 well-plates. The DM6 FS is an outstanding tool to perform electrophysiological experiments, with minimal vibration and high stability.

## Laser Microdissection facilitates sample preparation for molecular biology analysis directly from the tissue section

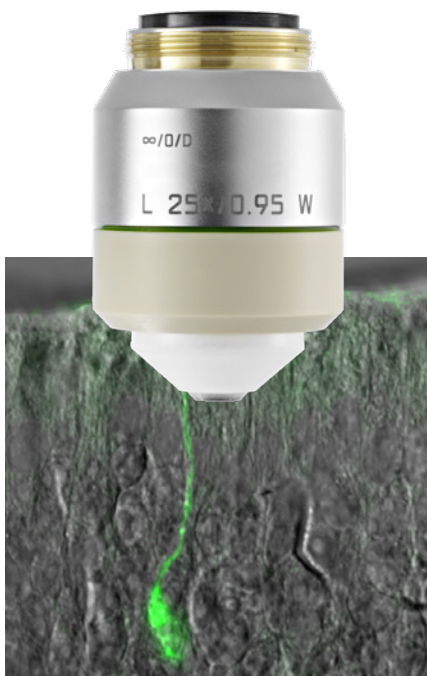
- > UV laser beam movement via optics for fast, precise, and reliable laser cuts.
- > Specimen collection via gravity assures contact- and contamination-free sample collection.
- > Adjustable high-powered laser gives flexibility for a variety of specimens and applications.
- > Specially designed LMD objectives ensure the highest possible laser power.
- > Simple, time-saving, and workflow-based system functionality via easy-to-use software.
- > With the same high quality optics as the DM6 B, THUNDER and routine imaging can be done with the system, making it a true, dual use system.



# SOLUTIONS FOR ELECTROPHYSIOLOGY

## Fully automated fixed stage microscope for electrophysiological research and live-cell imaging

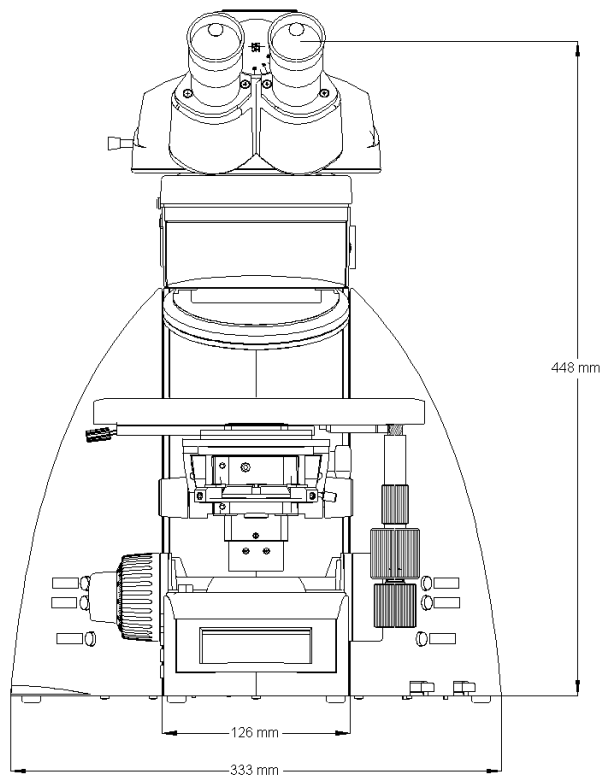
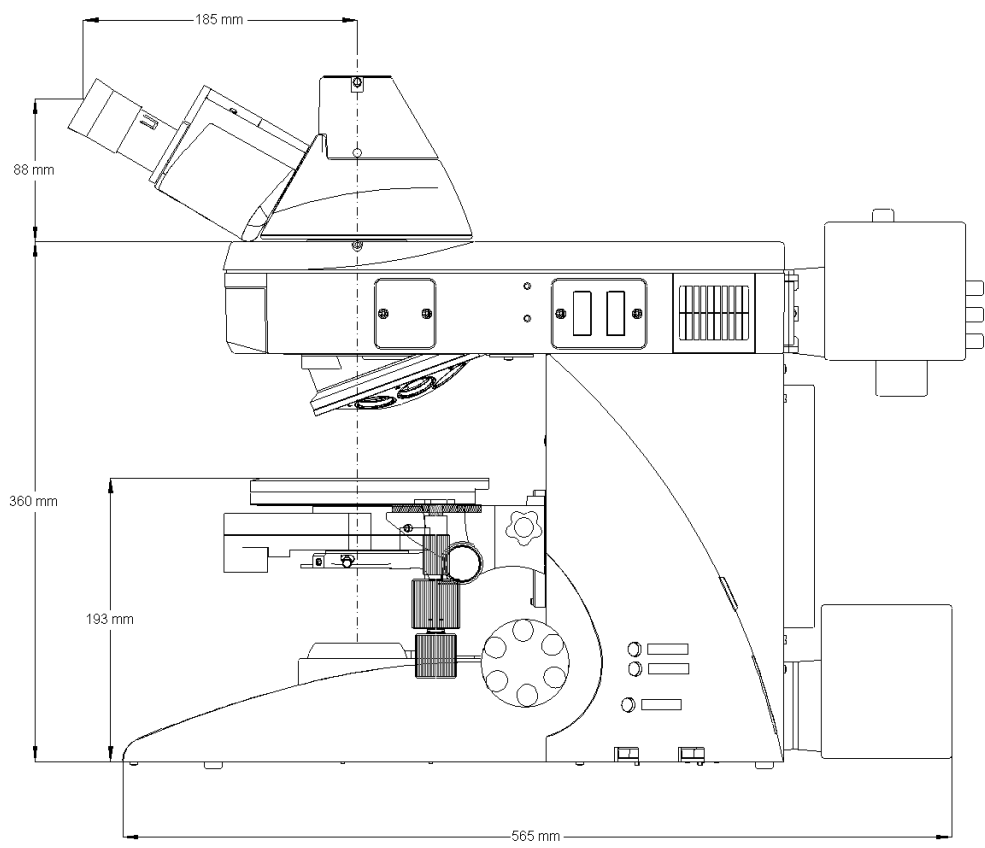
- > Tailored for electrophysiology – with special shielded cables and motors plus space for peripherals.
- > Combines DIC and epifluorescence with the recording or synchronization of electric signals
- > Eliminates all mechanical vibrations and electric interference for substantially improved stability of experiments.
- > More clearance around the specimens due to the HC FLUOTAR L 25x/0.95 W VISIR objective for near infrared DIC with the best possible access angle of 41° and largest free working distance of 2.5 mm.
- > Contact-free switchover and gentle submersion of the objectives into the aqueous nutrient medium with precise automatic refocusing due to the motorized two-position objective changer.
- > Ready for Optogenetics - in combination with adequate light sources and cameras.



GFP-marked olfactory sensory neuron  
Image courtesy of Dr. Daniela Flügge,  
RWTH Aachen University, Germany



# SPECIFICATIONS





SYSTEM OVERVIEW		Leica DM4 B	Leica DM6 B
Stand	Power supply	integrated within stand	within electronics box CTR6 LED
	Display	information display	Leica SmartTouch with information and CTR Advanced controls
	Interfaces	1 x USB 2.0, 1 x I <sup>2</sup> C	2 x USB 2.0, 2 x I <sup>2</sup> C
Operation	Focus	mechanical	motorized or mechanical
		2-ratio gearbox (coarse/fine)	5 electronic ratios
			includes parfocal function
			switch between coarse and fine mode
			memory locations for two z-positions
	Objective turret	absolute coded	motorized or absolute coded
		– 6x M25 thread	includes dry and immersion mode
		– 7x M25 thread (optional)	7x M25 thread
	Stage	mechanical	motorized (optional)
		ceramic-coated	with stepper motor
		y-drive with belt	switch between fast and precision mode or linear encoded mode
		removable stage drive with adjustable torque	includes memory location for up to
		110° swivel	5 stage positions
		left-handed version optionally available	mechanical
			ceramic-coated
			y-drive with belt
			removable stage drive with adjustable torque
			110° swivel
			left-handed version optionally available
	Controls	6 programmable function buttons	6 programmable function buttons
			SmartMove controls for z (focus) movement and x,y (stage) movement 4 programmable function buttons multiwheel from the LMT 250-f Leica STP8000 controls for z (coarse and fine focus) and x,y (stage) movement 11 programmable function buttons touchpanel with information and control panels
Transmitted light axis	LAS X Navigator	Yes	Yes
	Illumination	LED	single to multiband LED sources
	Automation		
	Light manager: automatic Köhler light management sets the best values for aperture, field diaphragm, and light intensity	Yes	Yes
	Contrast manager: switch from one contrast method to another with one push of a button	Yes	Yes
Fluorescence axis	Contrast method	BF, PH, DF, POL DIC (semi-automated)	BF, PH, DF, POL DIC (fully automatic)
	Motorized filter cube turret	5x	5x 8x
	Illumination	Leica EL6000	Leica EL6000
		PE300, Leica SFL4000/7000, Fura Options	Leica SFL4000/7000, PE-300, PE-400, PE-800, Fura options
		3rd Party	3rd Party
	Automation		
		Fluorescence Intensity Manager (FIM): regulation of the excitation light to effectively protect the specimen from photo bleaching	Yes
		Contrast manager: switch from one contrast method to another with one push of a button	Yes
		Round and square illuminated field diaphragms for ocular and camera observation (motorized)	Yes
	Excitation Manager: balances fluorescence when viewing multiple probes simultaneously		Optional
	Internal Filter Wheel (IFW): fast switching between up to three wave lengths		Optional
Condensers	Automation	condenser head, motorized	condenser head, motorized
		7x condenser disk, motorized (optional)	7x condenser disk, motorized (optional)
		polarizer, motorized (optional)	polarizer, motorized (optional)



Leica Microsystems GmbH · Ernst-Leitz-Strasse 17–37 · D-35578 Wetzlar  
T +49 64 41 29-40 00 · F +49 64 41 29-41 55

[www.leica-microsystems.com](http://www.leica-microsystems.com)

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