

Fluorescence requires four players: the sample, proper illumination, efficient beam splitting and selective detection. Biological research employs a wide variety of fluorescent probes. The number of unique dyes for imaging and specific applications will continue to grow as needs arise. The most beneficial phenomenon in fluorescence is the fact that it comes in an infinite number of colors – which is at the same moment the most challenging feature. As a consequence, multiple colors are available simultaneously. Therefore a very elaborate illumination scheme, tricky beam splitting and efficient but selective detection of the various colors that are used to stain different structural elements in the sample are needed. The Leica Philosophy of full spectral adaptation in illumination and detection provides the solution—without loss of precious fluorescence emission light.