

Capture | Detect | Discover

**MABTECH**

# Mabtech IRIS™

Spot analysis reinvented.



# RAWspot™ technology

## Our journey to scientific signal processing

Since our beginning more than 30 years ago, we have been discussing spots and immune responses with scientists. We realized that automated readers required calibrations and individual user settings, which often led to subjective interpretation of the spot images.

### There had to be a better way – a more scientific way.

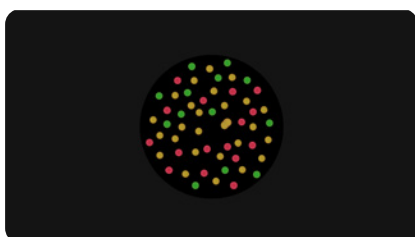
Being part of the Swedish scientific community, we knew there was an immense body of knowledge available to us and turned to mathematician Joakim Jaldén of the KTH Royal Institute of Technology for help. Professor Jaldén and his team developed a spot-counting algorithm<sup>1</sup> that not only made the analysis completely unbiased but also provided a new dimension of data: **the spot volume**.

Using this new algorithm, we worked closely with a group of engineers at the Swedish company Qamcom Research and Technology. Combining our understanding of biological applications and their expertise in signal processing, we refined the algorithm to what we now refer to as RAWspot™ technology.

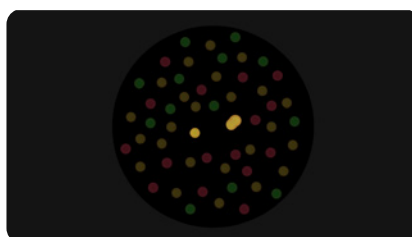
Our joint efforts have produced innovative hardware with intuitive software where RAWspot™ technology can achieve its full potential. An instrument that reinvents spot analysis.

### We call her Mabtech IRIS™.

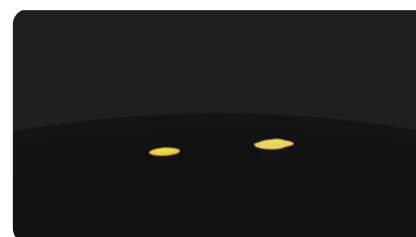
## Signal processing explained



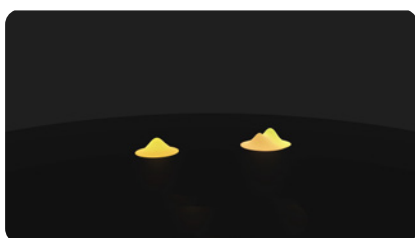
In FluoroSpot, it's crucial to distinguish single from dual analyte spots.



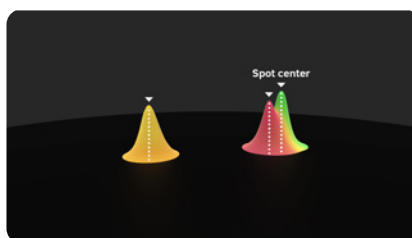
With image analysis, single analyte spots can be mistaken for dual.



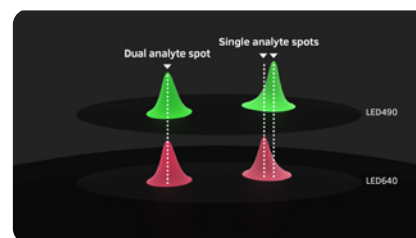
A standard 8-bit image is relatively flat.



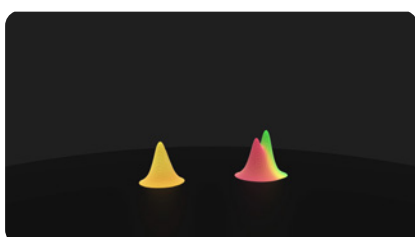
RAWspot™ uses the **wide dynamic range** of the image RAW signal.



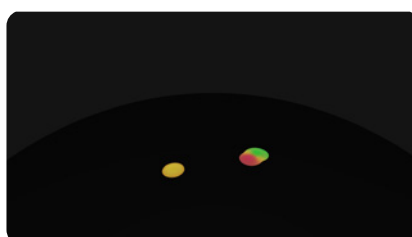
RAWspot™ finds **the spot center**.



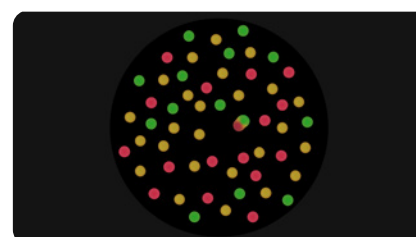
Overlapping spot centers indicate dual analyte spot.



Every spot has a volume corresponding to the amount of secreted analyte.



Accurate spot centers ensure that **multiplexing is reliable**.



RAWspot™ technology – **Scientific signal processing**

<sup>1</sup> Pla, P.A. and Jaldén, J (2017). Cell Detection by Functional Inverse Diffusion and Non-negative Group Sparsity - Part I-II. IEEE Transactions on Signal Processing.



# Why Mabtech IRIS™

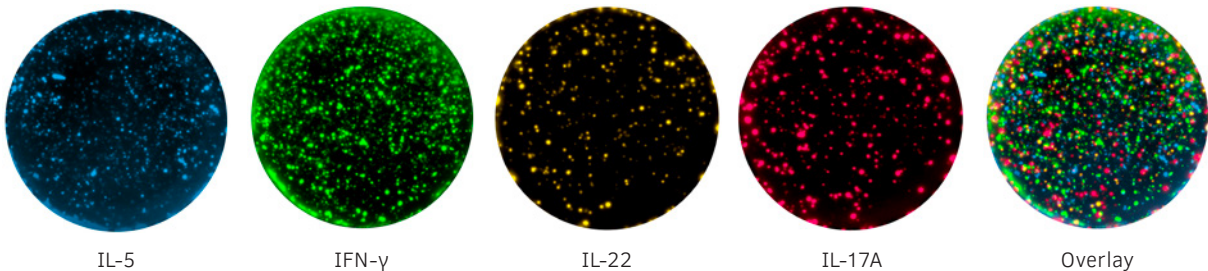
<b>Exact spot center determination</b>	RAWspot™ ensures reliable multiplexing
<b>New dimension of data</b>	Every spot has a volume corresponding to the relative amount of secreted analyte
<b>Objective input</b>	Fixed camera settings with no user bias
<b>Scientific output</b>	Signal processing – not image analysis
<b>4-color analysis</b>	Flashing LED for minimal photobleaching
<b>No hassle</b>	Self-calibrating XY table
<b>CFR21 part 11 compliant</b>	Mabtech Apex™ software maintains the integrity of RAW files and saves checksum verified audit trails
<b>Plug-and-play</b>	Load your plate and press “Read”



## When FluoroSpot

### For sensitive and robust single-cell analysis

FluoroSpot combines the sensitivity of ELISpot with the capacity to analyze secretion of several analytes simultaneously. This highly sensitive cellular assay is robust, easy to perform, and suitable for both single tests and large-scale screening.



These images show a quadruple FluoroSpot analysis of IL-5 (380), IFN- $\gamma$  (490), IL-22 (550), and IL-17A (640) secretion by human PBMCs (100,000 cells/well) stimulated with anti-CD3 and anti-CD28 mAbs for 48h. Individual analyte images from the same well and an image overlay, combining images from the four filters, are shown. Analysis was performed with Mabtech IRIS™.

### Capture

analyte secretions at the single-cell level.

### Detect

immune responses without manipulation of intracellular processes.

### Discover

the true potential of FluoroSpot and see a new dimension in your research.

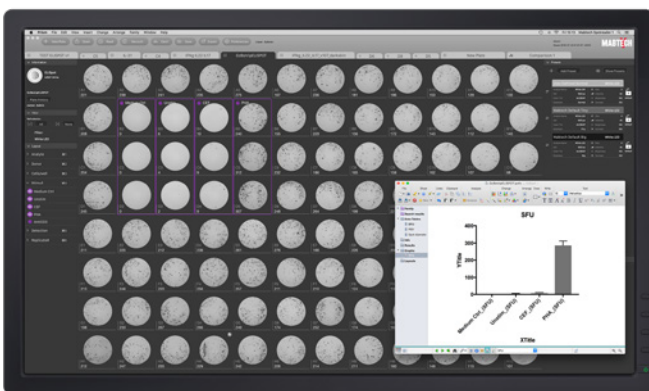
# Mabtech Apex™ software

## Easy-to-use software designed by scientists for scientists

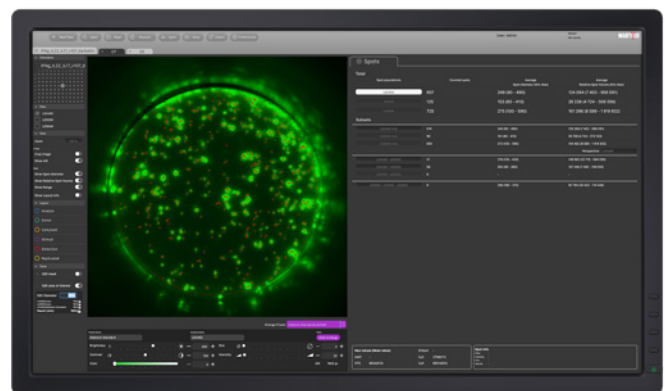
We wanted Mabtech IRIS™ to “open everyone’s eyes” to the potential of FluoroSpot and ELISpot analysis. Therefore, to take full advantage of the power and accuracy of the RAWspot™ technology, we created Mabtech Apex™ software.

Go on, experiment with your FluoroSpot and ELISpot images: Use the Size and Intensity sliders to define what spots you find relevant to count without affecting the original RAW data. Apply any brightness or contrast settings without changing the spot counts. Or add test layouts using the built-in labelling system.

All data are exported automatically to Excel or GraphPad Prism every time you save your FluoroSpot or ELISpot plate.



*Experimental data can be added using the built in labelling system and is conveniently exported to Excel or GraphPad PRISM.*



*Tab structure similar to web browsers enables simultaneous work on FluoroSpot and ELISpot plates.*

### Optimal

Mabtech Apex™ suggests the best count-setting

### Functional

Built-in labelling system for experimental layouts

### Presentable

Data output as high-res images, JPEG, Excel or GraphPad PRISM files

### Credible

Original RAW data always intact

# Specifications

## A new era of plug-and-play

Simply load your 96-well plate and press “Read”. Mabtech IRIS™ has a self-calibrating XY table and a high-quality telecentric lens for light transmission that ensures a constant depth of field without distortion.

No focus adjustments are necessary. In addition, the Mabtech Apex™ software will automatically set the plate stage and adjust the light exposure resulting in a game-changing FluoroSpot/ELISpot plug-and-play reader.

<b>IRIS</b> Spot analysis reinvented	
<b>Applications</b>	
ELISpot	√
FluoroSpot	Up to 4-color
Number of detectable subpopulations	15
Recommended fluorophores (excitation/emission)	380 nm/430 nm (DAPI equivalent) 490 nm/510 nm (FITC equivalent) 550 nm/570 nm (Cy3 equivalent) 640 nm/660 nm (Cy5 equivalent)
<b>Hardware</b>	
Self-calibrating XY table	√
Light source(s)	FluoroSpot: LED380, LED490, LED550, LED640  ELISpot: White LED ring light
CMOS sensor with global shutter	Telecentric
Resolution (H x W)	2048 x 2048 pixels
Plate types	96-well: IPFL, MSIP, MAIPSWU10
Computer (included)	√
<b>Software</b>	
Mabtech Apex™	√
RAWspot technology	√
Export formats	.raw .jpg .xlsx .pzfx
Reading speed	ELISpot: <2 min/plate FluoroSpot: 1 color <5 min/plate 2 colors <7 min/plate 3 colors <10 min/plate 4 colors <13 min/plate
Operating system	Windows
<b>Service</b>	
Warranty: 1-year, with the option to prolong the contract	√
IQ OQ	√
<b>Regulations</b>	
Compliance with CE, RoHS, REACH, WEEE, FCC, ICES, CFR21 part 11	√

Made in Sweden

## About Mabtech

Mabtech AB is a Swedish biotech company that was founded in 1986. Our mission is to aid researchers to reach new frontiers and develop novel drugs, by supplying optimal immunoassays based on high-quality monoclonal antibodies and instruments.