

Hyperion Imaging System

The Hyperion™ Imaging System is a high-parameter imaging system capable of analyzing 4 to 37 protein markers at subcellular resolution in fixed tissue sections or cell smears. With the ability to utilize up to 135 channels to detect additional parameters, the Hyperion Imaging System is ideal to meet researcher needs today and well into the future.

The Hyperion Imaging System is based on the Helios™ mass cytometry platform. This high-dimensional imaging platform uses mass-tagged antibodies to markers alongside cell structural features in tissue and cell smears.

Mass-tagging involves separation of signals based on the differences in mass, resulting in distinct signals for each marker without the need

for compensation associated with fluorometric techniques yet far more specific and sensitive than tag-free techniques.

The metal tags can be defined within 1 Da spatial resolution in tissue and cell smears, resulting in a unique spatial and parametric definition of the cells *in situ*. The system enables understanding of protein behavior and interactions to drive biological breakthroughs.

The Hyperion Imaging System comprises a Hyperion Tissue Imager, a Helios system and software for data acquisition and viewing. Maxpar® pathologist-verified antibodies, antibody labelling kits and custom antibody conjugation services are available at fluidigm.com.

Hyperion Imaging System Specifications

Description	Specification
Channels	135
Mass range	75–209 Da
Abundance sensitivity	0.3% for ¹⁵⁹ Tb
Frequency	200 pixels/sec
Detection limit	≥400 copies per μm ²
Dynamic range	4 orders of magnitude
Calibration	Automated
Operating system	Windows® 7 Pro 64-bit
Data storage	>6 TB RAID (mirrored)
Switch time (between modes)	12 hr

Description	Specification
Cross-cell contamination (redeposition)	≤2% (selected direction)
Crosstalk pixel to pixel	≤15% at 200 pixels/sec
Wet tissue thickness for full ablation	≤7 μm
Addressable sample size on slide	≥15 mm x 45 mm
Optical view of sample	≥ 250 μm x 250 μm
File type	TXT, multipage TIFF, OME-TIFF, MCD
Scan area	≥1 mm ² /2 hr (@200 Hz)

Workstation Specifications

Description	Specification
Motherboard	HP® Z840 Workstation
CPU 1 and 2	Intel® Xeon® E5-2643 v4, 3.40 GHz, 2400 6C
RAM	64 GB DDR4-2400 (8 x 8 GB) 2 CPU RegRAM
Graphics card	NVIDIA® Quadro® K620 2 GB Graphics (DL-DVI+DP)
DVD	9.5 mm Slim SuperMulti DVD-RW 1st ODD
Keyboard	HP USB keyboard US
Mouse	HP USB optical mouse
Chassis	HP Z840 1,125 W (1,450 W/200 V) 90% efficient chassis
RAID controller	LSI 9270-8i SAS 6Gb/s ROC RAID Card
Storage drives	HP 2 x 256 GB SATA SSD RAID 1 Western Digital® 4 x 4 TB 7200 RPM SATA, RAID 10

Monitor Specifications

Description	Specification
Monitor	LG® 34" Class 21:9 UltraWide® LED Monitor
Screen size	34.1 in (86.6 cm)

Data File Size

File Type	Size*
MCD	4–5 MB/channel
TXT	6–8 MB/channel

*1,000 x 1,000 µm region of interest (ROI)

Hyperion Tissue Imager Dimensions*

Description	Specification
Dimensions	Width 56 cm (22 in)
	Height 134 cm (53 in)
	Depth 56 cm (22 in)
Weight	159 kg (350 lb)

Chiller Size

Description	Specification
Dimensions	Width 38 cm (15 in)
	Height 64 cm (25 in)
	Depth 67 cm (27 in)
Weight	81 kg (178 lb)

Helios Dimensions

Description	Specification
Dimensions	Width 103 cm (41 in)
	Height 132 cm (52 in)
	Depth 87 cm (35 in)
Weight	320 kg (705 lb)

Monitor Size

Description	Specification
Dimensions	Width 83.05 cm (32.70 in)
	Height 54.86 cm (21.60 in)
	Depth 23.87 cm (9.40 in)
Weight	8.40 kg (18.50 lb) with stand

* The Hyperion Tissue Imager must be placed directly in front of the Helios instrument.

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