



# PHENOIMAGER HT 2.0

## The Fastest Spatial Signature Solution



บริษัท ไอเมด ลาบอราทอรี จำกัด

240 อาคารโยธยา ทาวเวอร์ ห้องเลขที่ 240/2,240/41

ชั้นที่ 1, 20 ถนนรัชดาภิเษก แขวงหัวขวาง

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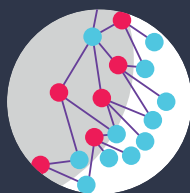
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# SPATIAL SIGNATURES: A NEW STANDARD FOR PREDICTIVE VALUE

## What are Spatial Signatures?

Spatial Signatures are predictive biomarkers based on spatial relationships and protein co-expression of specific cellular subsets assessed within the context of the tumor micro-environment (TME). These spatially determined predictive biomarkers measured by multiplex immunofluorescence provide deeper insights into tumor-immune biology and could inform treatment response.



**VISUALIZE**



**QUANTIFY**

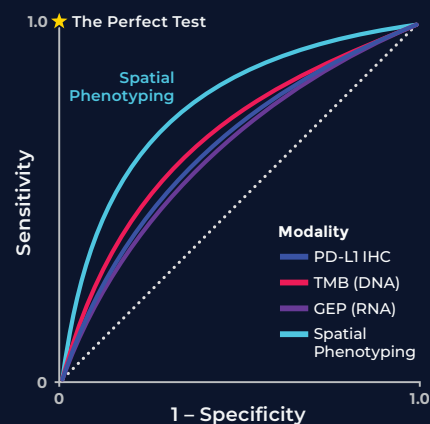


**PREDICT**

These unique predictive biomarkers can be based on the following within the TME:  
presence or absence of a phenotype, proximity, density, structures or unique neighborhood or a combination of these features.

## Spatial Signatures Outperform Other Biomarker Modalities in Predicting Immunotherapy Response

A large-scale meta-analysis of data from more than 50 studies, 10 types of cancer and outcome data from more than 8,000 patients, published in JAMA Oncology<sup>1</sup> showed that spatial phenotyping measured by multiplex immunofluorescence (mIF) more accurately predicts patient response to anti-PD-1/PD-L1 therapy than other biomarker assays, including PD-L1 IHC, tumor mutational burden (TMB), and gene expression profiling (GEP).



1. Lu S, et. al., JAMA Oncol. 2019, 5(8):1195-1204

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# EXPERIENCE THE FASTEST SOLUTION FOR SPATIAL SIGNATURES

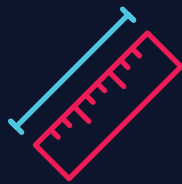
## Why choose the Phenolmager® HT 2.0?

As the premier and most highly cited imager for spatial phenotyping and spatial signature development, the Phenolmager HT 2.0 is the fastest whole-slide multispectral imaging system that can be easily integrated into high-throughput workflows to accommodate for scalability.



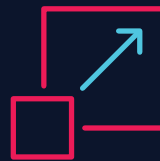
### SPEED

The fastest imager for spatial phenotyping and signature development



### ACCURACY

Onboard spectral unmixing enables quantitative and accurate phenotyping



### HIGH THROUGHPUT

Image 400+ multiplex stained slides per week to fit any project of your scale



### PROVEN

350+ instrument installations; 1000+ cited publications



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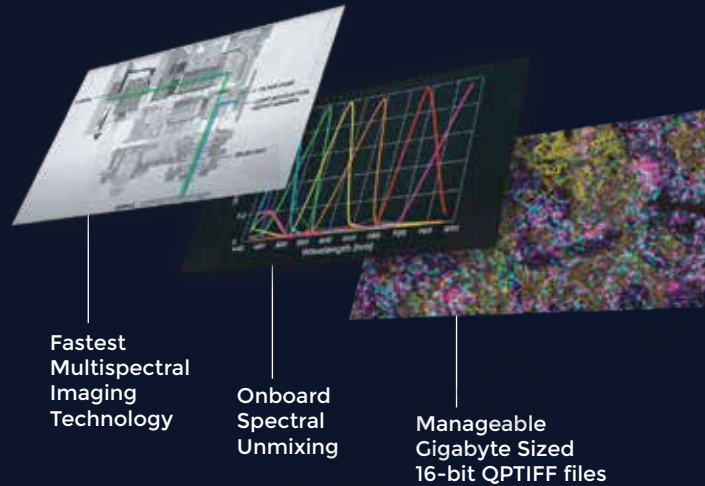
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# PHENOIMAGER HT 2.0

## A Unique Technology Stack Designed to Provide Best-in-Class Performance

Spatial Biology 2.0 is about developing spatial signatures at scale. To accomplish this Phenolmager HT 2.0 equips researchers with a unique technology stack combining onboard spectral unmixing, rapid imaging and manageable data outputs, delivering unparalleled performance for spatial signature development.



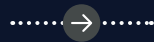
## The Fastest End-to-End Solution for Spatial Signature Development

The discovery and validation of Spatial Phenotypic Signatures requires a solution that easily integrates staining, imaging, and analysis using existing workflows while providing speed, accuracy and reproducibility.



### STAIN

Whole-slide staining of tissues using pre-designed or custom antibody panels.



### IMAGE

Rapid whole-slide image acquisition with onboard spectral unmixing and touchless walkaway automation.



### ANALYZE

Visualize and interpret using Akoya's software suite or open-source solution.



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# SCALE MEETS FLEXIBILITY

## PhenoCode Signature Panels

**PHENOCODE SIGNATURE 5-PLEX BASE PANELS**

- Immuno-Contexture**  
CD8  
CD68  
PD-L1  
FoxP3  
PanCK
- Immune Profile**  
CD8  
CD68  
CD3  
CD20  
PanCK
- Activated TIL Status**  
CD8  
CD3  
Ki67  
GrzB  
PanCK
- M1/M2 Polarization**  
CD8  
CD68  
CD163  
PD-1  
PD-L1
- T Cell Status**  
CD8  
CD4  
FoxP3  
CD20  
PD-1

PhenoCode Signature Panels streamline staining workflows, reducing assay development time by 3X. They allow for easy integration of one additional marker to a 5-plex base panel for added flexibility in cell phenotyping analysis or to address a specific research question with your own preferred marker of choice.

+ **1 CUSTOM MARKER**

↓ **DOWNLOAD WHITE PAPER AT [akoyabio.com/6-plex-success](http://akoyabio.com/6-plex-success)**

# SENSITIVITY & VERSATILITY

## Opal TSA Chemistry

Akoya's Opal® Tyramide Signal Amplification (TSA) chemistry is the ideal choice for multiplex immunofluorescence with maximum flexibility. It offers the capability to identify low-abundance proteins with a sensitivity 10 to 100 times greater than chromogenic IHC, and an expanded dynamic range for the simultaneous detection of up to 8 markers.

- High Sensitivity Detection Kits**
- Staining Reagents**
- Maximum Flexibility**

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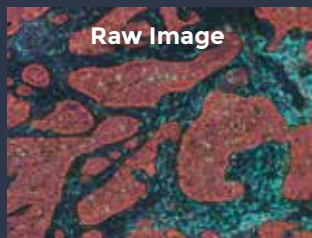
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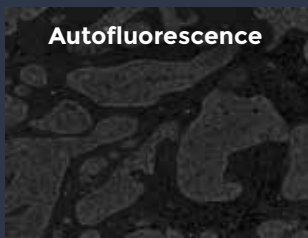
# PHENOIMAGER HT 2.0: ACCURATE DATA FASTER

## Data Accuracy with Higher Plexing

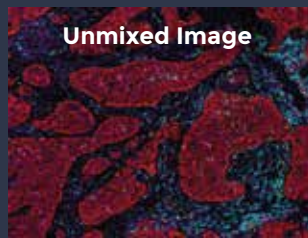
Accurate multiplex immunofluorescence analysis is often complicated with issues such as tissue autofluorescence and spectral overlap.



Raw Image



Autofluorescence



Unmixed Image

Lung Cancer stained with a 6-plex Panel:

DAPI	PD-1
CD8	panCK
PD-L1	CD68
FoxP3	

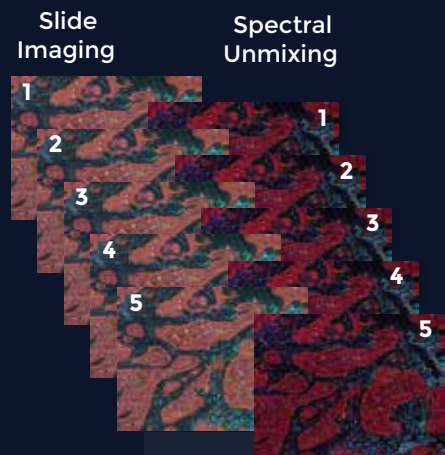
Akoya's patented multispectral imaging (MSI) and spectral unmixing technology applied to stained fluorescent images can isolate autofluorescence, increasing accuracy of phenotyping up to 50%.

## Fast and Easy: One-click Spectral Unmixing



PhenoImager HT 2.0

Parallelized Spectral Unmixing provides a **5X faster** workflow



Ready-to-analyze spectrally unmixed 16-bit QTIFF Images



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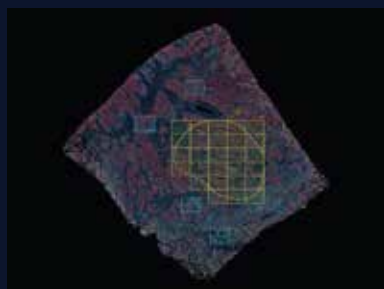
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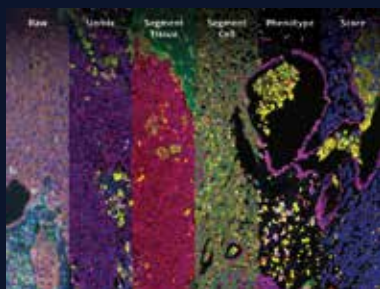
# FROM IMAGES TO PHENOTYPES TO SIGNATURES

Akoya's QPTIFF file format revolutionizes spatial imaging, rendering it manageable and efficient with Gigabyte-sized files while preserving high data quality. The QPTIFF file format seamlessly integrates into PhenolMager HT 2.0 image analysis software suite (Phenochart, inForm and phenoptrReports), Akoya's software partner platforms, and open-source solutions.



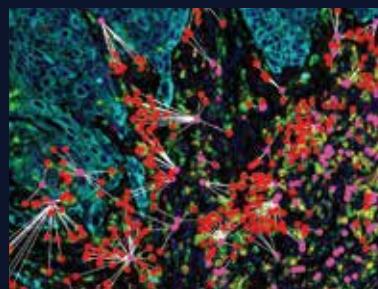
## Phenochart™ Viewer

Whole-slide contextual viewer enabling viewing and annotation



## inForm™ Software

Patented automated tissue analysis software for segmentation, phenotyping and scoring



## phenoptrReports

Powerful analytical tool to analyze spatial relationships

Learn more about software solutions for spatial signature development [atakoyabio.com/software](https://atakoyabio.com/software)

## CASE STUDY

# Spatial Signature End-to-End Workflow Standardization

## The First Multi-Institutional Analytical Demonstration of a Spatial Biology Workflow

The MITRE Study established the high reproducibility and robustness of Akoya's PhenolMager platform for spatial phenotyping in clinical and translational research.

Learn more about workflow validation at [atakoyabio.com/mitre-validation](https://atakoyabio.com/mitre-validation)



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# From Spatial Discoveries to Spatial Signatures At YOUR Scale

## DISCOVERY

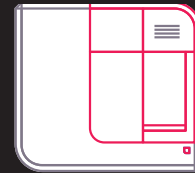


PhenoCycler®-Fusion 2.0

Supports 100+ biomarkers depending on barcode compatibility

## MULTIPLEXING CAPABILITIES

## TRANSLATIONAL



PhenoImager® HT 2.0

Separates up to 9 colors, even if overlapping

2 slides

## SLIDE AUTOMATION

80 slide (with continuous loading technology)

25 minutes per cycle

## SPEED (1.5 CM X 1.5 CM)

Fluorescence: 12 min (7 colors);  
Brightfield: 6 min

Whole-slides FFPE and Fresh Frozen;  
Tissue sections and microarrays

## TISSUE FORMAT

Whole-slides FFPE and Fresh Frozen;  
Tissue sections and microarrays

Fluorescence, Brightfield

## DETECTION METHOD

Fluorescence, Brightfield

10X (1.0  $\mu\text{m}/\text{pixel}$ ), 20X (0.5  $\mu\text{m}/\text{pixel}$ ) or  
40X (0.25  $\mu\text{m}/\text{pixel}$ )

## RESOLUTION

10X (1.0  $\mu\text{m}/\text{pixel}$ ), 20X (0.5  $\mu\text{m}/\text{pixel}$ ) or  
40X (0.25  $\mu\text{m}/\text{pixel}$ )

Akoya & third-party solutions

## IMAGE ANALYSIS SOFTWARE

inForm®, phenoptrReports &  
third-party solutions

Akoya Biosciences' whole-slide scan  
image (QPTIFF)

## FILE FORMATS

Akoya Biosciences' whole-slide scan  
image (.QPTIFF), Multispectral images  
(.im3), color images (.JPEG, .BMP, .PNG)



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