

Multispectral Imaging/ Whole Slide Scanning

Vectra Polaris Fluorescence Whole Slide Scanning with Conventional Narrow-band Epicubes



The Vectra® Polaris™ Automated Quantitative Pathology Imaging System builds upon the proven multispectral capabilities of PerkinElmer's Vectra portfolio of tissue imaging instruments with a new multimodal highly-efficient enclosed design that incorporates digital pathology whole slide scanning for both brightfield and fluorescent modes.

The system, as configured from the factory, is equipped with five fluorescence epicubes covering DAPI, FITC, Cy3, Texas Red, and Cy5, all of which have specific excitation parameters tied to the ranges that they cover, yet possess long pass emission filters to allow for efficient

multispectral detection. However, Vectra Polaris retains five additional unused epicube positions in its 10-position filter turret. These positions are available to provide flexibility to accommodate user requirements, such as for conventional, non-multispectral fluorescence whole slide scanning with five colors, or fewer.

When using Opal™ Multiplex IHC Detection Reagents, we recommend the epi-cube filter sets from Semrock (see tables for details), with both excitation and emission ranges selected to minimize signal bleed through and to provide favorable fluorescence whole slide scanning across common wavelengths. The specific filter sets are:

	Fluor	Filter Cube	Part Number	Special Instructions
Opal 4 Plex	DAPI	DAPI	#CLS145227	Comes with Vectra Polaris filter set
	Opal 520	Polaris MB Filter C	#CLS150077	Order from PerkinElmer
	Opal 570	Polaris MB Filter A	#CLS150078	Order from PerkinElmer
	Opal 620	Polaris MB Filter B	#CLS150079	Order from PerkinElmer
	Opal 690	Semrock Cy5	#Cy5-5-C-000	Order from Semrock

When using standard, non-Opal reagents, we recommend the following cubes, with both excitation and emission ranges selected to minimize signal bleed through and to provide favorable fluorescence whole slide scanning across common wavelengths. The specific filter sets are:

	Fluor	Filter Cube	Part Number	Special Instructions
Opal 3 Plex	DAPI	DAPI	#CLS145227	Comes with Vectra Polaris filter set
	Opal 520	Polaris MB Filter C	#CLS150077	Order from PerkinElmer
	Opal 570	Polaris MB Filter A	#CLS150078	Order from PerkinElmer
	Opal 690	Cy5	#CLS145231	Comes with Vectra Polaris filter set

The existing Vectra Polaris Cy5 cube set is suitable for both fluorescence whole slide scanning and multispectral scanning.

Kit	Fluor	Filter Cube	Part Number	Special Instructions
Discovery 5 Plex	DAPI	DAPI	Chroma #49000	Order from Chroma and specify custom dichroic dimensions: 25.2mm x 35.6mm x 1.1mm Use with Semrock exciter 387/11
	DCC	Aqua	Chroma #49302	Order from Chroma and specify custom dichroic dimensions: 25.2mm x 35.6mm x 1.1mm
	FAM	Special Green	Chroma CUSTOM	Order from Chroma and specify custom dichroic dimensions: 25.2mm x 35.6mm x 1.1mm
	Rhodamine 6G	Gold	Chroma #49304	Order from Chroma and specify custom dichroic dimensions: 25.2mm x 35.6mm x 1.1mm
	Red610	Orange	Chroma #49306	Order from Chroma and specify custom dichroic dimensions: 25.2mm x 35.6mm x 1.1mm
	Cy5	Cy5	#CLS145231	Comes with Vectra Polaris filter set

To mount these filter sets into Vectra Polaris, which are not manufactured by PerkinElmer, you will need to order empty epi-cube chassis from PerkinElmer, one per filter set.

Vectra Polaris Empty Filter Cube	CLS145232
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It is recommend that purchases of filters and chassis coincide with the installation of a Vectra Polaris, so that a qualified service technician or field applications scientist can perform installation and configure the acquisition software to enable conventional narrow-band fluorescence whole slide scanning.

For more information, please visit www.perkinelmer.com/VectraPolaris