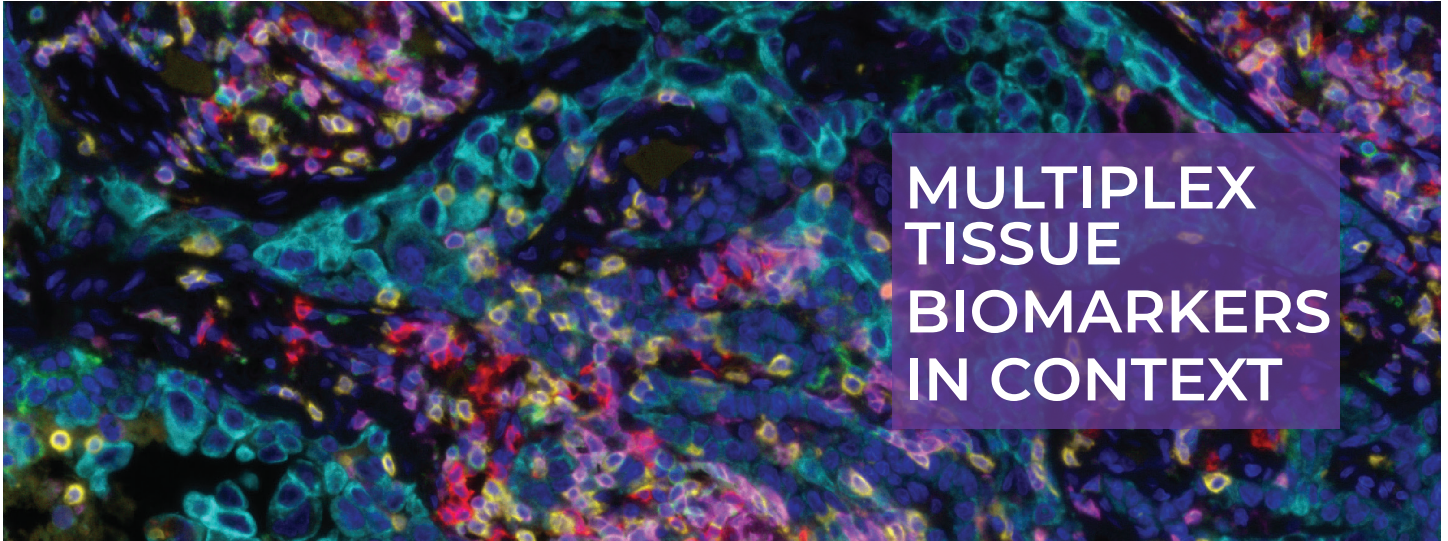


# Multiplex Tissue Biomarkers In Context

## PHENOTYPE AND VISUALIZE WITH OPAL KITS



Above Image: Human lung tumor section processed with an Opal kit and imaged on the Mantra™ quantitative pathology workstation. PD-L1 (green), PD-1 (red), CD8 (yellow), FoxP3 (orange), CD68 (magenta), panCK (cyan), and nuclei (blue).

Multicolor immunohistochemistry lets you visualize biology within your precious samples by allowing simultaneous phenotyping and functional assessment of multiple cell types. As a result, multiplex IHC images lead to a comprehensive understanding of complex cellular interactions that is not accessible by other methods.

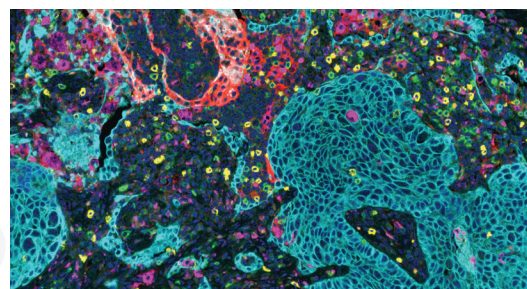
Opal™ Multiplex Fluorescent IHC Kits make multiplex methods accessible to anyone who works with standard immunohistochemistry. Antibodies for these assays IHC may be selected based on performance, rather than species. The method is compatible with the standard research IHC workflow in your lab. Opal kits are optimized for reliable spectral unmixing and simultaneous measurement of up to 6 IHC targets, plus a nuclear stain.

- Measure up to 6 tissue biomarkers simultaneously
- Use the best primary antibodies, regardless of species – with no crosstalk
- Retain spatial cellular context that is lost when using other methods
- Get more information from scarce samples

### Opal Cancer Immunology IHC Panels

Opal multiplex IHC panels combine optimized sets of antibodies and detection reagents with verified protocols to provide the most direct route to biologically relevant results in your lab.

Opal Cancer Immunology IHC Panels	Sizes	Product #
Opal 7 Tumor Infiltrating Lymphocyte Kit (CD4, CD8, CD20, FOXP3, CD45RO, panCK)	50 slides	OP7TL3001KT
Opal 7 Solid Tumor Kit (CD4, CD8, CD20, FOXP3, CD68, panCK)	50 slides	OP7TL4001KT
Opal 7 Immunology Discovery Panel Kit (CD4, CD8, CD68, +3 open channels)	50 slides	OP7DS2001KT
Opal 4-color Lymphocyte Panel Kit (CD4, CD8, CD20)	50 slides	OP4LY2001KT
Opal IHC panel kits include primary antibodies (human reactivity), Opal polymer HRP Ms + Rb, antibody diluent, Opal fluorophores, DAPI, AR6 & AR9 buffer. Opal 7-color kits require multispectral imaging. See options on page two.		



Six-plex Phenoptics™ labeling for PDL1, PD1, CD8, CD68, FoxP3,

and cytokeratin in human lung cancer tissue using the Opal™ Multiplex Automation IHC Kits and imaged with the Vectra® Polaris™

automated quantitative pathology imaging system.

Opal Multiplex IHC Detection Kits	Sizes	Product #
Opal 4-color Automation IHC Kit	50 slides	NEL820001KT
Opal 4-color Manual IHC Kit	50 slides	NEL810001KT
Opal 7-color Automation IHC Kit*	50 slides	NEL821001KT
Opal 7-color Manual IHC Kit*	50 slides	NEL811001KT
Opal 4-color Anti-Rabbit Manual IHC Kit	50 slides	NEL840001KT
Opal 4-color Anti-Rabbit Automation IHC Kit	50 slides	NEL830001KT
The Automation Detection Kits include Opal fluorophores, DAPI, 1X Plus Automation Amplification Diluent, 1X Antibody Diluent, and Opal Polymer HRP Ms+RB detection reagent. The Manual Detection Kits contain 1X Plus Amplification Diluent and add an additional AR6 buffer.		

Opal Reagent Packs	Product #
Opal 520 Reagent Pack	FP1487001KT
Opal 540 Reagent Pack	FP1494001KT
Opal 570 Reagent Pack	FP1488001KT
Opal 620 Reagent Pack	FP1495001KT
Opal 650 Reagent Pack	FP1496001KT
Opal 690 Reagent Pack	FP1497001KT

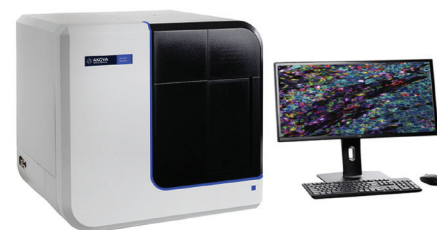
Ancillary Reagents and Accessories	Sizes	Product #
AR6 Buffer	250 mL	AR600250ML
AR9 Buffer	250 mL	AR900250ML
Antibody Diluent, 1X	100 mL	ARD1001EA
Opal Polymer HRP Ms + Rb, 1X	50 mL	ARH1001EA
Opal Slide Processing Jars	4-pack	STJAR4
Opal Polymer Anti-Rabbit HRP Kit	50 mL	ARR1001KT
1X Plus Automation Amplification Diluent	50 mL	FP1609
1X Plus Amplification Diluent	50 mL	FP1498

## The Phenoptics™ Workflow – A Complete Solution

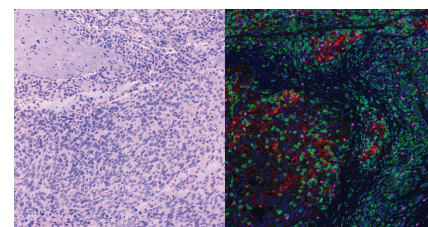
Mantra™, Vectra® and Vectra® Polaris™ imaging systems use multispectral unmixing to provide quantitative results for each marker in a multicolor IHC slide, making them ideal for imaging and analysis of Opal samples. When combined with inForm® analysis software, this novel solution enables automated cellular phenotyping and tissue segmentation for virtually unlimited investigation of the biology expressed in your samples. The complete workflow – from immunostaining, through imaging and analysis – is known as Phenoptics.

## How Does Opal Work?

Opal follows the standard IHC workflow using unlabeled primary antibodies, followed by the addition of anti-species-HRP conjugate and detection substrate. Opal fluorescent detection substrates bind covalently near the epitope, allowing subsequent antibody removal or inactivation to clear the tissue for detection of the next target. The signal remains stable after antibody removal.



Vectra® Polaris™ Automated Quantitative Pathology Imaging System



Melanoma tissue stained using Opal multiplex tissue reagents, imaged with Vectra automated quantitative pathology imaging system and analyzed with inForm® image analysis software. Left: Simulated brightfield IHC rendition. Right: Spectrally unmixed composite image. Tissue samples courtesy of Bernard A. Fox, Ph.D., Oregon Health & Science University, Providence Cancer Center.

To learn more visit [AKOYABIO.COM](http://AKOYABIO.COM)  
or email us at [INFO@AKOYABIO.COM](mailto:INFO@AKOYABIO.COM)

