



Single-Band Dichroics and Emission Filters

Lumencor's MIRA Light Engines provides four solid-state light sources generating output in five color bands (violet, cyan, green, yellow and red) covering the entire visible spectrum. With no fan needed for cooling, it is vibration-free, allowing direct mounting on a microscope. For fluorescence microscopy applications, excitation and emission bandpass filters and dichroic beamsplitters are all installed external to the Light Engine.

Below find a list of single-band filter sets that are recommended for imaging widely used fluorophores on microscopes equipped with MIRA Light Engines. Please speak to your Lumencor sales representative or contact techsupport@lumencor.com to confirm the best filter prescription for your application and experiment design.

Single-band filter set recommendations for Lumencor MIRA Light Engines.

MIRA Light Output	Fluorophores	Chroma Filter Set	Semrock Filter Set
Violet (380-410 nm)	DAPI	49028	LED-DAPI-A-000
Cyan (460-490 nm)	FITC	49002 - ET - EGFP (FITC/Cy2)	LED-FITC-A-000
Green (525-570 nm)	TRITC, Cy3	49004 - ET - Cy3/TRITC	Cy3-4040C-000
Yellow (570-600 nm)	Texas Red	49008 - ET - mCherry, Texas Red	mCherry-B-000
Red (620-660 nm)	Cy5	49006 - ET - Cy5	LED-Cy5-A-000

Chroma filter sets are supplied by [Chroma Technology Corporation](#). Semrock filter sets are supplied by [Semrock, Inc.](#) (a subsidiary of IDEX Corporation).

Multi-Band Filter Sets

Use of multi-band filter sets for fluorescence microscopy inevitably requires compromises in terms of discrimination between individual fluorophores. Simultaneous excitation of two, three or four fluorophores using a full multi-band filter set (i.e. multi-band exciter, multi-band dichroic and multi-band emitter) may produce unacceptable levels of detection channel cross-talk, particularly in applications involving colocalization analysis. When higher levels of inter-channel discrimination are required, the most common technical solution is sequential excitation through filter sets with multiple single band exciters and a multi-band dichroic and a multi-band emitter (often referred to as Pinkel sets). The facility to manually turn the MIRA Light Engine's four solid-state light sources on and off allows users to excite two, three or four fluorophores in a multi-labeled specimen one at a time through a multi-band exciter. Thus the functionality of a Pinkel filter set can be obtained without the need for mechanical filter interchanges using filter wheels or other positioning devices. Below find a list of full multi-band filter sets that are recommended for imaging widely used fluorophore combinations on microscopes equipped with MIRA Light Engines.

Multi-band dichroic and emission filter recommendations for Lumencor SPECTRA X Light Engines

Fluorophores	Chroma Dichroic	Semrock Emitter
FITC/Texas Red	59022 - ET - EGFP/mCherry	FITC/TxRed-A-000
DAPI/FITC/TRITC	69000 - ET - DAPI/FITC/TRITC	DA/FI/TR-A-000
DAPI/FITC/Texas Red	69002 - ET - DAPI/FITC/Texas Red	LF405/488/594-A-000
DAPI/FITC/TRITC/Cy5	89401 - ET - DAPI/FITC/TRITC/CY5	LED-DA/FI/TR/Cy5-A-000

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