

## CyTOF 2

The CyTOF® 2 system, the world's most advanced mass cytometry platform, brings high-parameter capabilities to protein research, providing an unparalleled capacity to generate high-resolution phenotypic and functional profiles of cells from normal and diseased states.

The CyTOF 2 mass cytometer analyzes individual cells labeled with stable metal isotopes using state-of-the-art inductively coupled plasma time-of-flight technology. With more than 120 detection channels, the CyTOF 2 has the capability to simultaneously resolve multiple elemental probes per cell at high

acquisition rates, thereby maximizing the per-cell information obtained from a single sample.

Mass cytometry employs elemental tags that are uncommon in biological systems. Cells stained with metal-conjugated probes in a single-cell suspension are introduced into the CyTOF 2 and undergo a multistep process within the instrument to detect these metal tags and record the identity and amount of each probe on each cell.

This document provides minimum specifications and an overview of site requirements for the CyTOF 2 system.



## CyTOF 2

Specification	
Channels	121
Mass Range	89–209 amu
Abundance Sensitivity	0.3% for <sup>159</sup> Tb
Instrument Response	400,000 counts/pg <sup>159</sup> Tb
Detection Limit	500 antibodies/cell
Dynamic Range	4.5 orders of magnitude
Calibration	Automatic
Operating System	Windows® 7 Pro 64-bit
Data Storage	720GB RAID (mirrored)
Sample Introduction	Dual loop, syringe
Peak Throughput	1,000 events/sec
Flow Rate	45 µL/min
Replicate Sample CV (normalized)	<3%
Dimensions:	
Width	97 cm (38 in)
Height	132 cm (52 in)
Depth	79 cm (31 in)
Weight	285 kg (628 lb)

## Chiller

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

## Workstation

Specification		
Operating System		Windows 7 Pro 64-bit
CPU		Intel® Core™ i7 3930K
RAM		8 GB 2,400 MHz DDR3
Hard Drives		1.44 TB (6 x 240 GB SSD Corsair® Force Series™ GS SATA3) in RAID 10 configuration
Data Storage		720 GB RAID (mirrored)
Video		NVIDIA® NVS™ 310 x16 512 MB
Power Supply		650 W Antec® TruePower®
Serial Adapter Board		8 Port Native PCI Express RS232
Monitor		ViewSonic® 24 in LED
Keyboard/Mouse		Logitech® MK120 Wired
DVD/Blu-ray		LG® SATA
Motherboard		ASUS® P9X79 WS PRO
Enclosure		Antec Titan 650
Data File Size	imd	0.3 MB/sec/channel
	fcs	12.4 bytes/event/channel
	txt	2.4 bytes/event/channel
Dimensions:		
Width		20 cm (8 in)
Height		46 cm (18 in)
Depth		58 cm (23 in)
Weight		35 kg (77 lb)

## Autosampler (optional)

Specification		
Sample Volume		50–900 µL
Sample Format		3 x 96-well plate, up to 2 mL deep well
Sample Resuspension		Probe pipet motion
Reagent Reservoirs	Carrier (DIW)	250 mL
	Wash Solution	250 mL
	Rinse (DIW)	250 mL
Peak Throughput		1,000 events/sec
Flow Rate		45 µL/min
Replicate Sample CV (normalized)		<3%
Dimensions:		
Width		39 cm (16 in)
Height		24 cm (10 in)
Depth		36 cm (14 in)
Weight		20 kg (44 lb)

Site Requirements		
Argon Gas	Source	Liquid or compressed gas
	Pressure	522 ±7 kPa (80 ±1 psi)
	Flow Rate	20 L/m
	Purity	≥99.996%
	Oxygen	<5 ppm
	Hydrogen	<1 ppm
	Nitrogen	<20 ppm
	Water	<4 ppm
Exhaust	Flow Rate	280 L/s (600 cfm)
	Heat Dissipation	3,000 W (10,090 BTU/hr)
Electrical	CyTOF 2	Two dedicated 30 A single-phase 220–240 V AC, 50–60 Hz
	Power Consumption	2 x 4,500 VA
	Chiller	Powered through instrument
	Power Consumption	2,300 VA (via instrument)
	Workstation	6 A, 100–240 V AC, 50–60Hz
	Power Consumption	1,050 VA
	Monitor	6 A, 110–230 V AC, 50–60 Hz
	Power Consumption	100 VA
	Autosampler	4.2 A, 100–240 V AC, 50–60 Hz
	Power Consumption	100 VA

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