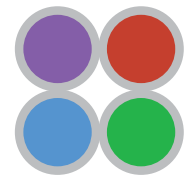


RETRA FURA light engine®

Calcium Ratio Imaging



lumencor®



- **340 nm and 380 nm solid-state excitation sources with fast all-electronic switching**
- **Spectrally optimized for fura-2 excitation ratio imaging**
- **Source switching times ~10 μ s via TTL**
- **Liquid light guide (LLG) output coupling to microscope**
- **Independent control of source output intensities**
- **Low power consumption, fully pre-aligned, maintenance free**

Lumencor's RETRA FURA light engine is the ideal light source for 340/380 nm fluorescence ratio imaging calcium using fura-2. Imaging of intracellular calcium has long been an important technique in cell biology, neuroscience and related fields. Excitation ratio imaging compensates for variations of indicator dye concentration within cells and between cells that might be erroneously interpreted as calcium level changes. Fura-2 is the preferred indicator dye for Ca²⁺ ratio imaging.

Historically, excitation ratio imaging has been implemented using a white light source in combination with mechanically alternated filters to select the desired excitation wavelengths (340 and 380 nm for fura-2). Lumencor's RETRA FURA light engine generates these excitation outputs from two discrete, electronically controlled, solid-state light sources. Electronic alternation of excitation wavelengths is faster and extremely reproducible over more archaic mechanical methods that rely on filter movement, e.g. in the ~10 μ s v. ~10 ms range. In turn, this allows higher-speed data acquisition, providing increased temporal resolution for recording elementary processes in cell physiology.

A key requirement for live cell imaging is minimizing excitation light exposure to avoid phototoxicity and photobleaching effects. Independent electronic attenuation of the 340 and 380 nm outputs of the RETRA FURA light engine allows optimized image acquisition without adjusting camera exposure settings or manipulating neutral density filters.

For more information on the RETRA FURA light engine, please contact us at info@lumencor.com. To receive a purchase quotation for a RETRA FURA light engine, please submit our [online quotation request form](#).

RETRA FURA light engine®

Calcium Ratio Imaging

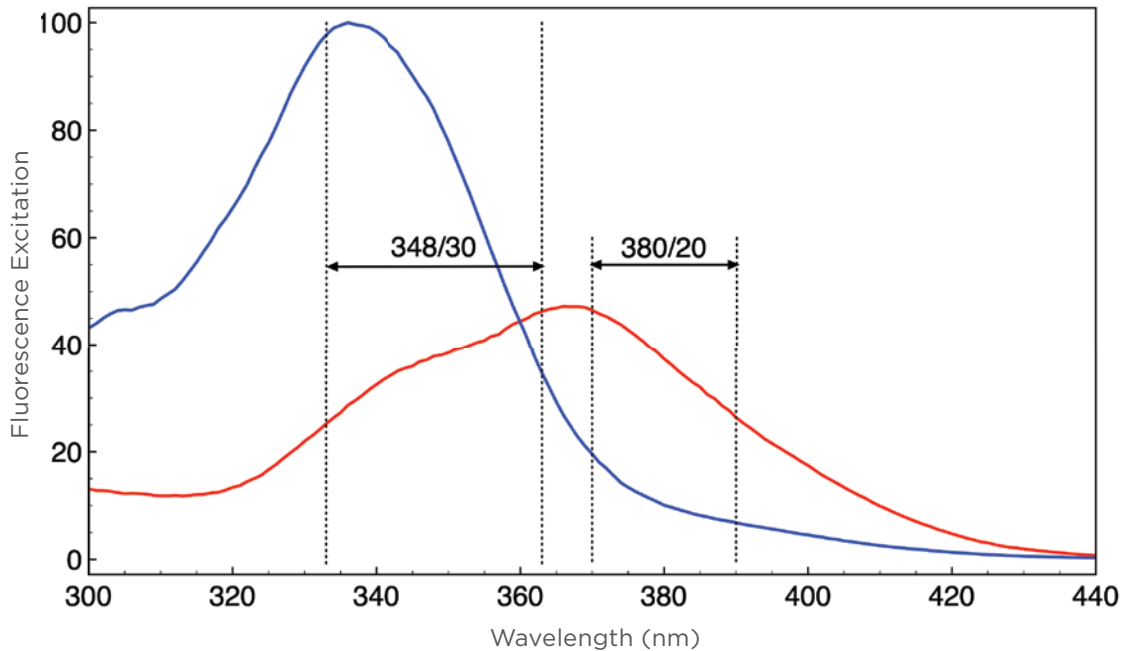


TABLE 1:
Fluorescence excitation spectra of fura-2 Ca²⁺ indicator showing 348/30 nm and 380/20 nm excitation bandpasses supplied by Lumencor's RETRA FURA light engine.

— Low calcium
— High calcium

Features and Operating Characteristics:

Features	Details
Part Number	90-10361 ^[1]
Sources	2 independently-selectable solid-state sources
Bandpass Filters	Integrally installed 348/30 and 380/20 bandpass filters
Light Delivery	3 mm liquid light guide, 2 m length ^[2]
Control Interfaces	Source selection, light output on/off and intensity via serial interface (USB). Source selection and light output on/off via TTL
Power Requirements	220 W (24V DC/9.2A) power supply
Warranty	18 months
Dimensions (W x L x H)	105 mm x 187 mm x 159 mm (4.1 in x 7.4 in x 6.3 in)
Weight	2.8 kg /6.2 lbs
Optional Accessories	BNC breakout cable for TTL triggering. Light engine control pod ^[3]

[1] Includes light engine, DC power supply, power cord, liquid light guide and USB control cable. [2] Included with purchase.
[3] Control pod connects to light engine USB port and controls source selection, light output on/off and intensity settings.



GET IN TOUCH

Lumencor, Inc.
14940 NW Greenbrier Parkway, Beaverton, OR 97006 USA • T 503.213.4269 • www.lumencor.com
©2019 Lumencor, Inc. • Effective Date: 03/2019 • 54-10045