BRUKER

isospark

SMALL. POWERFUL. AUTOMATED.

BRUKER

Superpowered Functional Proteomics for Every Lab

Discover the right system for your lab's throughput and immune landscaping needs.

isospark

A personalized proteomics system for any lab

isolight

A high capacity instrument enabling higher throughput

isospark duo

An advanced setup for complete functional immune landscaping

isospark

Tech Overview

A personalized proteomics system for any lab.

18 in
Footprint

Superpowered
Unique Applications

4 Chips
Throughput

Automated
Walk-away Proteomic Workflow

Intuitive Design

Elegantly designed with an intuitive user interface for ease-of-use and simplicity, completely automated for walk-away proteomics.

Reagent Bay

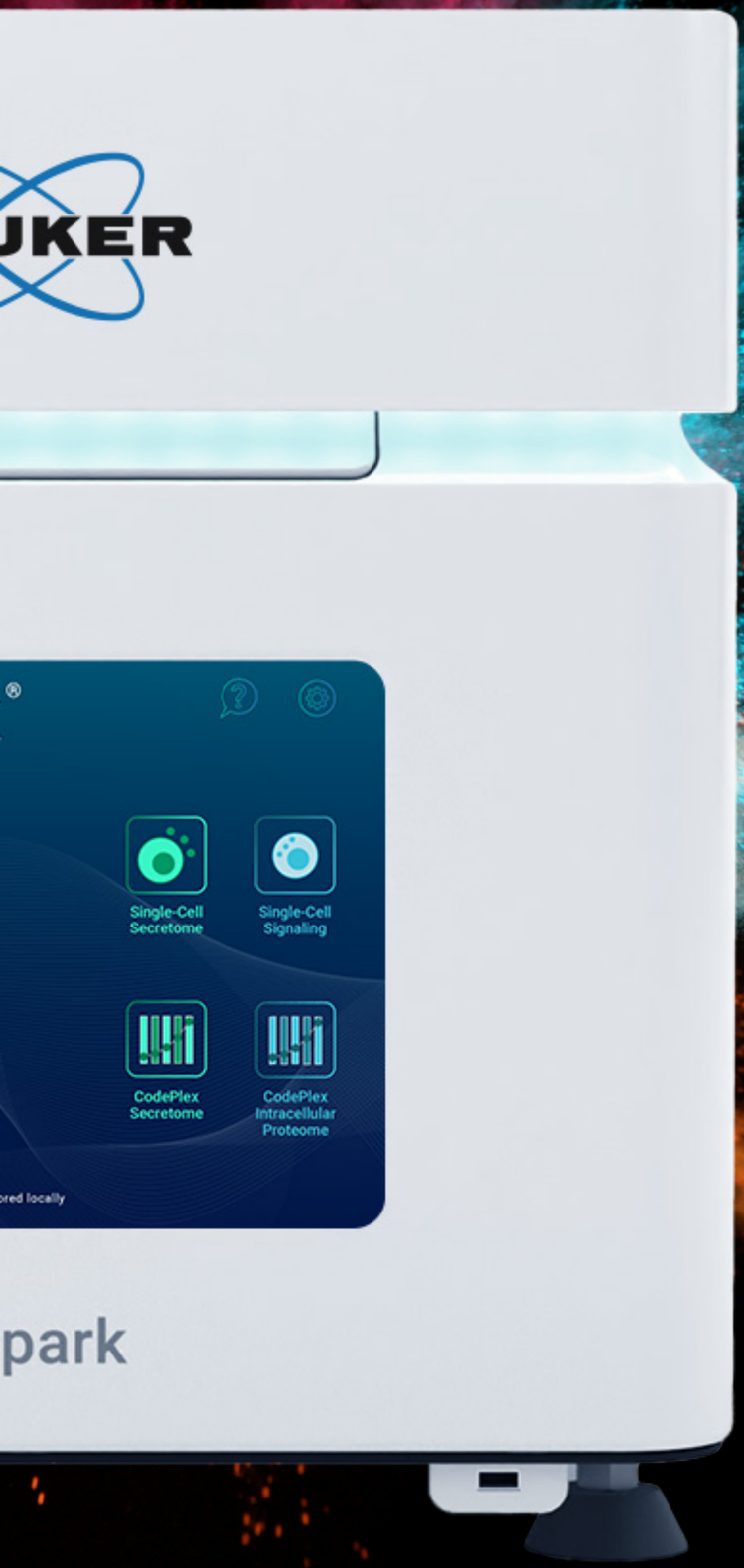
Load your reagents with a single-use cartridge for ultimate ease-of-use.

LED Status Bar

Instantly know the status of your experimental run with a quick glance.

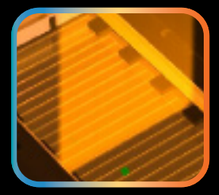
Touch Screen UI

Award winning ease-of-use, now available on the IsoSpark.



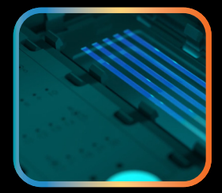
Engineering Innovations

Combining superpowered innovations into a system with just 18 inches in footprint for ease-of-use and same day insights.



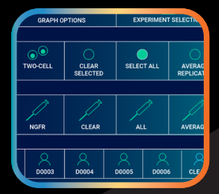
Software-Enabled Optics

Multi-colored lasers enable sensitive and precision imaging of each cell via surface fluorescence, enabling quantitative detection of proteins associated with each single cell.



Fluidics-Enabled Flow Cells

Our fluidics-enabled flow cell allows us to deliver the highest quality ELISA reagents with uniform flow in a completely hands-off manner, maximizing consistency.



Deep Hardware Connection with the Software

Access the most efficient lab collaboration tool with advanced figures and export features that help drive decisions across the organization.

Functional Immune Landscaping

Unique Superpowered Biology: Detect subsets of superpowered immune cells

Uniquely Predictive: 50+ uniquely correlative data sets

Gold Standard: Leading tool for single-cell multiplexed cytokine profiling

Highly Multiplexed: Targets 30+ cytokines, per immune cell

Fully Automated ELISA Workflow

Consistent: 20% CV

Sensitive: ~2-2000pg/ml

Widely Published in Biomarkers & Discovery

SINGLE-CELL SECRETOME

Human Adaptive Immune
Granzyme B, IFN-γ, MIP-1α, Perforin, TNF-α, TNF-β, GM-CSF, IL-2, IL-5, IL-7, IL-8, IL-9, IL-12, IL-15, IL-21, CCL11, IP-10, MIP-1β, RANTES, IL-4, IL-10, IL-13, IL-22, TGFβ1, sCD137, sCD40L, IL-1β, IL-6, IL-17A, IL-17F, MCP-1, MCP-4

Non-Human Primate Adaptive Immune
TNF-α, MCP-1, IL-2, IL-4, MIP-1β, IL-6, IL-8, IL-1β, RANTES, IFN-g, IP-10, MIP-1α, GM-CSF

Mouse Adaptive Immune
Granzyme B, IFN-γ, MIP-1α, TNF-α, GM-CSF, IL-2, IL-5, IL-7, IL-12p70, IL-15, IL-18, IL-21, sCD137, CCL11, CXCL1, CXCL13, IP-10, RANTES, Fas, IL-4, IL-10, IL-13, IL-27, TGFβ1, IL-6, IL-17A, MCP-1, IL-1β

Human Innate Immune
IFN-γ, MIP-1α, TNF-α, TNF-β, GM-CSF, IL-8, IL-9, IL-15, IL-18, TGF-α, IL-5, CCL11, IP-10, MIP-1β, RANTES, BCA-1, IL-10, IL-13, IL-22, sCD40L, IL-1β, IL-6, IL-12-p40, IL-12-p70, IL-17A, IL-17F, MCP-1, MCP-4, MIF, EGF, PDGF-BB, VEGF

Human Inflammation
GM-CSF, IFN-γ, IL-2, IL-12, TNF-α, TNF-β, IL-4, IL-5, IL-7, IL-9, IL-13, CCL11, IL-8, IP-10, MCP-1, MCP-4, MIP-1α, MIP-1β, RANTES, IL-10, IL-15, IL-22, TGF-β1, IL-1β, IL-6, IL-17A, IL-17F, IL-21, Granzyme B, Perforin, sCD40L, sCD137

Mouse Innate Immune
IFN-g, TNF-a, MIP-1a, IL-15, GM-CSF, IL-5, IL-10, IL-13, IL-6, IL-17A, MCP-1, IP-10, MIP-1b, EGF, PDGF-BB, MIF

Human Natural Killer
Granzyme B, IFN-γ, MIP-1α, Perforin, TNF-α, TNF-β, GM-CSF, IL-2, IL-5, IL-7, IL-8, IL-9, IL-12, IL-15, IL-21, CCL11, IP-10, MIP-1β, RANTES, IL-4, IL-10, IL-13, IL-22, TGFβ1, sCD137, sCD40L, IL-1β, IL-6, IL-17A, IL-17F, MCP-1, MCP-4

Intracellular Signaling Omics

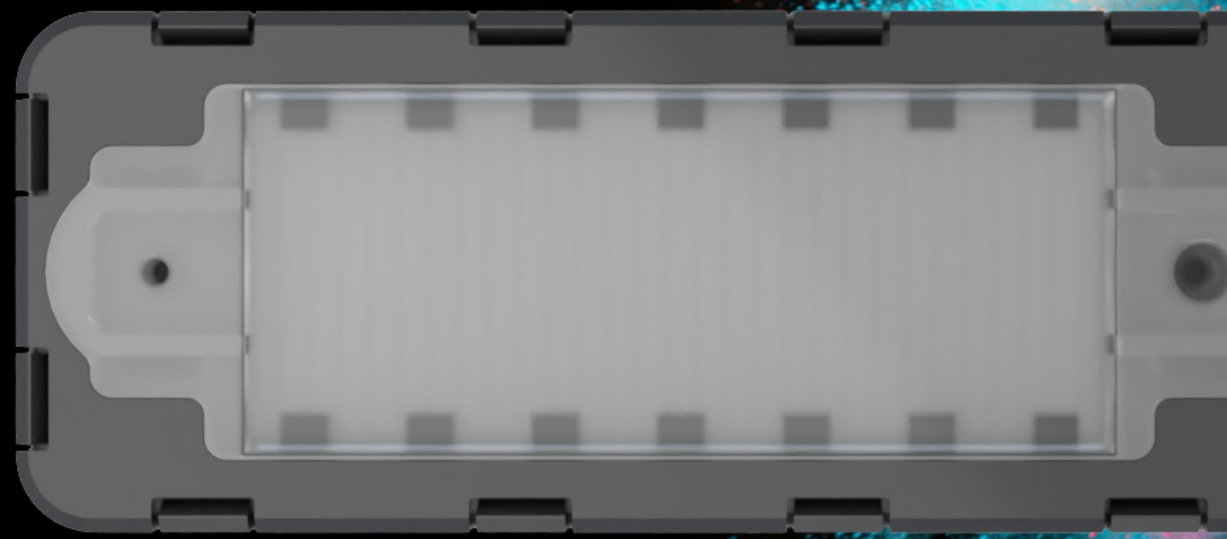
Identify Adaptive Signaling Networks: Accelerate development of targeted therapies to overcome resistance & metastases

Highly Multiplexed per Cell: Targets 15+ intracellular proteins from each cell

Pathways Revealed: See multiple coordinated protein pathways engaged for first time

Fully Automated Proteomics Workflow

Published: In a variety of peer-reviewed journals & indication types



SINGLE-CELL INTRACELLULAR PROTEOME

Human Tumor Signaling

P-PRAS40, P-IkBα, P-NF-kβ p65, P-Met, P-p44/42 MAPK, P-S6 Ribosomal, P-p90RSK, P-STAT3, P-MEK1/2, P-Stat1, P-Stat5, P-eIF4E, Cleaved PARP*, Alpha Tubulin

*inquire about availability

High-Plex Walk-Away Immunoassays

Highly Multiplexed: Targets 20-30+ cytokines

Uniquely Fully Automated for High Multiplexing:
5 minutes of hands-on time

Uniquely Small Sample Volume: 11 uL per sample (for replicates)

Highly Consistent: <20% CV

Modular: 8-64 samples per run = less waiting to amass samples

Widely Published with Many Applications

CODEPLEX

Human Adaptive Immune
GM-CSF, Granzyme B, IFN-γ, IL-2, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-13, IL-15, IL-17A, IP-10, MCP-1, MIP-1α, MIP-1β, Perforin, sCD137, TNF-α, TNF-β

Non-Human Primate Adaptive Immune
GM-CSF, IFN-γ, IL-1β, IL-2, IL-4, IL-6, IL-8, IP-10, MCP-1, MIP-1α, MIP-1β, RANTES, TNF-α

Mouse Adaptive Immune
GM-CSF, IFN-γ, IL-1β, IL-2, IL-4, IL-5, IL-6, IL-10, IL-12, IL-17A, IP-10, KC, MCP-1, MIP-1α, RANTES, TNF-α

Human Innate Immune
EGF, GM-CSF, Granzyme B, IFN-γ, IL-1β, IL-4, IL-6, IL-7, IL-8, IL-10, IL-15, IP-10, MCP-1, MIP-1α, MIP-1β, PDGF-BB, sCD137, TNF-α, VEGF

Human Cytokine Storm
GM-CSF, IFN-γ, IL-2, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-13, IL-17A, IP-10, MCP-1, MIP-1α, MIP-1β, Perforin, TNF-α

Human Tumor Signaling (In Pipeline)
P-PRAS40, P-IkBα, P-NF-kβ p65, P-Met, P-p44/42 MAPK, P-S6 Ribosomal, P-Rb, P-p90RSK, P-STAT3, P-MEK1/2, P-Stat1, P-Stat5, P-eIF4E, Cleaved PARP, Alpha Tubulin

Human Stem Cell Signaling
CXCL5, GM-CSF, IFN-γ, IL-1α, IL-1β, IL-2, IL-4, IL-6, IL-8, IL-10, IL-15, IL-17A, MCP-1, MIP-1α, MIP-1β, RANTES, TNF-α

Human Cancer Signaling
EGF, IFN-γ, IL-1α, IL-1β, IL-2, IL-4, IL-5, IL-6, IL-7, IL-8, IL-10, IL-13, MCP-1, MIF, PDGF-BB, RANTES, TNF-α

Mouse Innate Immune
IFN-g, TNF-a, MIP-1a, IL-15, GM-CSF, IL-5, IL-10, IL-13, IL-6, IL-17A, MCP-1, IP-10, MIP-1b, EGF, PDGF-BB, MIF

Mouse Inflammation
IFN-g,TNF-a, MIP-1a, IL-2, GM-CSF, IL-5, IL-10, IL-13, IL-4, IL-6, IL-1b, IL-17A, IL-12, MCP-1, IP-10, KC

Mouse Stem Cell Signaling (In Pipeline)
GM-CSF, IFN-γ, IL-1β, IL-2, IL-4, IL-6, IL-10, IL-15, IL-17A, MCP-1, MIP-1α, MIP-1β, RANTES, TNF-α

Mouse Cancer Signaling (In Pipeline)
EGF, IFN-γ, IL-1α, IL-1β, IL-2, IL-4, IL-5, IL-6, IL-7, IL-10, IL-13, MCP-1, MIF, PDGF-BB, RANTES, TNF-α, VEGF

IsoSpeak Software

Same-day visualizations and insights.

t-SNE

High-Dimensional Single-Cell Mapping

PF Heatmap

Uncover Critical Cells and Subpopulations

PAT PCA

Stratify Donor/ Patient Response

UMAP

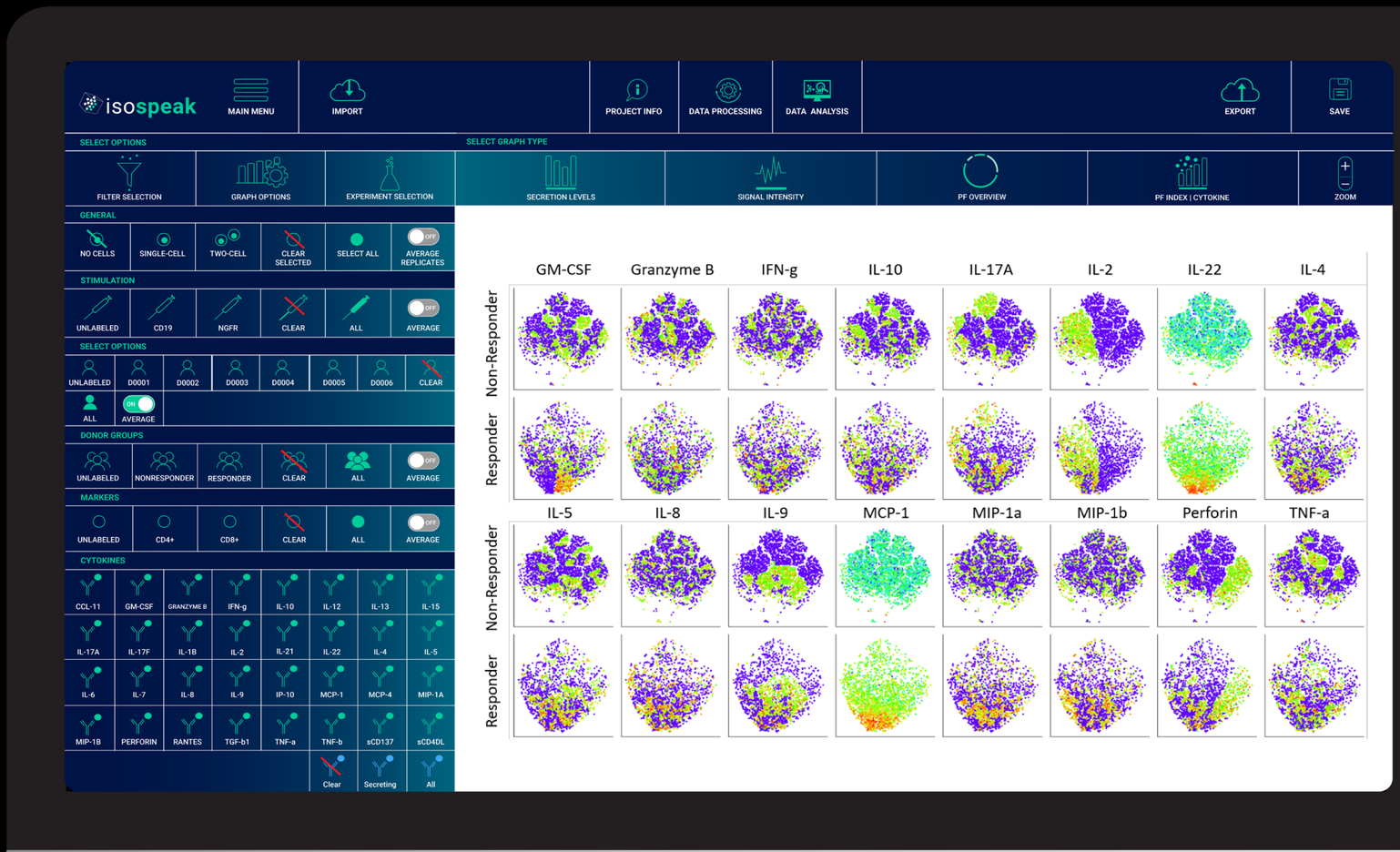
Highlight Differences in High Dimensional Datasets

PF OVERVIEW

Reveal the Polyfunctionality of Your Samples

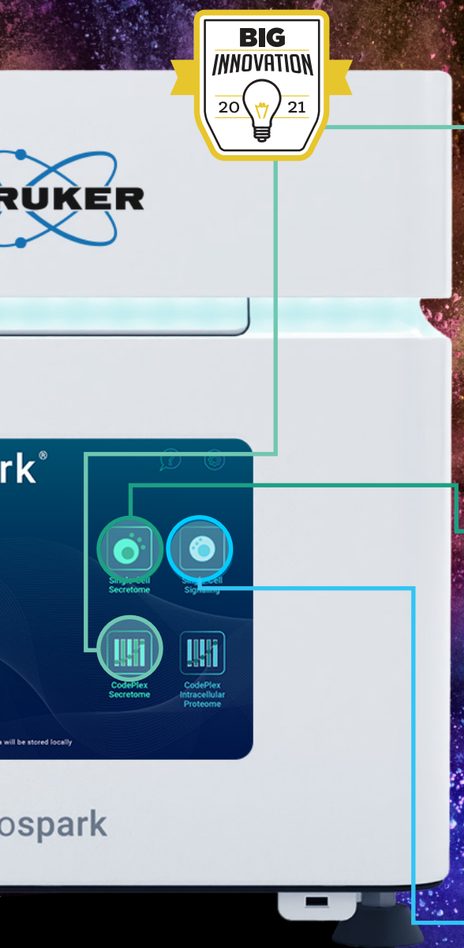
PSI

Reveal the Potency of Different Immune Cell Types



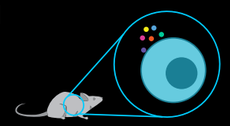
SOLVING YOUR RESEARCH CHALLENGES ONE APP AT A TIME

Bruker's systems enable you to move your programs forward in a comprehensive fashion – each week – with minimal human resources.



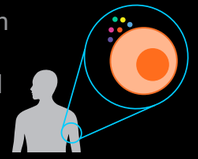
DAY 1 Low Volume High Multiplexed Proteomics

Uniquely highly multiplexed and low sample volume, in an automated format, for precious preclinical samples and in vitro human – software delivers insights day 1; no technician required.



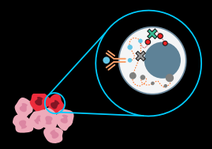
DAY 3 Single-Cell Secreted Proteomics

Build upon bulk multiplexed data, with **unique & gold standard single-cell secreted proteomics insights**. Reveal optimal complex immune therapy candidates, with higher more durable efficacy – in a predictive fashion.



DAY 4 Single-Cell Phosphoproteomics

Reveal how heterogeneous target tumor cells are responding to or resisting therapy by leveraging **uniquely high multiplexed phosphoprotein readouts per cell.**



IsoSpark System Specifications

Working Environment
For indoor use only
Operating temperature: +15°C ~ +30° C (59°F ~ 86°F)
Humidity: 20% ~ 80%, non-condensing
Altitude: < 6,500 ft (2,000 m)

Dimensions
Width: 18 in (45.7 cm)
Height: 19.8 in (50.3 cm)
Depth: 19.7 in (50.0 cm)

Weight
Crated for shipping: 140 lb (63.5 kg)
Free standing: 95.5 lb (43.4 kg)

Bench Size
Width: > 30 in (76 cm)
Depth: > 23.7 in (60.2 cm)

Clearance
Front: > 4 in (10 cm)
Rear: > 4 in (10 cm)
Left: > 12 in (30 cm)
Right: > 12 in (30 cm)
Height: > 12 in (30 cm)

Power Supply
Voltage: 100 V (min) to 240 V (max)
Current: 6.3 A (max)
Frequency: 50/60 Hz

Gas Supply
Connection: 0.25 in or 4 mm OD push to connect tubing
Pressure: 30-70 PSI
Composition: Carbon dioxide (CO_2) at > 99% purity

User Interface
11 in LCD multi-touch screen

Connection
Ethernet: 1xGigE
USB: 3x USB 3.0, 2 front & 1 rear cable

Performance Specifications

Consumables
Up to 4 disposable **IsoCode®** or **CodePlex®** Chips per run with barcode tracking

Reagents
Disposable one-time use reagent cartridge

Cell Counts
500-1500 targeted single cells per chip
2000-6000 targeted cells per run with 4 chips

Throughput
Over 30-plex functional cytokines per isolated single cell. Over 150,000 single cell, secreted protein data points per run

Hands-On Time
< 3 min per sample (cell preparation time not included)

Run Time
< 24 hours from sample loading to results

On-Board Incubator
Temperature: 37 ± 2°C
CO_2 **Concentration:** 5 ± 1%

Laser
Wavelengths: 405 nm, 473 nm, 638 nm
Safety: class 1 laser product

Software Solutions
IsoSpeak® data analysis software
Operating System: PC

For research use only. Not for use in diagnostic procedures. Individual components cannot be sold or used separately.

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