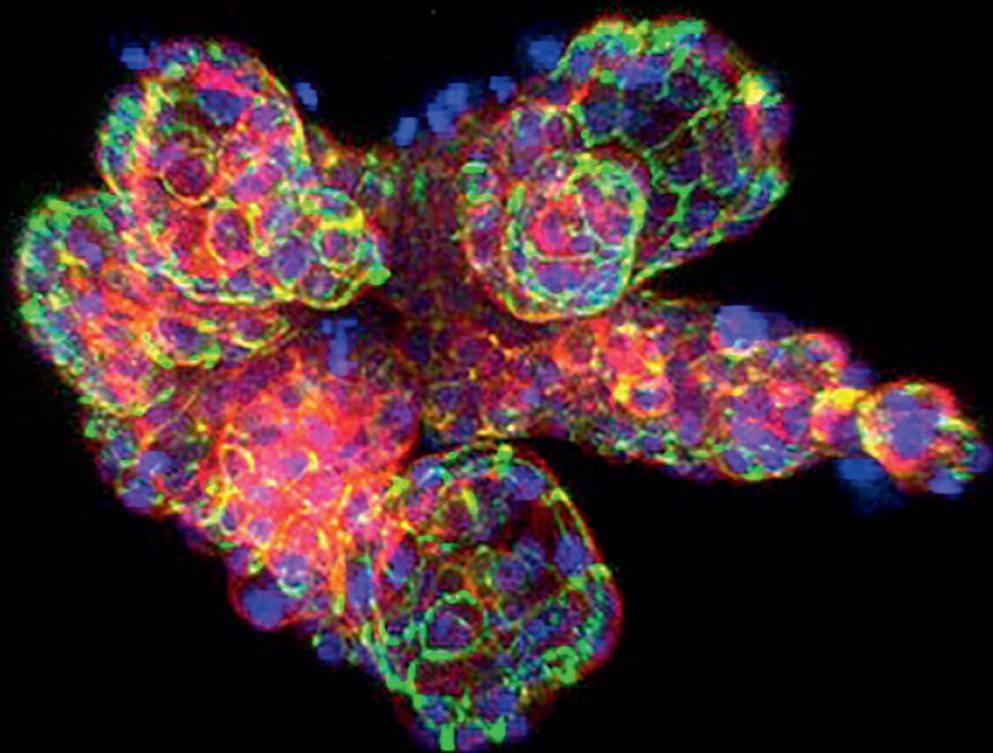




Organoid Imaging Solutions

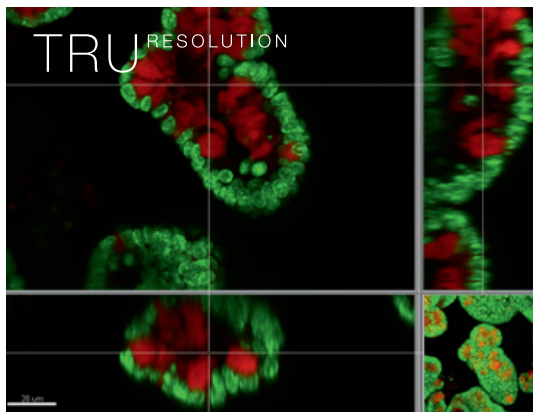
Your Science Matters



Olympus Life Science System Solutions – Organoid Imaging

Spotlight on organoids – derived from stem cells, organoids self-organize and differentiate into 3D structures, that are superior to 2D culture systems when investigating cellular processes in the context of their 3D environment. With their ability to adopt structural and functional traits of organs in vitro, organoids are a physiologically relevant systems to study organ development and morphogenesis, tissue regeneration and for modeling diseases and personalized treatment strategies. To study dynamic processes in Organoids, Olympus provides you with optical sectioning capabilities supporting fast and highly sensitive imaging even deep inside tissues. Silicone oil immersion optics support highly effective live cell imaging with improved brightness and accurate 3D morphology.

Multiphoton Imaging



FLUOVIEW FVMPE-RS – Multiphoton Laser Scanning Microscope

High-Speed Resonant Scanning

Seamlessly document fastest biological processes

High Sensitivity

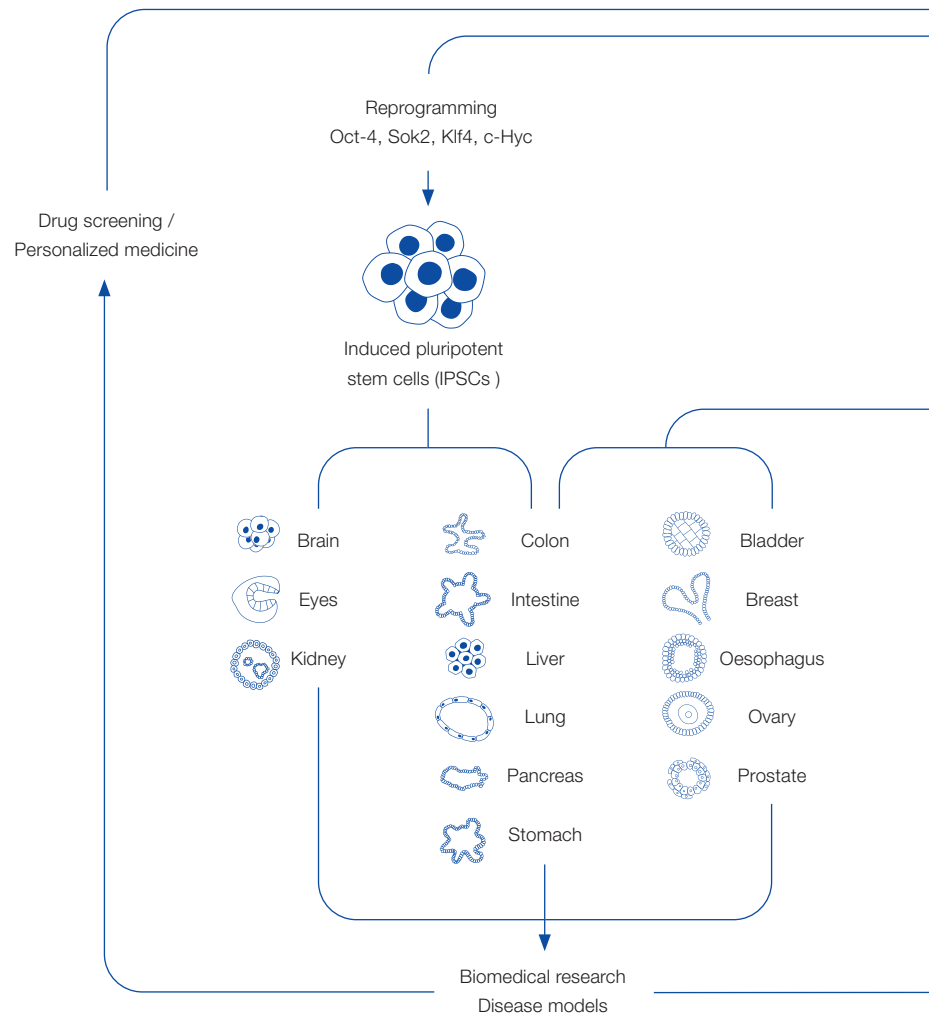
Gather more insights with outstanding light efficiency and GaAsP detection

Deep Tissue Imaging

Observe the sample from the surface up to a millimeter deep inside live tissues

High-Resolution Imaging

Reveal finest details at every plane within a deep image stack using TruResolution Objective's automated spherical aberration correction



Confocal Super Resolution Imaging

IXplore SpinSR – Super Resolution Microscope System

Super Resolution

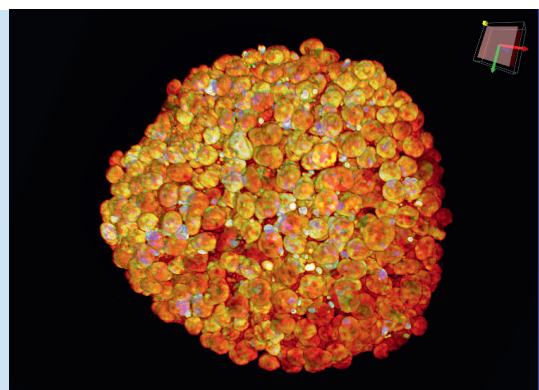
See more details with resolution down to 120 nm using living samples

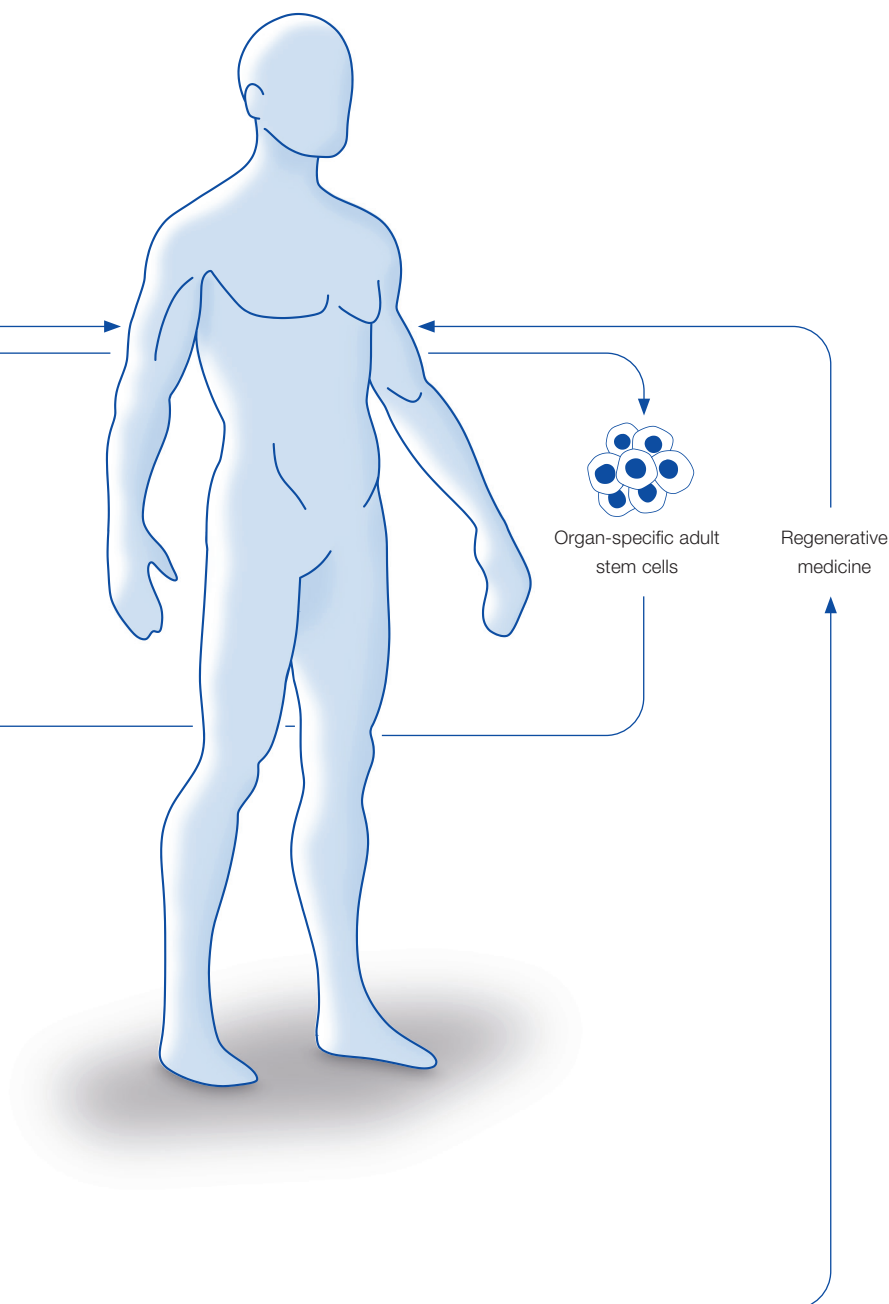
Live Cell Imaging

Spinning disk technology reduces phototoxicity and bleaching for prolonged cell viability in confocal time-lapse imaging

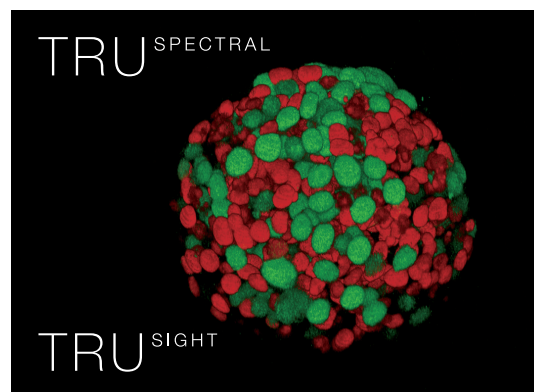
High Content Screening

Automated screening and high-resolution imaging of rare events in huge populations





Confocal Imaging



FLUOVIEW FV3000 – Confocal Laser Scanning Microscope

Multi-Color Imaging

Achieve high-quality multi-color imaging with sensitive TruSpectral detection, enabling up to 16 channels of detection

Macro-to-Micro Imaging

Visualize cellular details with high resolution in the context of the whole organoid structure

Thick Tissue Observation

Silicone immersion optics for accurate volume reconstruction enable high resolution confocal imaging of large living organisms

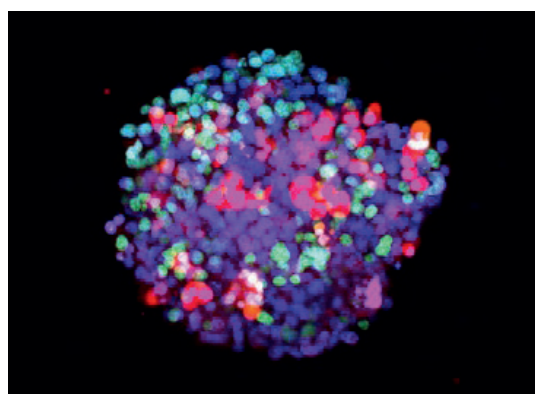
Enhanced Resolution

Get more details at resolutions down to 120 nm with Olympus Super Resolution (OSR) algorithm

TruSight 3D Deconvolution

Image processing further enhances contrast and resolution for crisp and clear confocal images

Light Sheet Imaging



Alpha3 – Light Sheet Microscope

Fast and Gentle 3D Imaging

Multidirectional light sheet with real-time optical focus sweeping for even illumination across the entire field of view

Dynamic Imaging

Optional Smart 3D Scanning technology for perturbation-free image acquisition at 75 images/second

Fast and Easy Sample Mounting

Imaging flexibility from spheroids to cleared large organoids

Olympus Life Science System Solutions – Organoids



Confocal Imaging – Focussed on 3D

Confocal imaging creates optical sections of a specimen by scanning a focused laser spot point by point over the field of view. A pinhole allows only light detection from a small volume around the focal point. The measured signal intensity at each scanning point is then converted to an image. Confocal microscopy not only increases optical resolution and contrast but also allows for optical sectioning, e.g. reconstruction of 3D structures from a series of images obtained at different depths.



Spinning Disk Confocal Imaging – From Live Cell Imaging to Super Resolution

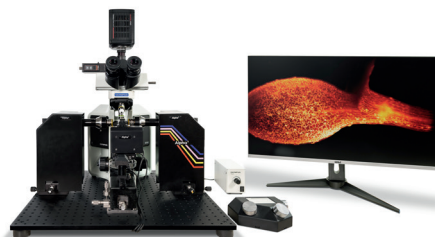
Spinning disk microscopy simultaneously excites multiple image points and collects the data using a highly sensitive camera. Taking advantage of this technique, IXplore Spin allows to study dynamic cellular processes in living cells at high speed and signal-to-noise ratio while at the same time keeping cells alive and healthy. IXplore SpinSR enables fast 3D super resolution imaging without the need for dedicated labeling procedures. Both systems combine microsecond accuracy in device control with reliable control and maintenance of temperature, pH and humidity. Stage and focus stability guarantee high-precision, multipoint time-lapse images that are properly aligned and in focus. Matching the refractive index of living tissue, silicone immersion optics enable you to penetrate deeper into the specimen, catch more signal and image the real shape of organoids over time.

 www.olympus-lifescience.com



Multiphoton Imaging – See More Detail at Depth

Biological tissues have an “optical window” for near IR light, which makes multiphoton imaging the ideal tool to get deep insights from thick samples or in vivo experiments. For imaging, a pulsed laser is scanned across the specimen, typically using wavelengths from 700 to 1300 nm for excitation. Only in the focal point is the photon density high enough, that two or more photons can be simultaneously absorbed and combine their energy to induce fluorescence excitation. The highly concentrated excitation prevents out-of-focus excitation and allows effective collection of the emitted light while in the same time minimizing phototoxicity.



Light Sheet Imaging – Gentle Sectioning of Large Volumes

Light Sheet Microscopy, also called Single Plane Illumination Microscopy (SPIM) provides fast optical sectioning of delicate and large living samples. PhaseView Alpha3 uses a multi-directional light sheet to illuminate a single sample plane at a time while detecting from the perpendicular direction. Since there is no excitation outside the focal plane, light sheet microscopy is particularly suited to minimize phototoxicity and stress when imaging living organoids. The inherent optical sectioning capability by using a light sheet instead of a focused laser spot ensures high-resolution imaging of large volumes at high speed.

- OLYMPUS CORPORATION is ISO9001 certified.
- OLYMPUS CORPORATION is ISO14001 certified.
- Illumination devices for microscope have suggested lifetimes. Periodic inspection is required. Please visit our website for details.
- All company and product names are registered trademarks and/or trademarks of their respective owners.
- Images on the PC monitors are simulated.
- Specifications and appearances are subject to change without any notice or obligation on the part of the manufacturer.
- Equipment is not for clinical diagnostic use.

Cover image: Patient derived lung tumor organoid named F-PDO® (Fukushima Patient-Derived Tumor Organoids). The sample was provided by Professor Motiki Takagi of Fukushima Medical University. Specifications, design, and accessories are subject to change without any notice or obligation on the part of the manufacturer.

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