

Mabtech IRIS™ – Spot analysis reinvented

Designed by Mabtech | Made in Sweden



Mabtech IRIS™

A next-generation, 4-color **FluoroSpot** and **ELISpot** reader using RAWspot™ technology that ensures reliable multiplexing.



A new dimension of data

The proprietary RAWspot™ technology extracts the volume of every spot, which corresponds to the relative amount of secreted analyte.



Objective input – unbiased output

Fixed camera settings result in objective RAW data free of user bias.

RAWspot™ technology

Our journey to scientific signal processing

Since our beginning more than 30 years ago, we have been discussing about 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.

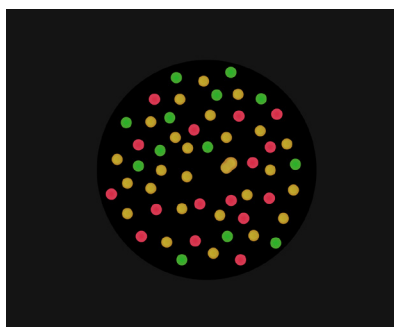
Being part of the Swedish scientific community, we knew there was an immense body of knowledge available to us and turned to mathematician Joakim Jaldén of the Swedish Royal Institute of Technology for help. Professor Jaldén and his team developed a spot-counting algorithm¹ that not only made the analysis 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.

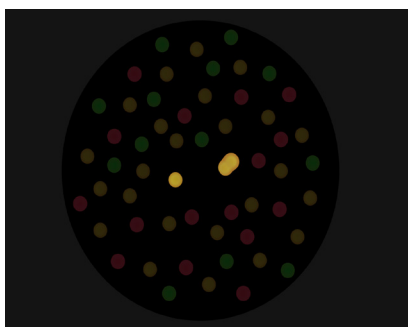
Our joint efforts have produced innovative hardware with intuitive software where RAWspot™ technology can achieve its full potential. An instrument that reinvents spot analysis.

We call her Mabtech IRIS™.

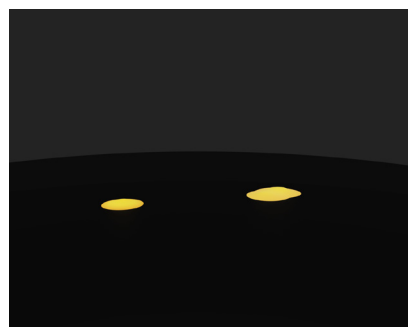
RAWspot™ technology explained



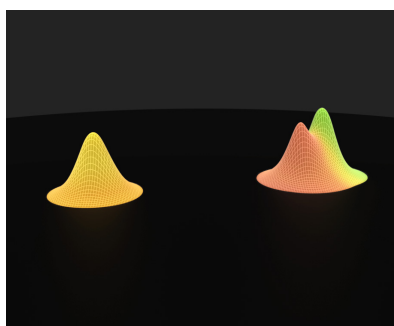
In FluoroSpot, it's crucial to distinguish single from dual analyte spots.



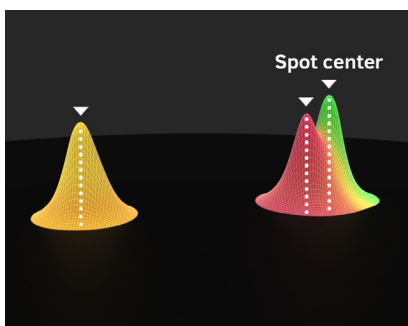
With image analysis, single analyte spots can be mistaken for dual.



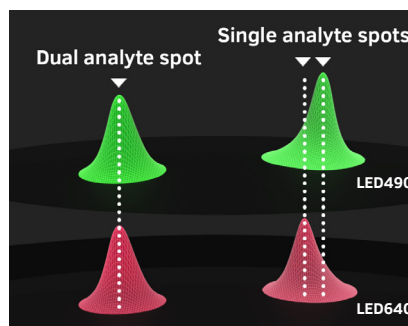
A standard 8-bit image is relatively flat.



RAWspot™ uses the **wide dynamic range** of the image RAW signal. Every spot has a volume corresponding to the amount of secreted analyte.



RAWspot™ finds **the spot center**.



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

¹ Pla, PA. 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™

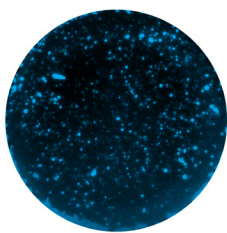
Exact spot center determination	RAWspot™ ensures reliable multiplexing
New dimension of data	Every spot has a volume corresponding to the relative amount of secreted analyte
Objective input	Fixed camera settings with no user bias
Scientific output	Signal processing – not image analysis
4-color analysis	Flashing LED for minimal photobleaching
No hassle	Self-calibrating XY table
Optimized settings	Fast and easy to use Apex™ software
Plug-and-play	Load your plate and press “Read”



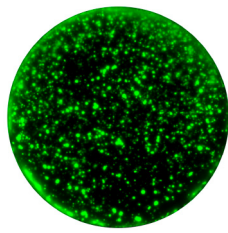
Why FluoroSpot

Sensitive and robust

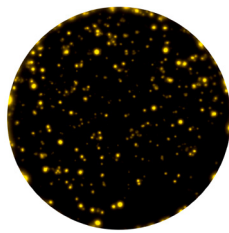
FluoroSpot combines the sensitivity of ELISpot with the capacity to analyze secretion of several analytes simultaneously. This highly sensitive cellular assay is robust, easy to perform, and suitable for both single tests and large-scale screening.



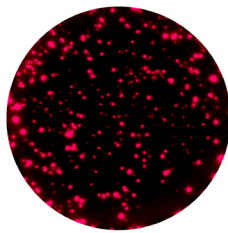
IL-5



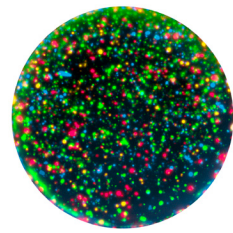
IFN-γ



IL-22



IL-17A



Overlay

These images show a quadruple FluoroSpot analysis of IL-5 (380), IFN-γ (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.

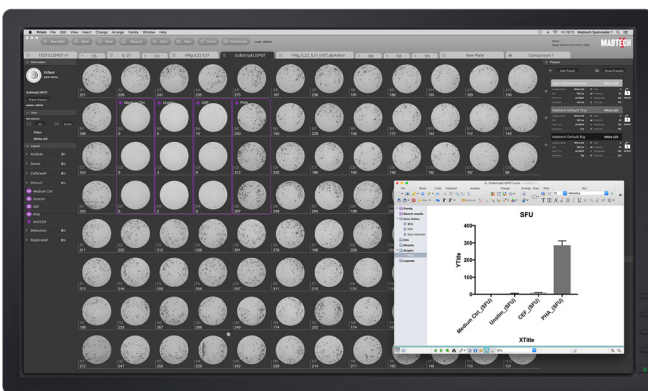
Mabtech Apex™ software

Easy-to-use software designed by scientists for scientists

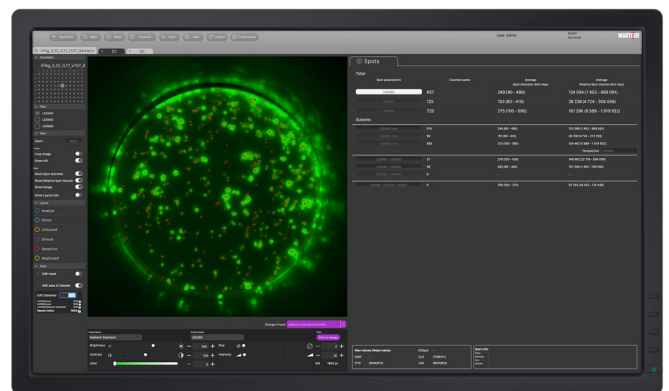
We wanted Mabtech IRIS™ to “open peoples’ eyes” to the potential of FluoroSpot and ELISpot analysis. Therefore, to take full advantage of the power and accuracy of the RAWspot™ technology, we created Mabtech Apex™ software.

Mabtech Apex™ has been designed to help you freely explore your FluoroSpot or ELISpot data. Go on, experiment with your FluoroSpot and ELISpot images without affecting the spot-counts of the original RAW data. Apply any brightness or contrast settings. 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, PDF, Excel or GraphPad PRISM files

Credible

Original RAW data always intact

Available

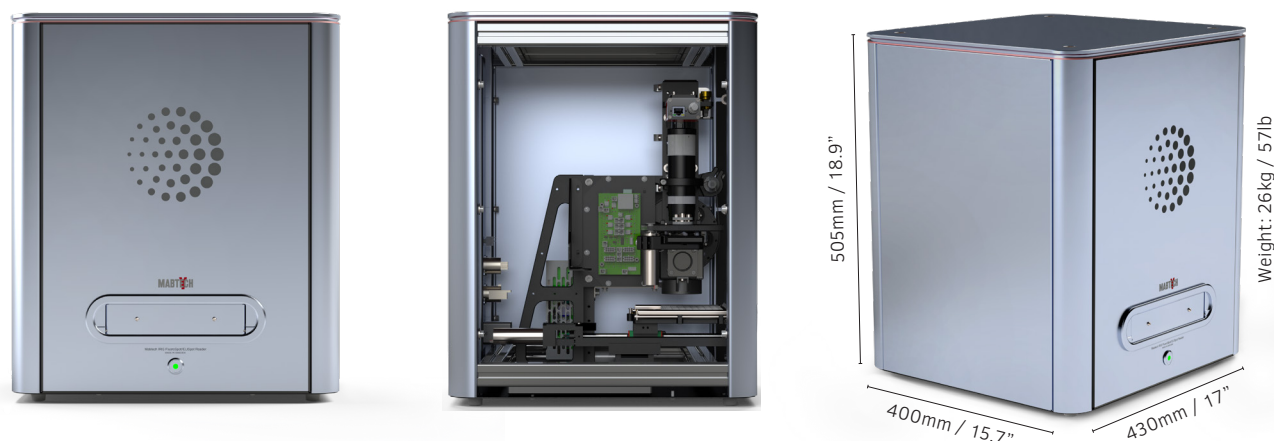
Mac OS X or Windows

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 Apex™ software will automatically set the plate stage and adjust the light exposure resulting in a game-changing FluoroSpot/ELISpot plug-and-play reader.



Light sources	For FluoroSpot:	
	LED380	
	LED490	
	LED550	
	LED640	
	For ELISpot: Ring light	
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)	
Number of detectable subpopulations using 4 fluorophores	15	
XY table	Self-calibrating	
Telecentric lens	1x magnification	
Camera sensor	Sony CMOS sensor with Pegasus Global shutter technology	
Resolution (H × W)	2048 × 2048 pixels	
Reading speed	ELISpot < 2 min/plate	
	FluoroSpot 1 color < 5 min/plate	
	FluoroSpot 2 colors < 7 min/plate	
	FluoroSpot 3 colors < 10 min/plate	
	FluoroSpot 4 colors < 13 min/plate	
Regulation	CE, RoHS, REACH, WEEE, FCC, ICES	
Approved plate types	96-well filter plates with 0,45 µm PVDF membrane; IPFL, MSIP or MAIPSWU10 (with an adapter)	
Computer (included)	iMAC Pro	PC
	27" 5K retina display	27" 4K display
	3.2 GHz Intel Xeon	Intel Core i7-7700K
	32 GB memory	32 GB memory
	1 TB SSD storage	1 TB SSD storage
	AMD VEGA 8 Gb	NVIDIA GTX 1080
Export files	.raw, .tif, .jpg, .pdf, .xlsx, .pzfx	



Iris reticulata
Captured in image RAW

About Mabtech

Mabtech AB is a privately owned Swedish biotech company founded in 1986. We develop, manufacture, and market high-quality monoclonal antibodies and kits suitable for ELISA, ELISpot, and FluoroSpot. Because of our strong focus on research and continued efforts to optimize ELISpot and FluoroSpot, Mabtech has been a world leader in this field for many years. Our close international collaboration with both academia and industry is leading the way for future developments to help the research community achieve optimal results.

For more information contact IRIS@mabtech.com.