

Metabolic Imager

Two-photon microscopy of NADH and FAD

Comfortable, label-free and near-instantaneous two photon metabolic imaging with B&H's renowned lifetime precision.

This turnkey FLIM microscope is configured to give you the best results out of the box. Equipped with TOPTICA's newest turn-key femtosecond pulsed lasers for NADH and FAD excitation it provides the results you need both at university and in the clinic, at an unbeatable price.

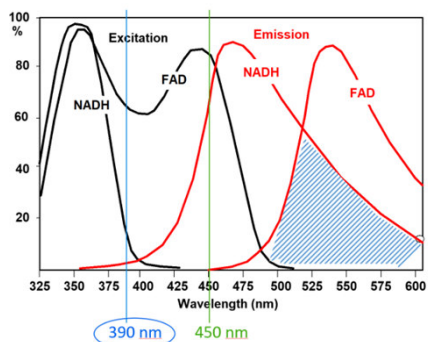
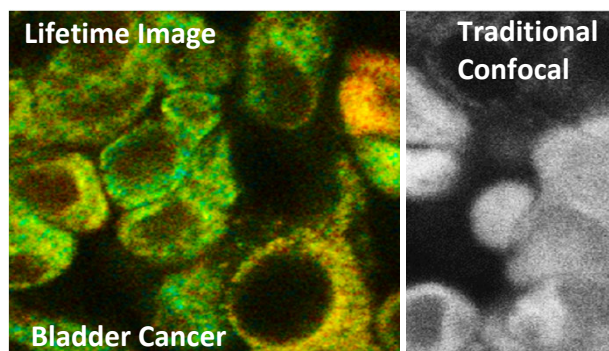
Make cell metabolism visible

Direct, label-free access to tissue health information – that is the power of metabolic imaging. The autofluorescence lifetimes of NADH and FAD, two core components of the cell metabolic cycle, provide access to cell health information: Both endogenous fluorophores cycle through a bound and an unbound form each. These two forms are spectrally barely distinguishable but have drastically different lifetimes. Color coded lifetime images provide clear contrast of healthy and diseased tissue within seconds, label-free. NADH and FAD provide complementary information, thus measuring both simultaneously provide best cell functional insights for tumor tracking, personalized therapy and drug treatment.

Lifetime in Color



Lifetime segmentation makes cancer visible



NADH and FAD lifetimes – see them simultaneously

Both the absorption and emission spectra of NADH and FAD overlap. To disentangle the two fluorophore lifetimes cleanly requires a combination of two excitation wavelengths ($780/2 = 390 \text{ nm NADH} + \text{FAD}$, $920/2 = 460 \text{ nm FAD}$) and two spectral detection windows (NADH, NADH + FAD). Dual excitation disentangles spectrally overlapping channels.

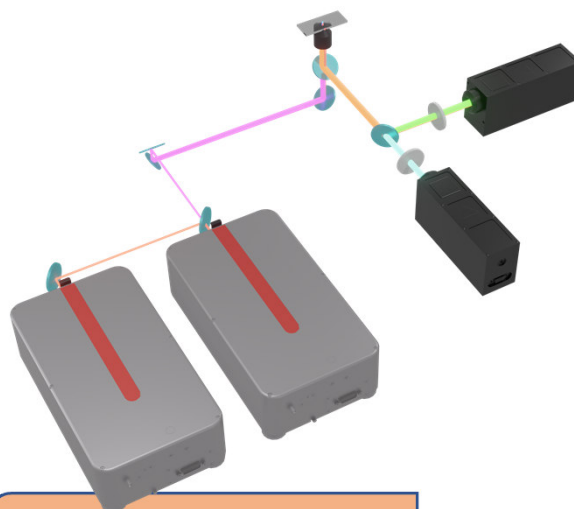
The combined strength of two ultra stable fiber-based femtosecond lasers and the unrivaled performance of B&H's picosecond time-taggers give you the comfort of precision and the photon efficiency to make this metabolic imager a turn-key workhorse. A clean instrument response in time, down to 20 ps RMS, is the basis for accurate and fast extraction of lifetime components of NADH (~400 ps) and FAD (~200 ps).

The extraordinary hardware is bundled with B&H's renowned GPU assisted FLIM analysis toolbox. With the aid of smart presets megapixel size images are analyzed and interpreted in seconds. Intuitive image segmentation with B&H's PhasorPlot+ analysis puts the attention where it needs to be – on your results.

Comfortable and versatile

This metabolic imager is the scalpel among multi-tools. Reduce the uncertainties in your research without loss of capability: fixed wavelength excitation and well defined spectral filters in the detection make your experiments comparable – every time. Naturally, the detection filters can be replaced with other plug-and-play filter units depending on your application. BFP/CFP/GFP? GCaMP? FLIM-FRET, FC(C)S or imaging in neurology? These and more require no more than a cheap filter unit. Drop it in and get on with your science. Reduce your system price, pay only for the experiments you are really doing.

Equipped with an opaque incubator, the system is not only perfectly laser-safe but also prepared for live-cell work. Fully motorized sample movement for large area stitched imaging, 3D imaging and video rate FLIM-contrast recording for dynamic change monitoring are only a few of the highlights. All at the fraction of the cost of a multi-tool. Environmental control, autofocus, dynamic remote user training – the possibilities are endless. Go to www.becker-hickl.com or follow the QR code below for a quick quote.



Femto-second timing:
Stable, reliable, affordable





FULLY INTEGRATED, STATE OF THE ART FLIM SYSTEMS

A compact and powerful platform, configured to your needs.

Base features, always included:

- Fully motorized sample stage
- 3D Z-stack FLIM
- Video rate recording ready – Express FLIM*
- Seamless analysis integration including Phasor Plot +, image segmentation by lifetime, FCS analysis
- Area and line scanning modes, as well as true point measurements for correlation measurements.
- Fast laser scanning unit for optimal image acquisition
- Basic detection filter kit, chosen for your experiment.

*Depends on choice of time-tagging unit

Options:

- Choice of laser system
 - Picosecond pulsed laser diodes from UV to NIR
 - Femtosecond pulsed lasers for multiphoton microscopy
 - Tunable laser units with frequency doubling unit – seamless excitation from visible to MidIR.
- Choice of fast and efficient Becker&Hickl hybrid single photon detectors
- Incubator with optional environment control for live cell work.

Complete a quote request form or speak to a representative.

Examples:

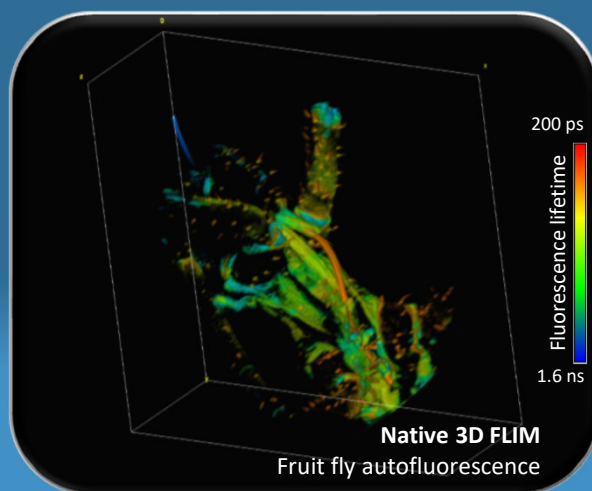
Multiphoton Metabolic Imager

- 2x TOPTICA FemtoFibre Ultra (780 nm & 920 nm)
 - ~1 W, <100 fs, 80 MHz, AOM + GDD
 - Wavelength multiplexed excitation
- Ultra-precise lifetime measurements, IRF ~20 ps
 - Time-channels down to 213 fs, 3 ps jitter
 - Parallel dual channel acquisition
- Detection max. 250 nm – 720 nm
 - NADH: 420 nm – 480 nm, FAD: 500 nm – 550 nm

FLIM-FRET Molecular Interaction Imager

- 2x B&H picosecond diode lasers,
 - 60 ps - 120 ps FWHM.* 20 MHz, 50 MHz, 80 MHz, CW
- High photon rate measurement, IRF ~100 ps*
 - 80 MHz continuous, 120 MHz peak. 4 ps time-channels, ~17 ps jitter.
 - Parallel dual channel acquisition
- For any FRET pair, e.g. GFP/YFP, Cerulean/Venus, etc.

*depending on wavelength



Flip for more!



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