

Confocal applications

Application	Process
Fluorochrome staining and immunostaining	<ul style="list-style-type: none"> • Single, dual or multiple-labeled samples • Simultaneous detection of multiple fluorochromes • Fluorescence recovery after photobleaching (FRAP) • Fluorescence resonance energy transfer (FRET)
Green fluorescent protein	<ul style="list-style-type: none"> • Studies on cellular trafficking, intracellular signaling, gene expression, morphology
Organelle function	<ul style="list-style-type: none"> • Studying organelles (endoplasmic reticulum, golgi, mitochondria, nucleus, plasma membrane) with organelle-specific fluorescent probes • Nuclear and tissue changes during cancer
Nuclear function	<ul style="list-style-type: none"> • Spatial order in the nucleus: relationship of chromosome domains, telomeres and kinetochores • Localization of several genes in nucleus using fluorescence in situ hybridization (FISH)
Cytoskeletal function	<ul style="list-style-type: none"> • Analysis of associated proteins and arrangement of cytoskeleton within microarchitecture of cells
Ion fluctuations	<ul style="list-style-type: none"> • Intracellular ion imaging of calcium, magnesium, zinc, sodium, potassium, hydrogen, chloride ions
Membrane potential	<ul style="list-style-type: none"> • Analysis of changes in membrane potential dyes
Cell function	<ul style="list-style-type: none"> • Analysis of signaling pathways, cell division, apoptosis
Photoactivation	<ul style="list-style-type: none"> • Uncaging photoactivatable caged compounds
Microcirculation	<ul style="list-style-type: none"> • Velocity of blood cells in microvessels • Microcirculation of various agents in tissues
Diagnostic tool	<ul style="list-style-type: none"> • Determination of cornea thickness • Diagnostic virology as a survey tool to identify areas of necrosis or cell enlargement due to viral infection, in preparation for subsequent ultrastructural analysis
Morphometry	<ul style="list-style-type: none"> • Measure structures in 2-D images and 3-D reconstructions
Microarrays	<ul style="list-style-type: none"> • Gene expression
Reconstruction	<ul style="list-style-type: none"> • Three-dimensional reconstruction • Four-dimensional imaging