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W-View Gemini & ORCA Flash 4.0 LT: The perfect partners for simultaneous dual-wavelength imaging

The discovery of Green Fluorescent Protein in 1962 revolutionised cell biology and since then a large number of different microscopy techniques have been established which rely upon the fluorescent properties of either GFP or the plethora of related proteins and dyes which have been developed to exhibit with different excitation and emission spectra.
Therefore it is now commonplace to image two or more differently coloured fluorescent dyes simultaneously in techniques such as co-localisation microscopy, FRET and ratiometric imaging. This has traditionally relied upon filter sets being changed after each round of imaging which takes time and as a result image speed is often severely hampered. Moreover, the temporal asynchrony that arises as a result between the fluorescent channels can lead to problems for down-stream analysis.
To address this issue, Hamamatsu Photonics have developed the W-View Gemini – a beam splitter that allows for simultaneous dual-wavelength imaging by directing short wavelength light to the right half of the image sensor, and long wavelength to the left half of the sensor.
Hamamatsu's ORCA-Flash4.0 LT is the ideal choice of camera to use in combination with the W-View Gemini. Not only is it is extremely sensitive, with high resolution chip (4.2 MP) and wide field of view but it also features W-View Mode. This allows each half of the sensor to be controlled independently, so that a different exposure time, ROI and even rolling shutter readout direction can be set for each sensor half.
So whether you're interested in performing simple co-localisation microscopy, through to advanced two-colour light-sheet microscopy visit Hamamatsu's workshop to discover more about why the W-View Gemini and ORCA-Flash4.0 LT are the perfect partners for dual-colour imaging.

ORCA-Flash4.0 V2: A high speed sCMOS camera for demanding life science applications

When it comes to life science imaging, faster is often better. Not only does this allow for the opportunity to capture highly dynamic biological events, but being able to image fast opens up a wide variety of different imaging modalities. Spinning-disc confocal, light-sheet and STORM/PALM super-resolution microscopy are just some of the many cutting-edge techniques which rely heavily on the availability of a fast and extremely sensitive camera.
Therefore, Hamamatsu have designed the ORCA-Flash4.0 sCMOS camera with speed in mind, allowing up to 100 full-frame (4.2MP) images to be captured every second. However, to obtain useful data fast imaging speeds alone are not enough, so in addition the camera combines extremely low noise performance (1.6 electrons rms), high quantum efficiency (72% peak), a huge dynamic range (1:37,000) and a wide field of view to create an exceptionally sensitive and versatile imaging tool.
In fact, the ORCA-Flash4.0 is so sensitive that it can be used instead of EMCCD technology for the majority of applications, especially for applications when high-speed image acquisition is crucial.
This workshop will focus on the advantages that sCMOS technology and the ORCA-Flash4.0 can bring to your research and how high speed imaging is enabling researchers to gain new insights into biological questions using light microscopy.