

Always the right dose and color of light



ZEISS Viluma Family

Flexible and Bright Light Sources for Your Fluorescence Imaging

zeiss.com/viluma



Seeing beyond

Flexible and Bright Light Sources for Your Fluorescence Imaging

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Excited by the right wavelength, fluorescent labels give your biological samples the contrast you need for meaningful imaging. Light emitting diodes (LED) are ideal for gentle live cell imaging: They only emit the part of the light spectrum that is required for the precise activation of your labels and avoid unwanted, cell-damaging UV leakage.

ZEISS Viluma is a family of light sources for fluorescence imaging that provides you with all the benefits of advanced LED technology: Expect stable illumination to obtain reproducible data. Achieve results faster with high imaging speeds and millisecond switching times. Fine-tune the excitation dose for even your most sensitive samples by precisely attenuating each individual LED. With up to nine illumination channels, image more labels than ever before across the entire spectrum – from UV to far red. And in combination with a multi-bandpass filter, you can use your Viluma for automated multichannel imaging on any manual microscope. What's more, as the LED light sources are switched off instantly whenever acquisition is paused, you not just save lamp time but also help to protect our environment.



Simpler. More Intelligent. More Integrated.

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Powerful and Bright

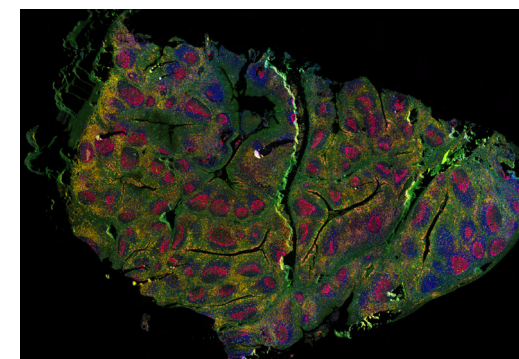
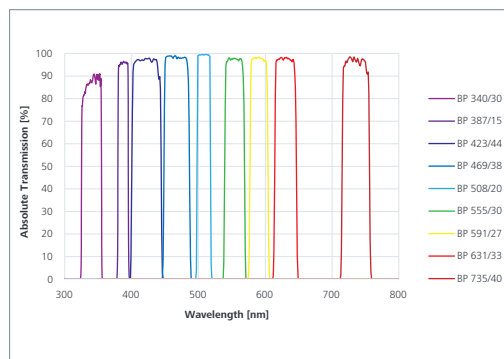
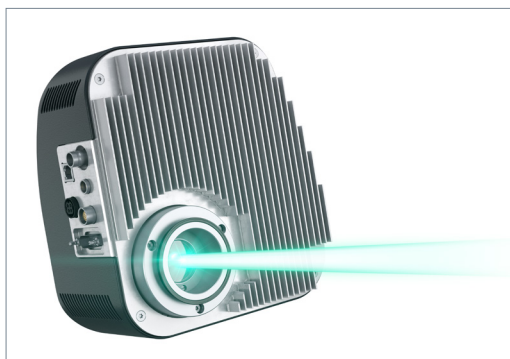
LEDs convert electrical power into light more efficiently than other light sources. With ZEISS Viluma, full excitation intensity is available over the whole lifetime without warm-up times. Improve the efficiency and reproducibility of your imaging experiments, as control over excitation is precise and very stable. You always get enough excitation power and can speed up your image acquisition, if necessary.

Adaptable and Easy to Use

Your ZEISS Viluma light source can house LEDs with a broad variety of wavelengths and intensities. Choose the configuration that exactly matches your applications and budget. With up to nine illumination channels from UV to far red, you are not limited in your choice of labels. All LEDs were specifically selected to deliver exactly the right wavelength and intensity for all your experiments in life sciences research. You control ZEISS Viluma with the familiar ZEN imaging software, the control panel, or the TFT of your ZEISS microscope.

Precise and Gentle

LEDs can be attenuated easily and do not emit unwanted heat or cell-damaging UV light. Your ZEISS Viluma houses specially designed and selected filters that are optimized for excitation of all common dyes and fluorescent proteins with highest accuracy. Your sample is only exposed to the radiation that is needed to excite the fluorescent label. Use ZEN imaging software and hardware triggers to control excitation intensity and wavelength with microsecond precision, perfectly synchronized with your image acquisition. Your sensitive sample is only exposed to light when a frame is acquired.



Human tonsil tissue stained with multiple cancer markers

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Depending on your experiments, the requirements for a light source vary. Your science may require several excitation channels for imaging multiple colors. Or you want to excite fluorophores with highest intensity to shorten exposure times for improving throughput or frame rate. The ZEISS Viluma family was designed with the various requirements of your applications in mind.

All ZEISS Viluma light sources are characterized by stable performance immediately after switching on. They are optimally adapted to ZEISS microscopes and provide highest homogeneity across the field of view. State-of-the-art LEDs with high light output guarantee always enough power for imaging dim samples or with high frame rates. Thanks to the integration into the ZEN imaging suite, even complex experiments can be conducted in an automated way.

ZEISS Viluma 5

Your affordable LED light source for fluorescence microscopy

- 4 excitation channels
- Directly coupled to stand
- Total light output: 940 mW



ZEISS Viluma 7

Your flexible and fast LED light source for gentle live cell imaging

- Up to 7 excitation channels
- Directly coupled to stand
- Total light output: 1510 mW



ZEISS Viluma 9

Your versatile LED light source for most demanding applications from UV to far red

- Up to 9 excitation channels
- Coupled to stand via liquid light guide
- Total light output: ~5600 mW



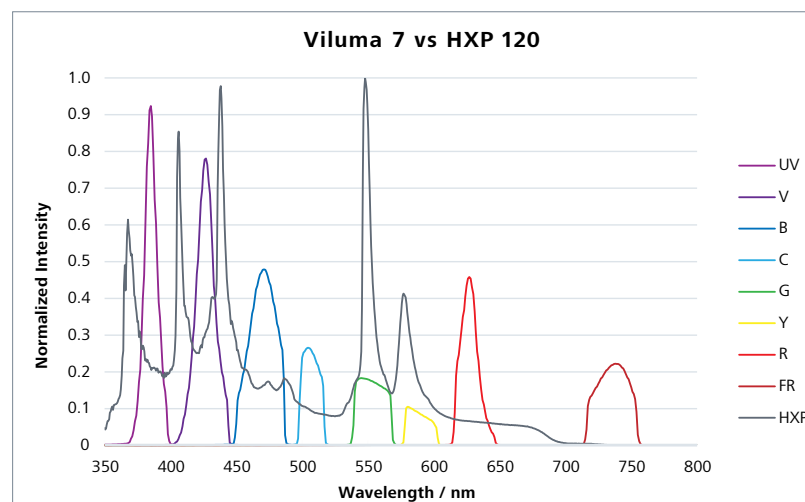
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The light sources of the ZEISS Viluma family can be used on various ZEISS microscopes to address a multitude of applications. Short switching times and bright LEDs are beneficial for routine inspections of staining procedures, whole mount imaging, efficient large-area tissue screening, or gentle live cell imaging. Select your ZEISS Viluma light source depending on your requirements and applications.

Traditional white light sources produce a continuous spectrum with high intensity peaks at some wavelengths and lower intensity for others. They require warm-up time and regular bulb changes to ensure a stable light output. State-of-the-art LED technology produces light matching or exceeding classical white light sources for most of the visible spectrum. Additionally, they allow to extend the excitation spectrum to far red which was previously inaccessible. Mercury-free components with long-lasting performance avoid toxic consumables. Full performance is available directly after start at significantly lower running costs.

Viluma 5	Viluma 7	Viluma 9
Replacement of mercury vapor light sources or other classical light sources		
Multi-color imaging with multi and single band filter sets		
Fast and gentle multi color imaging		
2D and 3D imaging with ZEISS Apotome		
Quantitative Imaging in cell physiology or immunohistochemistry		
3D widefield imaging and deconvolution		
Long-term time lapse imaging		
Routine fluorescence imaging visual observation		
	FRET imaging or other dual excitation imaging experiments	
	Demanding multi-color FISH applications	
		Whole mount imaging
		Fura-2 calcium imaging
		High-speed multi-color imaging of large-area tissue and multiwell plates



Your Insight into the Technology Behind It

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ZEISS Viluma 9

Your versatile LED light source for most demanding applications from UV to far red

- **Excitation spectrum from UV to far red:** Up to 9 illumination channels cover all important dyes, fluorescent proteins and near UV probes like Fura-2
- **Laser-driven phosphor:** A laser-excited phosphor ensures highest light output in the range from 500 nm to 600 nm.
- **Integrated filter wheel:** Up to 4 filters can be used to define distinct bands in the spectrum of the phosphor emission.
- **Quiet operation:** LED cooling is realized by efficient thermal design and low-noise fans to ensure comfortable imaging.
- **Flexible placement of the light source:** Coupling via liquid light guide (LLG) allows to position the light source anywhere close to the microscope.
- **Simultaneous use of all LEDs without restriction:** According to the requirements of your application, you can switch on as many LEDs as needed (or even all of them) at once.
- **speedDIAL:** Illumination channel and intensity can be controlled directly on the device. A dedicated display provides information about the status of the LED.

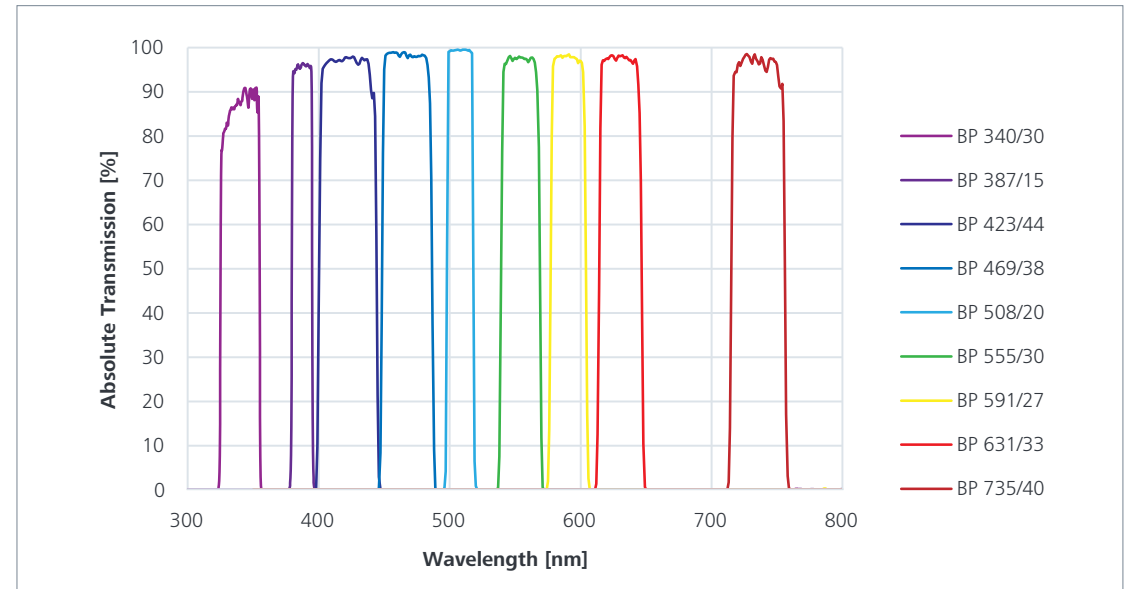


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ZEISS Viluma 9 allows you to excite your labels with up to 9 different wavelengths. Two models optimized for excitation of near UV or far-red dyes cover the entire visible spectrum. A laser-powered phosphor creates bright excitation in the range between 500 nm and 600 nm where LEDs typically lack intensity. ZEISS Viluma 9 comes with a light guide giving you the flexibility to use it also with sensitive electrophysiologic setups or with zoom microscopes like ZEISS Axio Zoom.V16.

Available excitation lines of Viluma 9 are exactly centered around the common dyes and fluorescent proteins.



Built-in excitation filters of ZEISS Viluma 9 models

Available excitation bands for ZEISS Viluma 9

Line	Wavelength/Bandwidth	Recommended Dye (Examples)
UV ¹	340/30 nm	Fura-2, Alexa 350, (Amino) Coumari, Indo-1, Marina Blue, DAPI, Hoechst, LysoSensor Yellow, SBFI-Na+, Dansyl Cadaverine, AMCA conjugate
UV ²	385/30 nm	DAPI, Hoechst 33342, Hoechst 33258, Alexa Fluor 350, Alexa Fluor 405, Indo-1, eBFP/BFP, eGFP (wt), True Blue
UV ¹	387/15 nm	DAPI, Hoechst 33342, Hoechst 33258, Alexa Fluor 350, Alexa Fluor 405, Indo-1, eBFP/BFP, eGFP (wt), True Blue
V	423/44 nm	Pacific Blue, Lucifer Yellow, Alexa Fluor 433, eCFP, Cerulean
B	469/38 nm	FM1-43, Cy2, eGFP, NBD, MitoTracker Green, Alexa Fluor 488, Fluo-4, BCECF, Calcein, DiO SNAFL, YO-Pro-1, Nissl, LysoSensor Green, mHoneydew, FITC/Fluorescein, Kaede (green/red), PerCP, YoYo-1, FuraRed
C	508/20 nm	Rhodamine 123, Oregon Green BAPTA, Sytox Green, eYFP, FM4-64, Eosin/HE, Acridine Orange, JC1, Bodipy FL, Propidium Iodide, Spectrum Green, Calcium Green
G	555/30 nm	TRITC, 7-AAD, Cy3, tdTomato, Alexa Fluor 546, Alexa Fluor 555, DsRed, mOrange, TagRFP, SNARF, DyLight 549, Spectrum Orange
Y	591/27 nm	MitoTracker RED FM/CMXRos, txRed, mCherry, mRFP1, Cy3.5, Rhodamine B, Alexa Fluor 568, Dylight 594, Alexa Fluor 594, Bodipy TR
R	631/33 nm	Alexa Fluor 633, Alexa Fluor 647, Cy5, DRAQ5, ToTo-3, ATTO-655, MitoTracker DeepRed, APC, ATTO-647N
FR ²	735/40 nm	Alexa Fluor 750, Alexa Fluor 790, Cy7, Cy7.5

¹ Viluma 9 UV ² Viluma 9 VIS

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ZEISS Viluma 7

Your flexible and fast LED light source for gentle live cell imaging

- **Very broad-spectrum excitation:** Up to 7 illumination channels cover all important dyes, fluorescent proteins and probes.
- **Matched filters:** To avoid crosstalk and increase excitation efficiency of selected dyes, the excitation filters precisely match the LED emission spectra. For increased flexibility, single and multi-bandpass filters are available.
- **Efficient light transfer:** Directly coupled to the microscope and designed with reduced optical elements, Viluma 7 ensures optimal light transfer.
- **Compact housing, low noise:** Viluma 7 consumes as little space as possible and will not disturb your work environment with noise or vibrations.
- **Closed-loop temperature control:** A vibration-decoupled fan is combined with a special on-chip cooling design. The fan is controlled via direct feedback from the LEDs.
- **Precise excitation control:** Directly control Viluma 7 through control panel and microscope TFT. Use the camera trigger for control to get fastest image acquisition. Precise hardware synchronization through TTL triggering and perfect integration into ZEN imaging experiments let you use all the excitation light that reaches the sample for image acquisition.
- **Linearized LEDs:** Any value you adjust the LED to corresponds exactly to the power that the LED emits. A 50 % reduction will result in precisely half the power than running the LED at 100 %.
- **On-chip temperature sensing:** Each LED emitter is equipped with an on-board temperature sensor to precisely measure the current temperature in the millisecond range.
- **Long-term power stabilization and calibration:** While booting, maximum LED power is measured and compared to a factory value. The current of each LED is then adjusted to the internal reference to ensure a constant light output over the entire lifetime of the light source.
- **Real-time control:** As long as only one LED is turned on, the photodiode acts as a closed-loop power stabilization in the μs range. The power of the active LED is controlled even during the exposure time of an image. This guarantees a stable light output even if the LED is used in short μs ranging exposures.

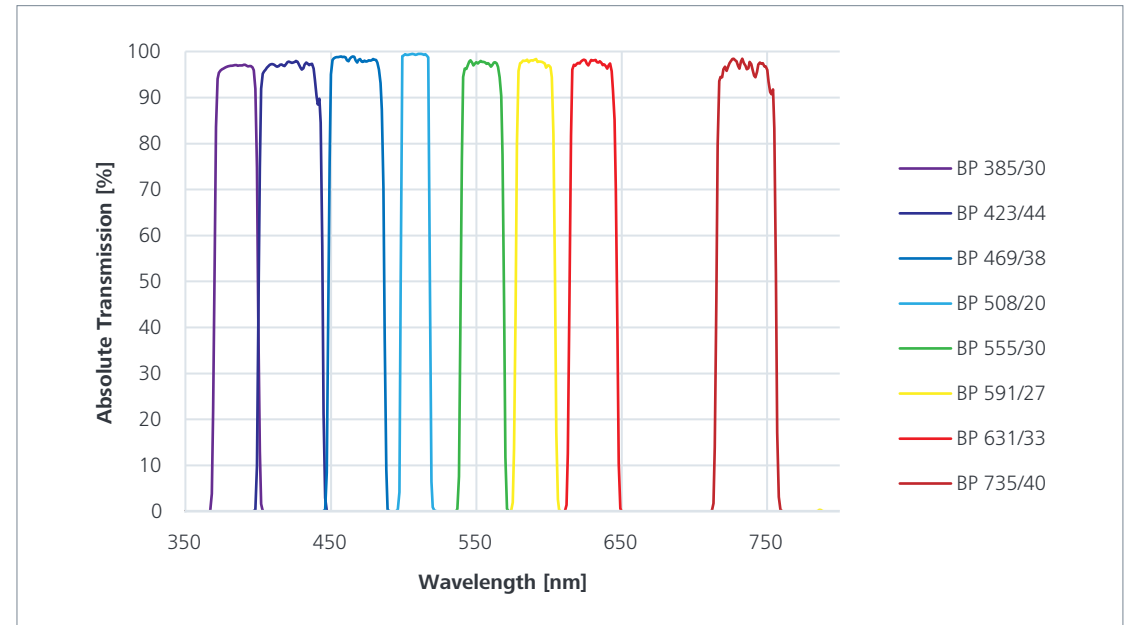


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With ZEISS Viluma 7, you use up to six different LEDs to generate up to seven fluorescence excitation lines for your sample. All LEDs besides the Green/Yellow line [G/Y] come with individual excitation filters. The [G/Y] line uses a lime LED (567/100 nm) and a motorized filter changer to emit green (555 nm) or yellow (591 nm) light on demand.

Available excitation lines of ZEISS Viluma 7 are exactly centered around the common dyes and fluorescent proteins.



Built-in excitation filters of ZEISS Viluma 7

Available excitation bands for ZEISS Viluma 7

Line	Wavelength/Bandwidth	Recommended Dye (Examples)
UV	385/30 nm	DAPI, Hoechst 33342, Hoechst 33258, Alexa Fluor 350, Alexa Fluor 405, Indo-1, eBFP/BFP, eGFP (wt), True Blue
V	423/44 nm	Pacific Blue, Lucifer Yellow, Alexa Fluor 433, eCFP, Cerulean
B	469/38 nm	FM1-43, Cy2, eGFP, NBD, MitoTracker Green, Alexa Fluor 488, Fluo-4, BCECF, Calcein, DiO SNAFL, YO-Pro-1, Nissl, LysoSensor Green, mHoneydew, FITC/Fluorescein, Kaede (green/red), PerCP, YoYo-1, FuraRed
C	508/20 nm	Rhodamine 123, Oregon Green BAPTA, Sytox Green, eYFP, FM4-64, Eosin/HE, Acridine Orange, JC1, Bodipy FL, Propidium Iodide, Spectrum Green, Calcium Green
G	555/30 nm	TRITC, 7-AAD, Cy3, tdTomato, Alexa Fluor 546, Alexa Fluor 555, DsRed, mOrange, TagRFP, SNARF, DyLight 549, Spectrum Orange
Y	591/27 nm	MitoTracker RED FM/CMXRos, txRed, mCherry, mRFP1, Cy3.5, Rhodamine B, Alexa Fluor 568, DyLight 594, Alexa Fluor 594, Bodipy TR
R	631/33 nm	Alexa Fluor 633, Alexa Fluor 647, Cy5, DRAQ5, ToTo-3, ATTO-655, MitoTracker DeepRed, APC, ATTO-647N
FR	735/40 nm	Alexa Fluor 750, Alexa Fluor 790, Cy7, Cy7.5

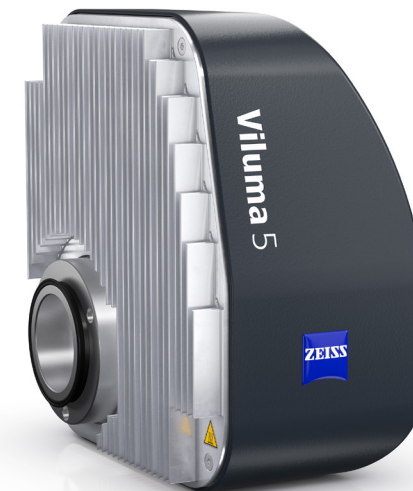
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ZEISS Viluma 5

Your affordable LED light source for fluorescence microscopy

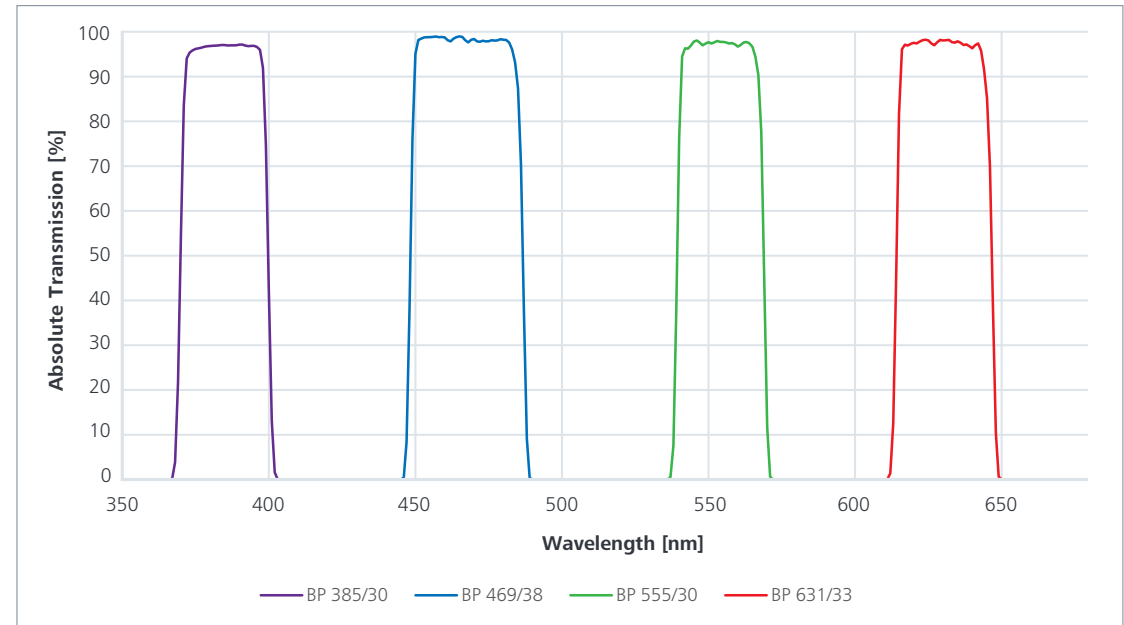
- **Broad-spectrum excitation:** Four illumination channels cover the most important dyes, fluorescent proteins, and probes.
- **Matched filters:** To avoid crosstalk and increase excitation efficiency of selected dyes, the excitation filters precisely match the LED emission spectra. For increased flexibility, single and multi-bandpass filters are available.
- **Efficient light transfer:** Directly coupled to the microscope and designed with reduced optical elements, Viluma 5 ensures optimal light transfer.
- **Compact housing, low noise:** Viluma 5 consumes as little space as possible and will not disturb your work environment with noise or vibrations.
- **Closed-loop temperature control:** A vibration-decoupled fan is combined with a special on-chip cooling design. The fan is controlled via direct feedback from the LEDs.
- **Precise excitation control:** Directly control Viluma 5 through control panel and microscope TFT. Use the camera trigger for control to get fastest image acquisition. Precise hardware synchronization through TTL triggering and perfect integration into ZEN imaging experiments let you use all the excitation light that reaches the sample for image acquisition.
- **Linearized LEDs:** Any value you adjust the LED to corresponds exactly to the power that the LED emits. A 50 % reduction will result in precisely half the power than running the LED at 100 %.
- **On-chip temperature sensing:** Each LED emitter is equipped with an on-board temperature sensor to precisely measure the current temperature in the millisecond range.



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With Viluma 5, you can use four different LEDs for fluorescence excitation of your sample. All LEDs come with individual excitation filters. The available excitation lines of Viluma 5 are exactly centered around the most common dyes and fluorescent proteins.



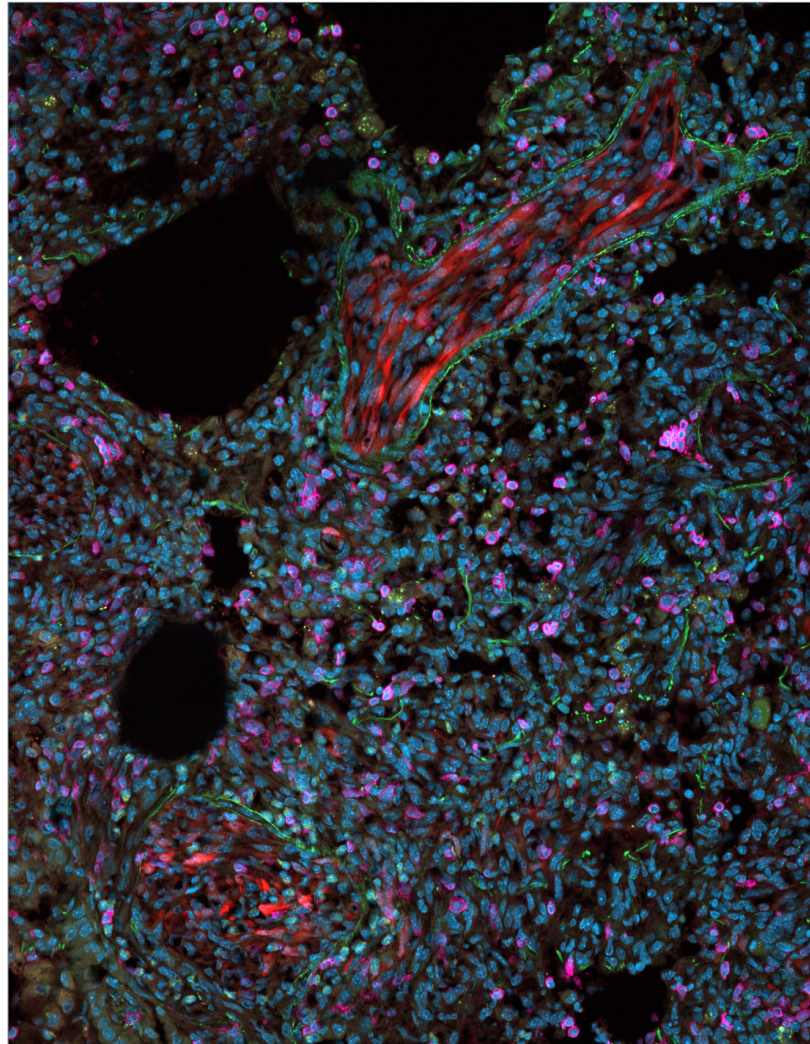
Built-in excitation filters of ZEISS Viluma 5

Available excitation bands for ZEISS Viluma 5

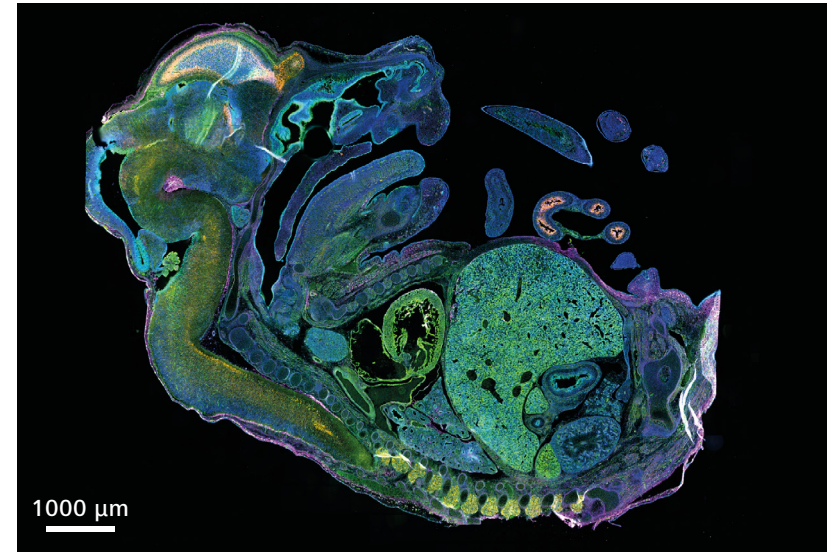
Line	Wavelength/Bandwidth	Recommended Dye (Examples)
UV	385/30 nm	DAPI, Hoechst 33342, Hoechst 33258, Alexa Fluor 350, Alexa Fluor 405, Indo-1, eBFP/BFP, eGFP (wt), True Blue
B	469/38 nm	FM1-43, Cy2, eGFP, NBD, MitoTracker Green, Alexa Fluor 488, Fluo-4, BCECF, Calcein, DiO SNAFL, YO-Pro-1, Nissl, LysoSensor Green, mHoneydew, FITC/Fluorescein, Kaede (green/red), PerCP, YoYo-1, FuraRed
G	555/30 nm	TRITC, 7-AAD, Cy3, tdTomato, Alexa Fluor 546, Alexa Fluor 555, DsRed, mOrange, TagRFP, SNARF, DyLight 549, Spectrum Orange
R	631/33 nm	Alexa Fluor 633, Alexa Fluor 647, Cy5, DRAQ5, ToTo-3, ATTO-655, MitoTracker DeepRed, APC, ATTO-647N

ZEISS Viluma Family at Work

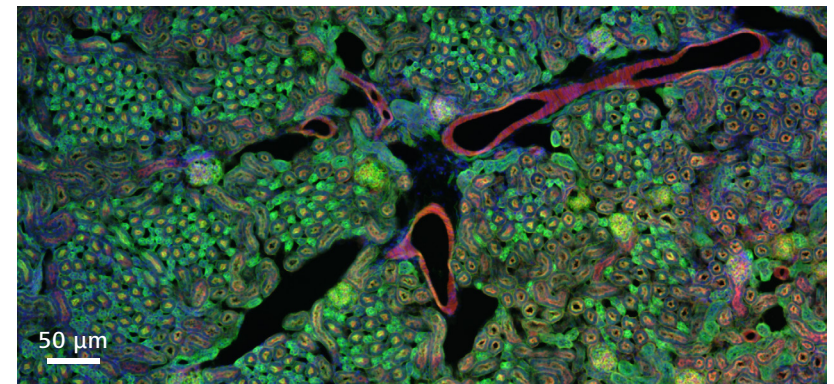
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10 µm thick murine lung tissue section with tumor metastasis. Sample courtesy of H. Ishikawa-Ankerhold, Walter-Brendel-Zentrum für Experimentelle Medizin München, Germany



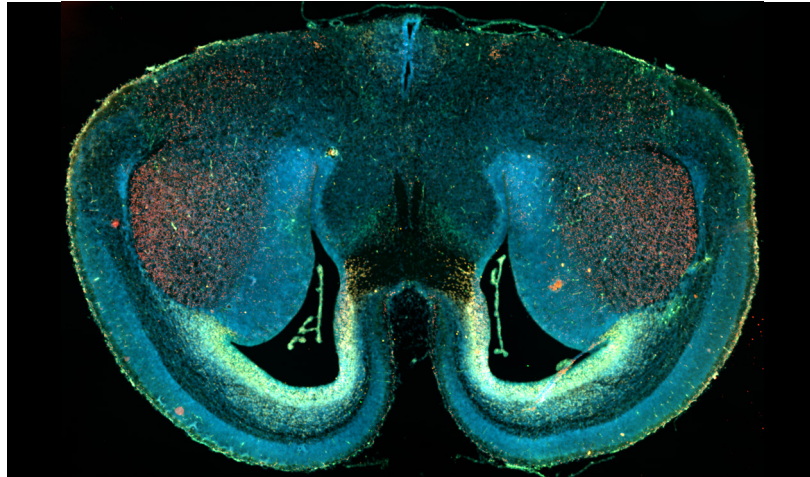
Mouse embryo sagittal cut, embryonic day E13, 12 µm. SOX2 stained with Alexa488, Pax6 stained with Cy3, Nestin stained with Alexa647, Nuclei with DAPI. Sample courtesy: Ivan Mestres, TU Dresden, Germany



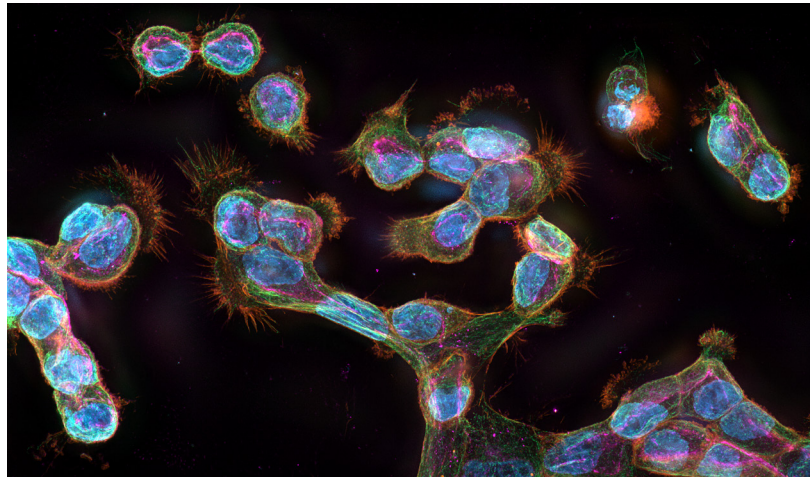
Mouse kidney in fluorescence, cryosection, AF 488 – WGA, AF 568 Phalloidin, DAPI, objective: Plan-Apochromat 20x/0.8

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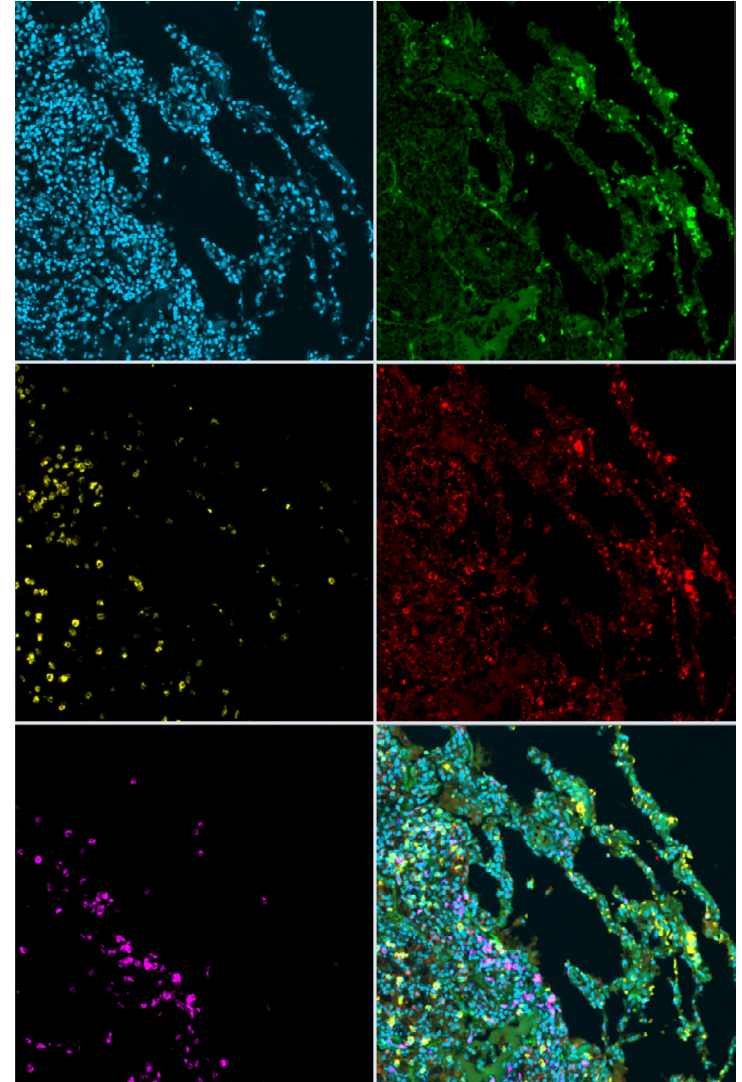
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Immunohistochemistry staining of a E16.5 mouse brain section. Nuclei were labeled with DAPI, Pax6 with Alexa488, Tbr2 with Alexa 561 and Dach1 with Alexa647. Sample courtesy of Da Mi, Tsinghua University, China.



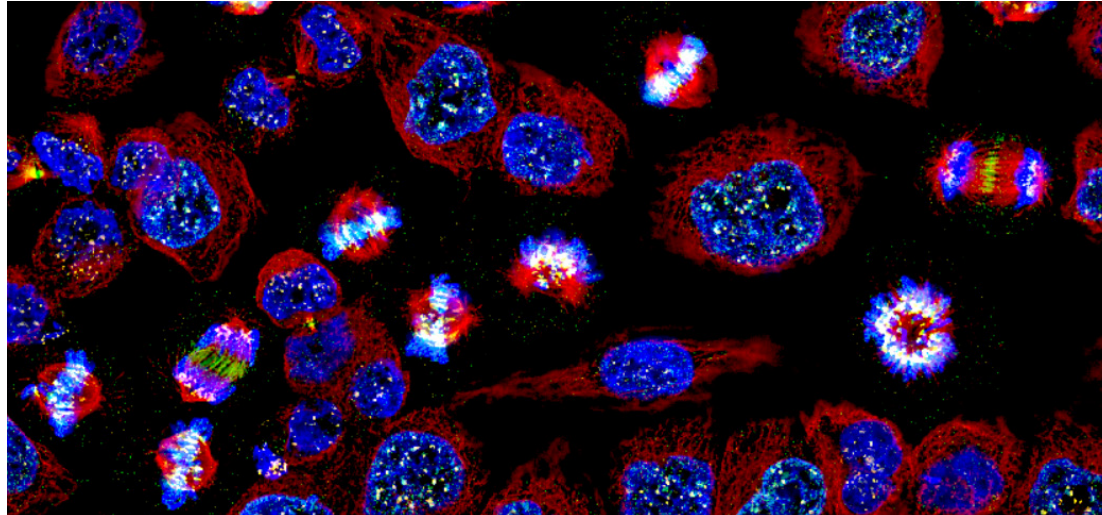
HEK cells stained with DAPI, phalloidin-488, tubulinA568 and WGA-A633 (maximum intensity projection after deconvolution).



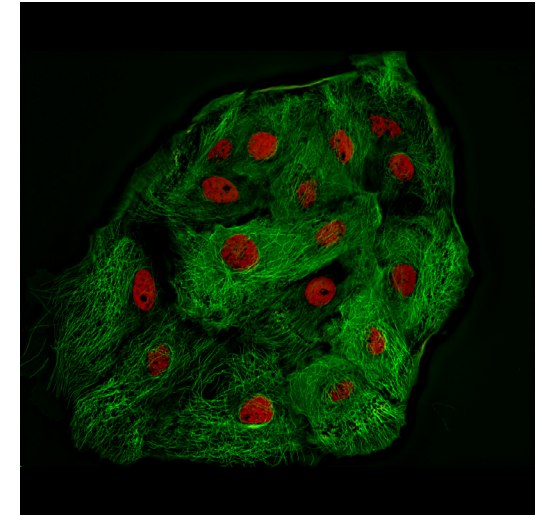
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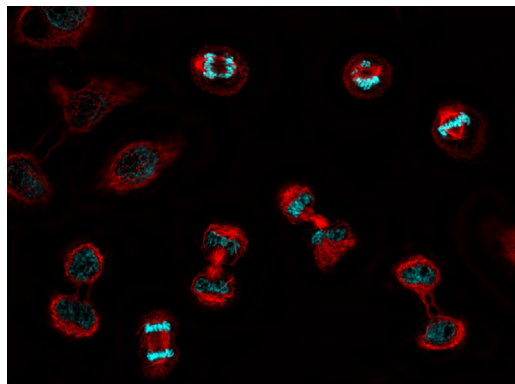
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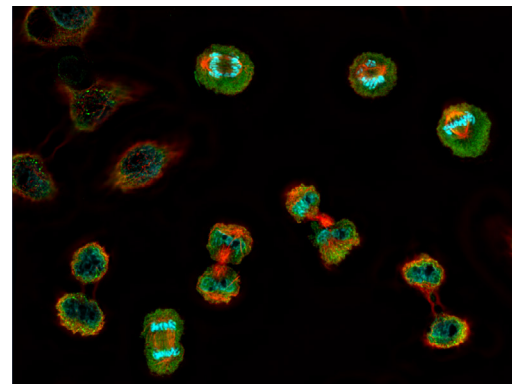
Fixed cultured HeLa Kyoto cells stained with Hoechst 33342 (blue), Aurora B – Alexa 488 (green), Tubulin – Alexa 568 (red) and ACA – Alexa 647 (white). Image stack was deconvolved using ZEN Deconvolution module. Sample courtesy of Dr. A. Girod, University of Luxembourg.



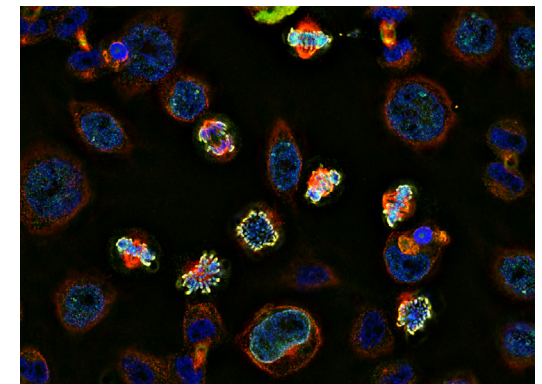
Living cultured pig kidney cells (LLC-PK1) with Emerald-Tubulin fusion (green) and mCherry-H2B fusion (red). Sample courtesy of M. Davidson, Florida State University.



Fixed cultured HeLa Kyoto cells stained with Hoechst 33342 (blue), Importin β – Alexa 488 (green) and Tubulin – Alexa 647 (red). Image stack was deconvolved using ZEN Deconvolution module. Sample courtesy of Dr. A. Girod, University of Luxembourg.



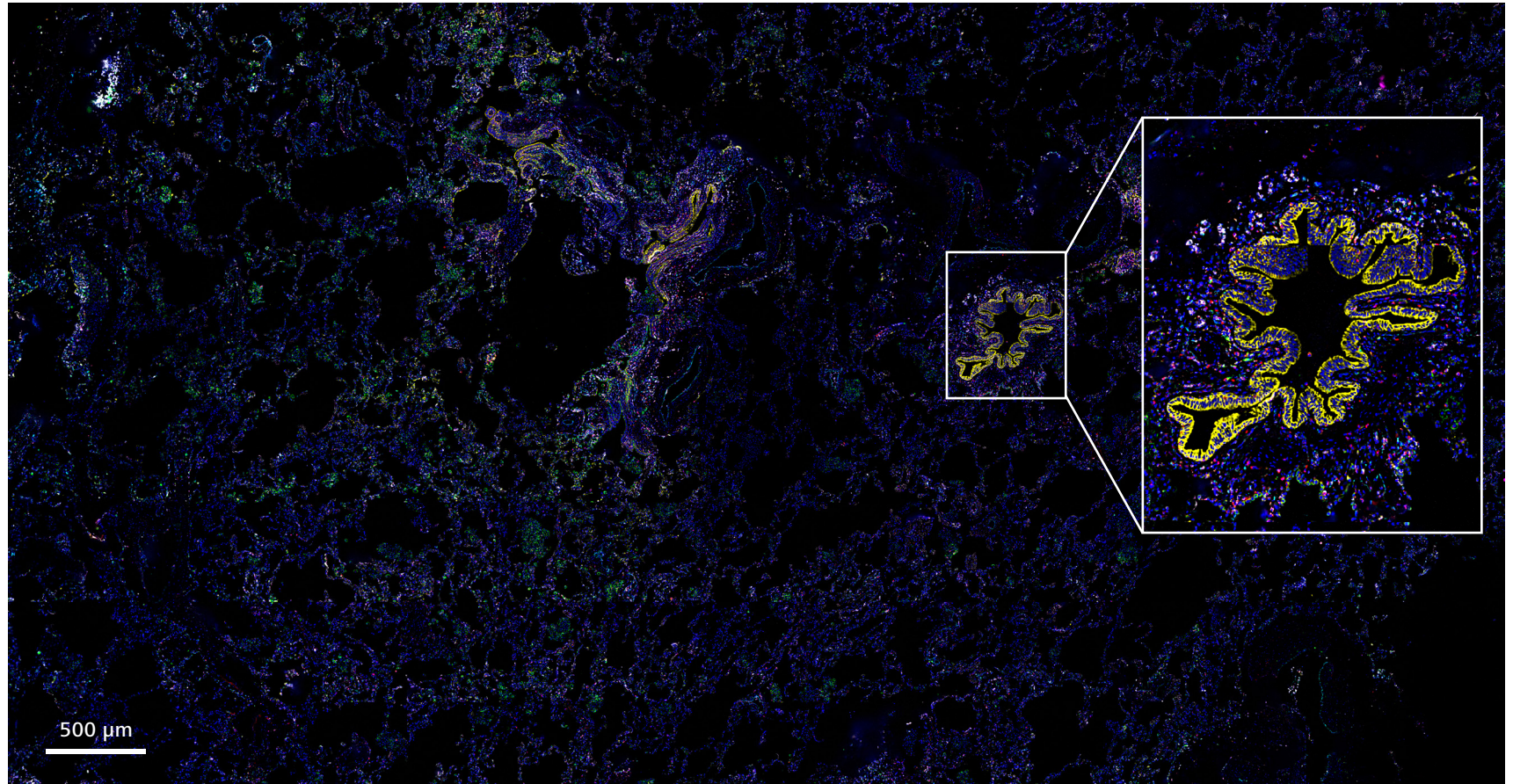
Fixed cultured HeLa Kyoto cells stained with Hoechst 33342 (blue), Importin β – Alexa 488 (green) and Tubulin – Alexa 647 (red). Image stack was deconvolved using ZEN Deconvolution module. Sample courtesy of Dr. A. Girod, University of Luxembourg.



Fixed cultured HeLa Kyoto cells stained with Hoechst 33342 (blue), Aurora B – Alexa 488 (green), phospho-Histone H3 – Alexa 568 (orange), Tubulin – Alexa 647 (red). Image stack was deconvolved using ZEN Deconvolution module. Sample courtesy of Dr. A. Girod, University of Luxembourg.

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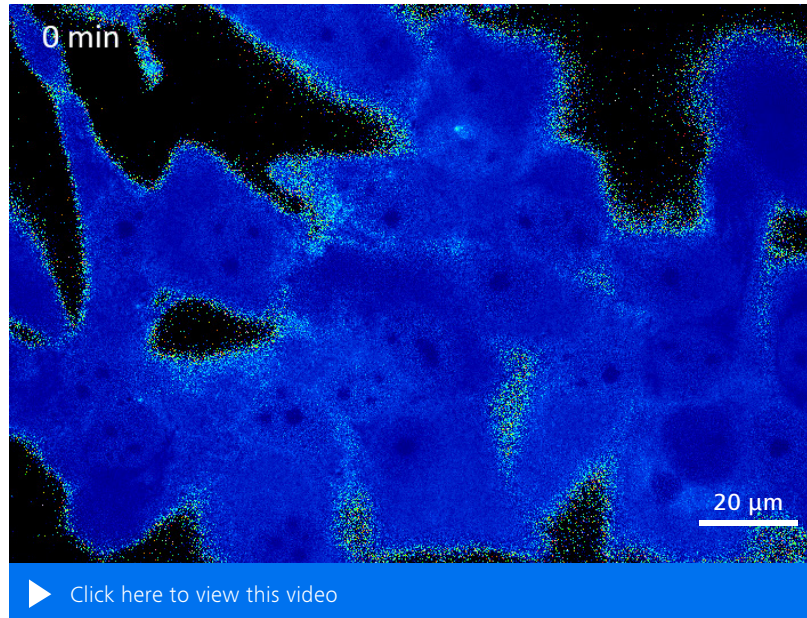


3 μm section of a formalin fixed paraffin-embedded human lung. Section was stained with a 14 CODEX multiplex antibody panel. Image shows some essential markers to distinguish mononuclear phagocytes (CD45 in gray, CD68 in red, HLA-DR in green, CD11c in magenta). To delineate major anatomical structures, such as bronchioles and blood vessels, Pancytokeratin (yellow) and CD31 (cyan) are shown. Blue signals correspond to DAPI nuclear staining. Acquisition was done with a ZEISS Axio Observer microscope and processing with the Akoya CODEX Processor.

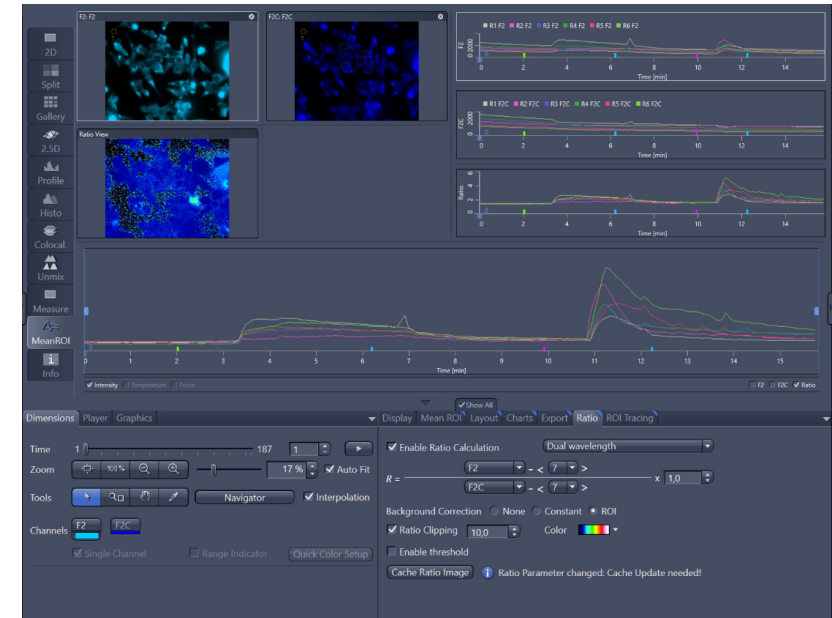
Image featured in ZEISS Blog Article: "The Intricate Network of Immune Cells Revealed by Multiplex Tissue Microscopy"
Courtesy of D. Bejarano, Life and Medical Sciences Institute (LIMES) of the University of Bonn, Germany

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Fura-2-loaded cells of the adrenal cell line Hac15 were continuously perfused with physiological extracellular solution and then stimulated firstly with a high-potassium solution and secondly with an ATP-containing solution. Intracellular Ca^{2+} -responses were analyzed as the emission ratio of the Ca^{2+} -free (340 nm) and Ca^{2+} -bound (380 nm) signals.



Calculate intensity ratios for quantitatively determining intracellular Calcium responses directly in ZEN. The Physiology Toolkit allows evaluation of live-cell experiments without tedious data in- and export.

Your Flexible Choice of Components

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1 Microscopes

- Axio Imager
- Axio Observer
- Axio Examiner
- Axioscan
- Axio Zoom.V16

2 Filters

A selection of high efficiency filter sets were specifically designed for Viluma light sources:

- FS 56 HE LED
- FS 90 HE LED
- FS 91 HE LED
- FS 92 HE LED
- FS 108 HE LED
- FS 109 HE LED
- FS 110 HE LED
- FS 112 HE LED

3 Software

ZEN, recommended Toolkits

- Motorized Acquisition, Advanced Acquisition
- 2D, 3D, Connect
- Molecular Quantification
- Deconvolution
- AI, Bio Apps

4 Control

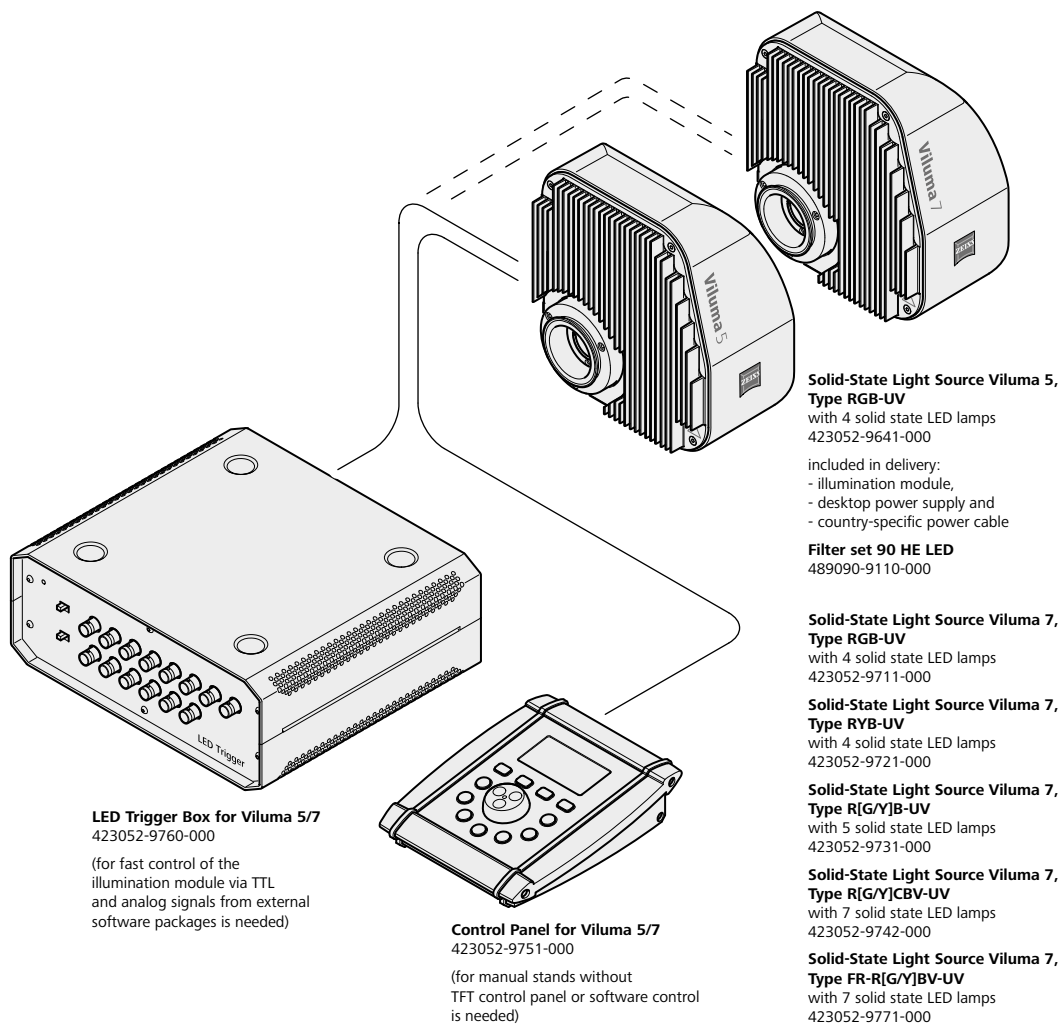
- ZEN
- Control Panel
- Microscope TFT
- TTL Triggering

5 Others

For maximum sample throughput and spectral flexibility in excitation and emission, Viluma light sources can be combined with the Axio Observer dual filter wheel (452358-9011-000) for independent switching of dichroic and emission filters.

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LED Trigger Box for Viluma 5/7
423052-9760-000

(for fast control of the illumination module via TTL and analog signals from external software packages is needed)

Control Panel for Viluma 5/7
423052-9751-000

(for manual stands without TFT control panel or software control is needed)

Solid-State Light Source Viluma 5, Type RGB-UV
with 4 solid state LED lamps
423052-9641-000

included in delivery:
- illumination module,
- desktop power supply and
- country-specific power cable

Filter set 90 HE LED
489090-9110-000

Solid-State Light Source Viluma 7, Type RGB-UV
with 4 solid state LED lamps
423052-9711-000

Solid-State Light Source Viluma 7, Type RYB-UV
with 4 solid state LED lamps
423052-9721-000

Solid-State Light Source Viluma 7, Type R[G/Y]B-UV
with 5 solid state LED lamps
423052-9731-000

Solid-State Light Source Viluma 7, Type R[G/Y]CBV-UV
with 7 solid state LED lamps
423052-9742-000

Solid-State Light Source Viluma 7, Type FR-R[G/Y]BV-UV
with 7 solid state LED lamps
423052-9771-000

included in delivery:
- illumination module,
- desktop power supply and
- country-specific power cable

Filter set 56 HE LED

Suitable for fluorescent dyes like GFP and DsRed with excitation wavelengths 475 and 555 nm
489056-9110-000

Filter set 90 HE LED

Suitable for fluorescent dyes like DAPI, FITC, TRITC and Cy5 with excitation wavelengths 385, 475, 555 and 630 nm
489090-9110-000

Filter set 91 HE LED

Suitable for fluorescent dyes like CFP, YFP and mCherry with excitation wavelengths 430, 511 and 590 nm
489091-9110-000

Filter set 92 HE LED

Suitable for fluorescent dyes like DAPI, GFP and mCherry with excitation wavelengths 385, 475 and 590 nm
489092-9110-000

Filter set 108 HE LED

Suitable for fluorescent dyes like CFP and YFP with excitation wavelengths 425 and 510 nm
489108-9110-000

Filter set 109 HE LED

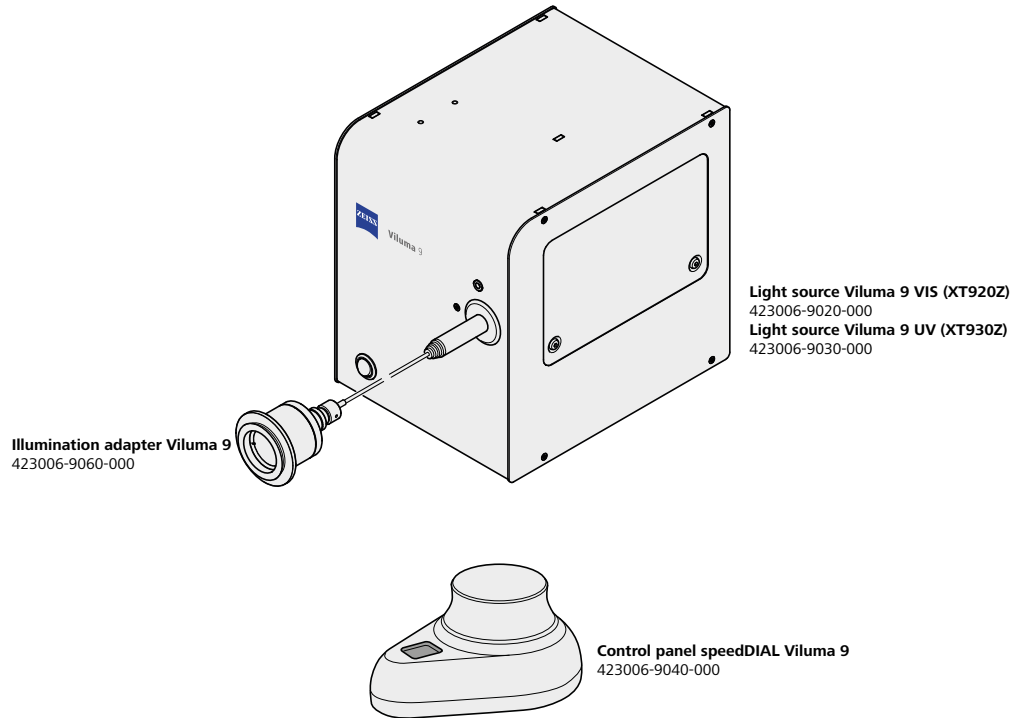
Suitable for fluorescent dyes like DAPI, FITC and TRITC/Cy3 with excitation wavelengths 385, 475 and 555 nm
489109-9110-000

Filter set 110 HE LED

Suitable for fluorescent dyes like DAPI, FITC, mCherry and Cy7 with excitation wavelengths 385, 475, 555, and 735 nm
489110-9111-000

System Overview Viluma 9

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Technical Specifications Viluma 5/7

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LED light source for fluorescence applications

Up to 7 individually controlled excitation lines (Viluma 7)
Linearized intensity regulation in increments of 1 % (from 1 – 100 %)
Standby mode to reduce power consumption
Real-time stabilization of brightness for low-noise image captures (Viluma 7)
Long-time stabilization and performance optimization to improve comparability of image captures (Viluma 7)
Integrated and motorized (Viluma 7) switchable excitation filters
Control via the TFT display of Axio Observer, Axio Examiner and Axio Imager
Optional control via ZEN Imaging Software, manual control panel or Trigger Box
Easy integration in 3rd party software packages via LED Trigger Box
Guaranteed lifetime of 15,000 h per LED line
Integrated interface for triggered image capture from ZEN Imaging Software

Dimensions

Light source (length × width × height)	174 mm × 107 mm × 182 mm
LED Trigger Box (length × width × height)	220 mm × 245 mm × 105 mm
Control panel (length × width × height)	155 mm × 195 mm × 60 mm

Weight

Light source	up to 2,100 g
LED Trigger Box	approx. 2,100 g
Control panel	approx. 590 g

Light source model	Order number	Wavelength/Bandwidth (nm)
Light Source Viluma 5 RGB-UV	423052-9641-000	385/30, 469/38, 555/30, 631/33
Light Source Viluma 7 RGB-UV	423052-9711-000	385/30, 469/38, 555/30, 631/33
Light Source Viluma 7 RYB-UV	423052-9721-000	385/30, 469/38, 591/27, 631/33
Light Source Viluma 7 R[G/Y]B-UV	423052-9731-000	385/30, 469/38, 555/30, 591/27, 631/33
Light Source Viluma 7 R[G/Y]CBV-UV	423052-9742-000	385/30, 423/44, 469/38, 508/20, 555/30, 591/27, 631/33
Light Source Viluma 7 FR-R[G/Y]BV-UV	423052-9771-000	385/30, 423/44, 469/38, 555/30, 591/27, 631/33, 735/40

Accessories	Order number	Comment
Control panel for Viluma 5/7	423052-9751-000	optional, for manual control
LED trigger box for Viluma 5/7	423052-9760-000	optional, for triggering of Viluma 5/7 with third-party hardware

Technical Specifications Viluma 5/7

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Ambient conditions

Transport (in packaging)

Permissible ambient temperature	-20 °C to +55 °C
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Storage

Permissible ambient temperature	+10 °C to +40 °C
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Permissible relative air humidity (no condensation)	<75 %
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Operation

Permissible ambient temperature	+10 °C to +40 °C
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Permissible relative air humidity (no condensation)	<75 %
---	-------

Altitude of operating site	max. 2000 m
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Atmospheric pressure	800 hPa to 1060 hPa
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Degree of pollution	2
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Operating data

Operating area	Enclosed rooms
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Protection class	I
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Electrical safety	in compliance with DIN EN 61010-1 (IEC 61010-1) and conforming to CSA and UL regulations
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Overvoltage category	II
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Noise immunity	in accordance with DIN EN 61326-1
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Line voltage of controller module	100 to 240 VAC (±10 %)
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Line frequency	50 to 60 Hz
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Current consumption	1.9 A
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LED light source for fluorescence applications

Up to 9 individually controlled excitation lines

Patented LaserLED Hybrid Drive for high-power excitation from 500–600 nm

Build-in excitation filters, switchable by integrated filter wheel

Intensity regulation in increments of 0.5 % (from 1 – 100 %)

Compatible with Axio Observer, Axio Imager, Axio Examiner and Axio Zoom.V16

Control via ZEN Imaging Software, control panel speedDIAL or triggering

Integrated interface for triggered image capture from ZEN Imaging Software

Guaranteed lifetime of 25,000 hrs or 3 years for each LED and LaserLED Hybrid Drive

Dimensions

Light source (length × width × height)	265 mm × 205 mm × 270 mm
Control panel speedDIAL (length × width × height)	59 mm × 80 mm × 112 mm

Weight

Light source	9 kg
Control panel speedDIAL	300 g

Light source model	Order number	Wavelength/Bandwidth (nm)
Light Source Viluma 9 VIS (XT920Z)	423006-9020-000	385/30, 423/44, 469/38, 500–600, 508/20, 555/30, 591/27, 631/33, 735/40
Light Source Viluma 9 UV (XT930Z)	423006-9030-000	340/30, 387/15, 423/44, 469/38, 500–600, 508/20, 555/30, 591/27, 631/33

Accessories	Order number	Comment
Control panel speedDIAL Viluma 9	423006-9040-000	optional, for manual control
Trigger cable Viluma 9 w single LED ports	423006-9050-000	optional, for triggering of Viluma 9 with 3 rd party hardware
Trigger cable Viluma 9	423006-9070-000	optional, for triggering with SVB-1 or synchronization with camera
Illumination adapter Viluma 9	430006-9060-000	for maximized intensity and homogeneity

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Ambient conditions

Transport (in packaging)

Permissible ambient temperature	-35 °C to +60 °C
---------------------------------	------------------

Storage

Permissible relative air humidity (no condensation)	10 % to 95 %
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Atmospheric pressure	500 hPa to 1060 hPa
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Operation

Permissible ambient temperature	+10 °C to +30 °C
---------------------------------	------------------

Altitude of operating site	max. 2000 m
----------------------------	-------------

Atmospheric pressure	700 to 1060 hPa
----------------------	-----------------

Permissible relative air humidity (no condensation)	15 % to 90 %
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Installation category	II
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Degree of pollution	2
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Operating data

Operating area	Enclosed rooms
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Input voltage	100–240 VAC, 50/60 Hz
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Current	4.5 A max/100 V, 1.9 A max/240 V
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Input surge	With hot or cold start, 20 A max
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Protection	Over load and over temperature
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Filter Sets for ZEISS Viluma Light Sources

Most filter sets are available with reflector module by exchanging 000 with 400 in the order number

Multi-bandpass filter sets for fast acquisition

489056-9110-000

Filter set 56 HE LED (E)
for use with ZEISS LED fluorescence light sources.

Suitable for fluorescent dyes like GFP and DsRed
with excitation wavelengths 475 and 555 nm.

Contains beam splitter DBS 490 + 575 and
emission filter DBP 512/30 + 630/98.

489090-9110-000

Filter set 90 HE LED (E)
for use with ZEISS LED fluorescence light sources.

Suitable for fluorescent dyes like DAPI, FITC, TRITC and Cy5
with excitation wavelengths 385, 475, 555 and 630 nm.

Contains beam splitter QBS 405 + 493 + 575 + 653 and
emission filter QBP 425/30 + 514/30 + 592/25 + 709/100.

489091-9110-000

Filter set 91 HE LED (E)
for use with ZEISS LED fluorescence light sources.

Suitable for fluorescent dyes like CFP, YFP and mCherry
with excitation wavelengths 430, 508 and 590 nm.

Contains beam splitter TBS 450 + 538 + 610 and
emission filter TBP 467/24 + 555/25 + 687/145.

489092-9110-000

Filter set 92 HE LED (E)
for use with ZEISS LED fluorescence light sources.

Suitable for fluorescent dyes like DAPI, GFP and mCherry
with excitation wavelengths 385, 475 and 590 nm.

Contains beam splitter TBS 405 + 493 + 610 and
emission filter TBP 425/30 + 524/50 + 688/145.

489108-9110-000

Filter set 108 HE LED (E)
for use with ZEISS LED fluorescence light sources.

Suitable for fluorescent dyes like CFP and YFP
with excitation wavelengths 425 and 508 nm.

Contains beam splitter DBS 450 + 538 and
emission filter DBP 467/24 + 598/110.

489110-9111-000

Filter Set 110 HE LED (E)
for use with ZEISS LED fluorescence light sources.

Suitable for fluorescent dyes like DAPI, FITC, mCherry and Cy7
with excitation wavelengths 385, 475, 590 and 735 nm.

Contains beam splitter QBS 405 + 493 + 611 + 762 and
emission filter QBP 425/30 + 524/51 + 634/38 + 785/38.

489112-9110-000

Filter Set 112 HE LED (E)
for use with ZEISS LED fluorescence light sources.

Suitable for fluorescent dyes like DAPI, FITC, DsRed, Cy5 and Cy7
with excitation wavelengths 385, 475, 555, 630 and 735 nm.

Contains beam splitter PBS 405 + 493 + 575 + 654 + 761 and
emission filter PBP 425/30 + 514/31 + 592/25 + 681/45 +
785/38.

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Filter Sets for ZEISS Viluma Light Sources

Most filter sets are available with reflector module by exchanging 000 with 400 in the order number

Multi-bandpass filter sets with single emission filters for filter wheels

489056-9120-000

Filter Set 56 LED SBP GFP+DsRed
for use with ZEISS LED fluorescence light sources and emission filter wheel

Consisting of:
BS 490 + 575
EM BP 514/30
EM BP 630/98

489090-9120-000

Filter Set 90 LED SBP DAPI+GFP+DsRed+Cy5
for use with ZEISS LED fluorescence light sources and emission filter wheel

Consisting of:
BS 405 + 493 + 575 + 653
EM BP 425/30
EM BP 514/30
EM BP 592/25
EM BP 681/45

489091-9120-000

Filter Set 91 LED SBP CFP+YFP+AF594
for use with ZEISS LED fluorescence light sources and emission filter wheel

Consisting of:
BS 450 + 538 + 610
EM BP 467/24
EM BP 558/25
EM BP 649/65

489092-9120-000

Filter Set 92 LED SBP DAPI+GFP+AF594
for use with ZEISS LED fluorescence light sources and emission filter wheel

Consisting of:
BS 405 + 493 + 610
EM BP 425/30
EM BP 525/50
EM BP 649/65

489110-9120-000

Filter Set 110 LED SBP DAPI+GFP+AF594+Cy7
for use with ZEISS LED fluorescence light sources and emission filter wheel

Consisting of:
BS 405 + 493 + 611 + 762
EM BP 425/30
EM BP 525/50
EM BP 649/65
EM BP 788/38

489112-9120-000

Filter Set 112 LED SBP DAPI+GFP+DsRed+Cy5+Cy7
for use with ZEISS LED fluorescence light sources and emission filter wheel

Consisting of:
BS 405 + 493 + 575 + 654 + 761
EM BP 425/30
EM BP 514/30
EM BP 592/25
EM BP 681/45
EM BP 788/38

Fura-2 Imaging

489021-0000-000

Filter set 21 HE Fura 2 shift free (E)

EX BP 340/30, EX BP 387/15,
BS FT 409, EM BP 510/90,
recommended for white light fluorescence light sources or ZEISS LED fluorescence light sources.

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489021-0000-000	21 HE	●	●								
489096-9100-000	96 HE		●	●							
489070-0000-000	70 HE				●						
489038-9901-000	38 HE					●					
489118-9100-000	118						●				
000000-1114-101	43							●			
489043-9901-000	43 HE							●			
000000-1114-462	45							●			
489121-9100-000	121							●			
489064-0000-000	64 HE								●		
488050-9901-000	50									●	
489115-9100-000	115										●
489117-9140-000	117 FRET					●		●			
489090-9110-000	90 HE LED			●		●		●		●	
489090-9120-000	90 LED SBP			●		●		●		●	
489091-9110-000	91 HE LED				●		●		●		
489091-9120-000	91 LED SBP				●		●		●		
489092-9110-000	92 HE LED			●		●			●		
489092-9120-000	92 LED SBP			●		●			●		
489056-9110-000	56 HE LED					●		●			
489056-9120-000	56 LED SBP					●		●			
489108-9110-000	108 HE LED				●		●				
489109-9110-000	109 HE LED			●		●		●			
489110-9111-000	110 HE LED			●		●			●		●
489110-9120-000	110 LED SBP			●		●			●		●
489112-9110-000	112 HE LED			●		●		●		●	●
489112-9120-000	112 LED SBP			●		●		●		●	●

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Order No.	Filter Set	RGB-UV 423052-9641 423052-9711	RYB-UV 423052-9721	R[G/Y]B-UV 423052-9731	R[G/Y]CBV-UV 423052-9742	FR-R[G/Y]BV-UV 423052-9771	Viluma 9 UV 423006-9030	Viluma 9 VIS 423006-9020
489021-0000-000	21 HE						●	
489096-9100-000	96 HE	●	●	●	●	●	●	●
489070-0000-000	70 HE				●	●	●	●
489038-9901-000	38 HE	●	●	●	●	●	●	●
489118-9100-000	118				●		●	●
000000-1114-101	43	●		●	●	●	●	●
489043-9901-000	43 HE	●		●	●	●	●	●
000000-1114-462	45	●		●	●	●	●	●
489121-9100-000	121	●		●	●	●	●	●
489064-0000-000	64 HE		●	●	●	●	●	●
488050-9901-000	50	●	●	●	●	●	●	●
489115-9100-000	115					●		●
489117-9140-000	117 FRET	●		●	●	●	●	●
489090-9110-000	90 HE LED	●		●	●	●	●	●
489090-9120-000	90 LED SBP	●		●	●	●	●	●
489091-9110-000	91 HE LED				●	(●)	●	●
489091-9120-000	91 LED SBP				●	●	●	●
489092-9110-000	92 HE LED		●	●	●	●	●	●
489092-9120-000	92 LED SBP		●	●	●	●	●	●
489056-9110-000	56 HE LED	●		●	●	●	●	●
489056-9120-000	56 LED SBP	●		●	●	●	●	●
489108-9110-000	108 HE LED				●	(●)	●	●
489109-9110-000	109 HE LED	●		●	●	●	●	●
489110-9111-000	110 HE LED					●	●	●
489110-9120-000	110 LED SBP					●	●	●
489112-9110-000	112 HE LED					●		●
489112-9120-000	112 LED SBP					●		●

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System Requirements ZEISS Viluma 5, 7 and 9

All Vilumas can be run under ZEN 3.10 with MTB 3.9.4.0 or newer (triggering of Viluma 9 requires ZEN 3.11)

LEDs and excitation filters are preconfigured and no customer interface

ZEISS Viluma 5 and ZEISS Viluma 7 Compatibility Notes

Control via TFT is available for Axio Observer 3/5/7, Axio Examiner.Z and Axio Imager (M, Mm, Z andZm)

To run the Viluma 5/7 from the TFT, the following firmware (for Main2 or Main3) is required:

Axio Observer: 2.723 or 2.825

Axio Imager: 4.587 or 4.888

Axio Examiner: 3.545 or 3.841

ZEISS Viluma 9 Compatibility Notes

Control via TFT is not possible – use speedDIAL instead for manual control

Requires a free USB port at the computer

Switching between the excitation lines controlled with the internal filter wheel (500–600 nm) is slower than between all other lines



ZEISS Service – Your Partner at All Times

Your microscope system from ZEISS is one of your most important tools. For over 175 years, the ZEISS brand and our experience have stood for reliable equipment with a long life in the field of microscopy. You can count on superior service and support - before and after installation. Our skilled ZEISS service team makes sure that your microscope is always ready for use.

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Procurement

- Lab Planning & Construction Site Management
- Site Inspection & Environmental Analysis
- GMP-Qualification IQ/OQ
- Installation & Handover
- IT Integration Support
- Startup Training

Operation

- Predictive Service Remote Monitoring
- Inspection & Preventive Maintenance
 - Software Maintenance Agreements
 - Operation & Application Training
 - Expert Phone & Remote Support
 - Protect Service Agreements
 - Metrological Calibration
 - Instrument Relocation
 - Consumables
 - Repairs

New Investment

- Decommissioning
- Trade In

Retrofit

- Customized Engineering
- Upgrades & Modernization
- Customized Workflows via ZEISS arivis Cloud



Please note: Availability of services depends on product line and location



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