

Dual-Polarity Benchtop Linear MALDI-TOF Mass Spectrometer

# MALDI-8030



# AFFORDABLE CLASS-LEADING WORKHORSE

## Best-in-class sensitivity and resolution

Easily detect analytes for your application

## Innovative electronics

Fast, high bit-depth transient recorder provides rapid data transfer and more detail for your analysis

## Multi-LED panel

Front panel LED with more than 10 lighting configurations keeps you informed of instrument status

## Flexibility

Dual-polarity ion source extends your full range of sample analysis

## Outstanding visibility

HD colour camera allows best visibility of sample spots

## Award-winning design

Based on the award-winning MALDI-8020 design

## Quickest to your results

- Fast (200 Hz) solid-state laser
- Fast sample introduction using load-lock chamber
- Quick sample stage movement

## Security and integrity

Data integrity for regulatory compliance facilitated with password-controlled user login, encrypted data and user traceability

## Robustness

- No maintenance, oil-free diaphragm pump and absence of desiccants saves you costs
- Class-leading long lasting laser with 2 billion shots<sup>†</sup>
- Self-cleaning patented TrueClean™ one-click laser technology reduces engineer call-outs

<sup>†</sup> or 1 year warranty, whichever is soonest

## Quiet operation

<55 dB allows adaptability and placement beyond the conventional laboratory setting

## Error-proofing workflows

Integrated barcode reader – when used with FlexiMass™-DS slides\* – reduces pre-analytical misidentification errors

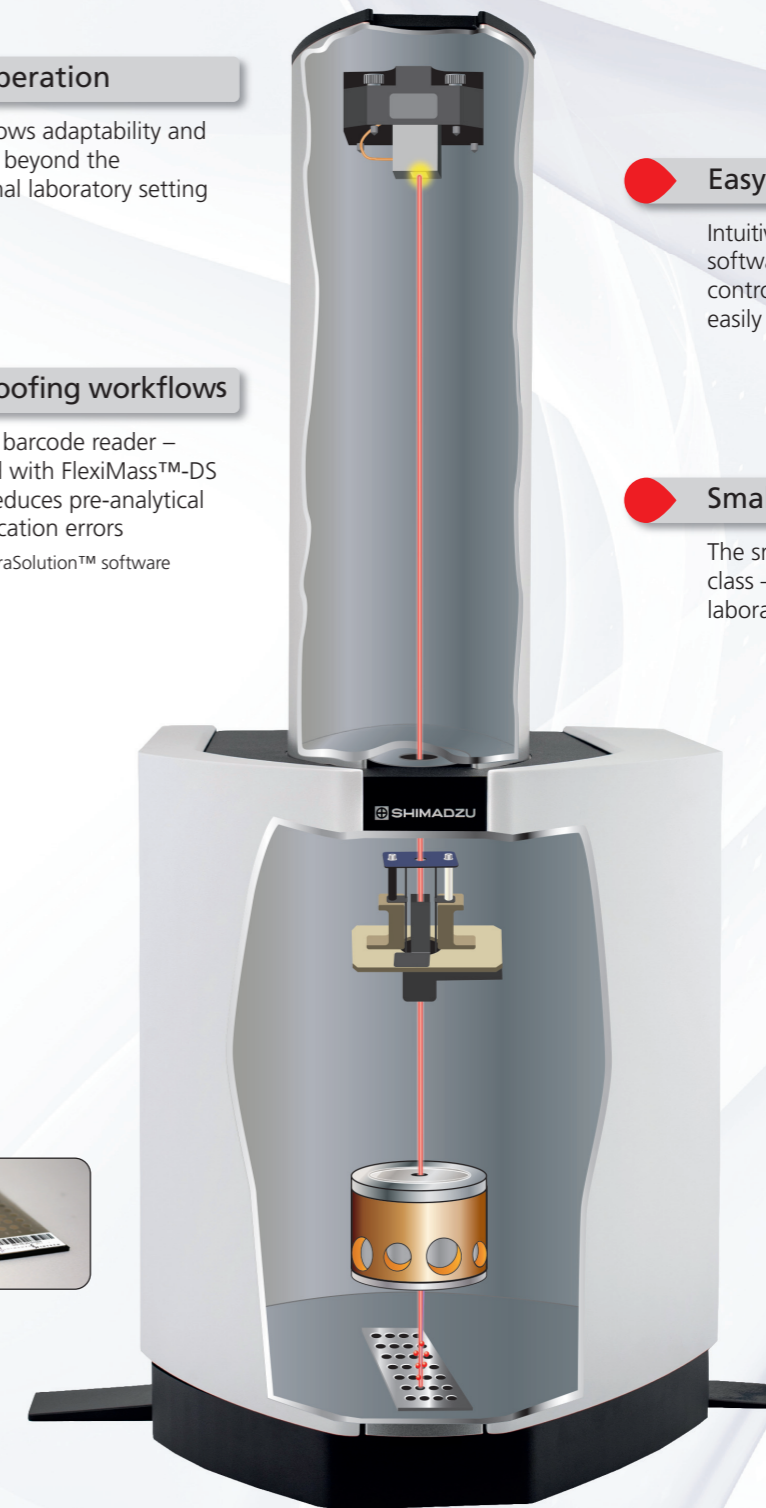
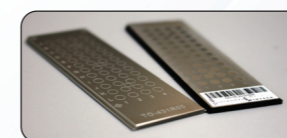
\* requires AuraSolution™ software

## Easy operation

Intuitive popular MALDI Solutions™ software suite for instrument control allows your staff to be easily trained

## Smallest footprint

The smallest instrument in its class – saves your valuable laboratory space



**MALDI-8030**

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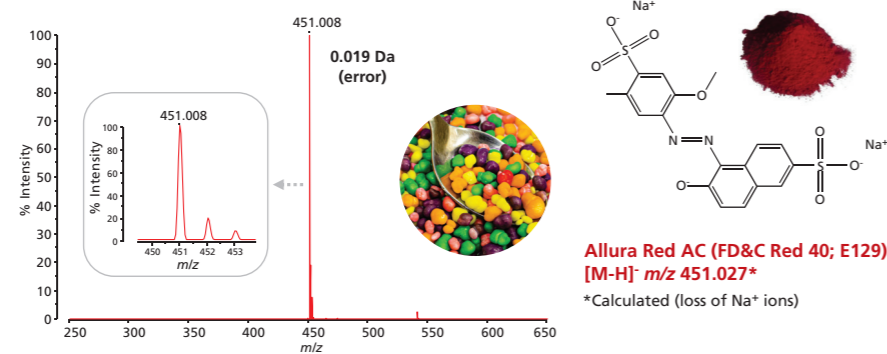
# SOLUTIONS FOR ALL YOUR APPLICATIONS

## Food & Cosmetics

### Perfect for...SCREENING of products

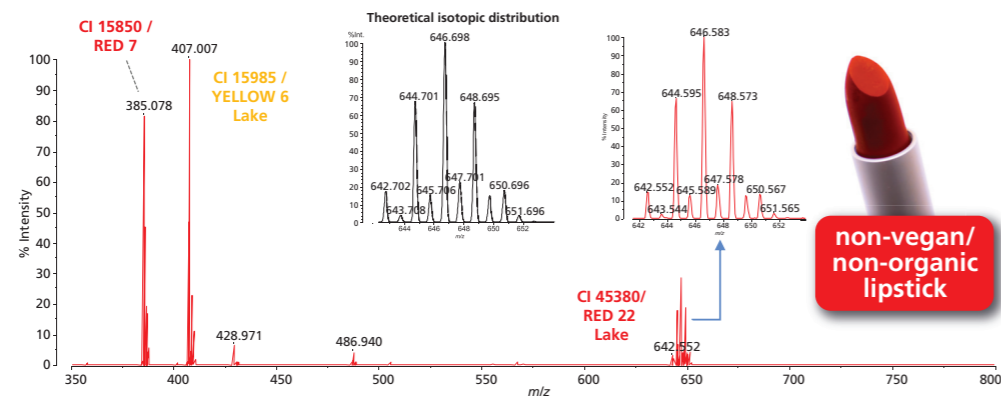
Whether it's the presence of adulterants such as sunflower oil in extra virgin olive oil; regulated additives in confectionery; or presence of halal components in cosmetics, the Shimadzu MALDI-8030 offers the ideal analytical solution.

#### Food Colorants in Sweets/Candies



The confectionery industry regulates colorants in sweets/candies prior to approval for release of the product. The MALDI-8030 can detect FD&C and E number small molecule compounds (in this example, Allura red) using a combination of a simple workflow and the class-leading MALDI linear TOF mass accuracy and resolution, indicating it is a suitable analytical solution for screening this type of sample.

#### Analysis of Pigments Used in Cosmetics/Lipsticks



The MALDI-8030 is easily able to determine the presence of pigments suitable for vegan/organic/halal cosmetics (lipstick in example shown). The high quality data produces good similarity between the observed and theoretical isotope distribution. This is useful as further confidence for identification of the pigment.

# SOLUTIONS FOR ALL YOUR APPLICATIONS

## Teaching & Research Labs

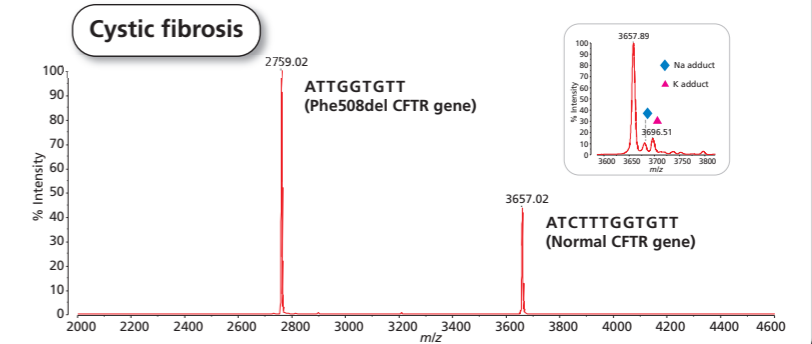
### EASY to USE means...smart choice for teaching laboratories

As pioneers of MALDI-TOF MS, Shimadzu have designed the MALDI-8030 to be easy to use whilst still retaining outstanding speed, robustness and mass accuracy. All these features facilitate the introduction of this technology to students in bioanalytical teaching laboratories where the short time-to-result cycle of the MALDI-8030 will fit in seamlessly with teaching sessions.

#### Genotyping for Teaching Demonstrations

Analysis of oligonucleotides on the MALDI-8030 is easy making it a good example for teaching laboratory demonstrations and avoiding the chores of time-consuming gels/ethidium bromide detection of oligonucleotides.

The dual-polarity ion source of the MALDI-8030 allows the flexibility to analyze oligonucleotides in negative mode (main spectrum), resulting in a cleaner mass spectrum compared to positive ion mode containing adducts (see inset).

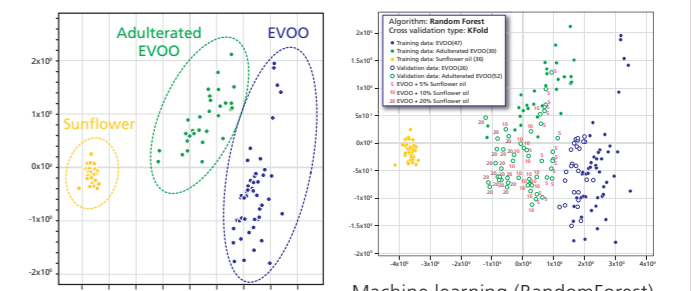


### ADVANCED FEATURES means...suitable for research laboratories

Availability of advanced configurable features in MALDI Solutions software coupled with add-on tools for dedicated applications.

#### Data Mining with Confidence

Successful data analysis algorithms are key for research labs to filter out complex data into meaningful outcomes or to identify crucial but surreptitious biomarkers. This is only possible with reproducible quality raw data. MALDI-8030 provides class-leading mass accuracy and resolution, as well as automated lockmass for data alignment in the MALDI Solutions software, to facilitate this process.



PCA score plot analysis results using eMSTAT Solution™

Machine learning (RandomForest) analysis\* was able to classify blinded 5% adulterated extra virgin olive oil (EVOO) with 100% accuracy.

\* Requires eMSTAT Solution software



SOLUTIONS FOR ALL YOUR APPLICATIONS

# Regulatory & Manufacturing Labs

STACKED WITH TECHNOLOGY

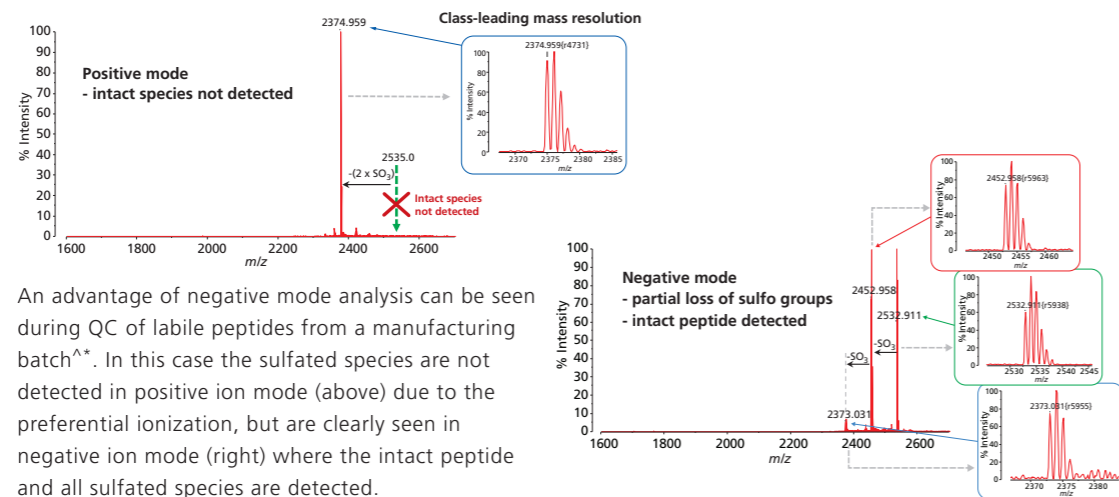
# Designed for Performance...

## DUAL-POLARITY VERSATILITY...for manufacturing/GMP

- ◆ **Dual-polarity:** flexibility of analytes for intact mass analysis
- ◆ **Integrated data security** (facilitates 21CFR part 11 compliance): admin-controlled user logins and user traceability
- ◆ **Save methods:** ideal for locked-down GMP protocols following method development and validation
- ◆ **Wide mass range** of analysis (up to  $m/z$  500,000) for high mass drug conjugates
- ◆ **Automated lockmass** feature: suitable for reproducible batch analysis of biosimilars

Smart choices for (bio-)pharma, polymers, oligonucleotides, genetic testing, quality control.

### Peptide QC in Biopharma



An advantage of negative mode analysis can be seen during QC of labile peptides from a manufacturing batch<sup>^</sup>. In this case the sulfated species are not detected in positive ion mode (above) due to the preferential ionization, but are clearly seen in negative ion mode (right) where the intact peptide and all sulfated species are detected.

\*may require QC Reporter™ software

<sup>^</sup> Samples and data kindly obtained by permission from Bachem (UK) Ltd.

### Clinical Sample Profiling

The Shimadzu MALDI-8030 is the sensible choice, offering fast sample introduction with a quick MALDI laser and sample stage thereby providing a high-throughput for your time-to-result cycle.

The integrated barcode reader allows seamless tracking to reduce misidentification errors when used with the disposable FlexiMass slides\* which have been designed for biological use.

\*requires SampleStation™ and AuraSolution™ software

#### Expert Opinion

“The new mass spectrometer was really easy to work with. It was perfect for our lipid application in melanoma screening.”

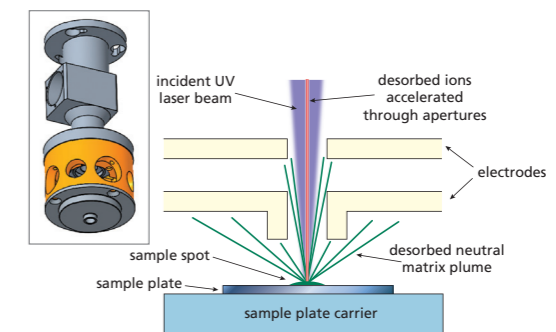
Dr Egoitz Astigarraga  
IMG Pharma Biotech, Spain



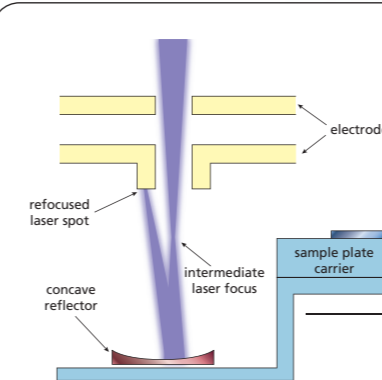
## ...Sensitivity and Resolution

### WideBore™ Ion Optics

This patented technology significantly reduces contamination from the desorbed MALDI sample. The near normal (on-axis) incidence of the MALDI laser beam and the camera view produce outstanding efficiency of the MALDI source and high quality sample images. The strong electrostatic lens delivers high sensitivity and resolution.

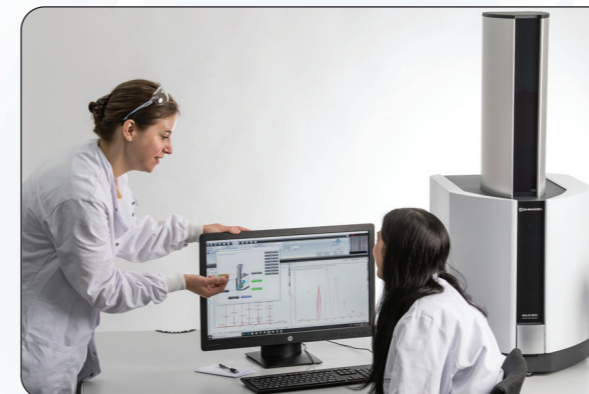


## ...Robustness



### TrueClean™

Incorporated into the MALDI-8030, the Shimadzu patented TrueClean technology is a unique design which enables seamless self-cleaning of the ion optics, without breaking vacuum and no need to remove the ion optics. A fully automated process activated by the user, the MALDI laser (same one used for sample analysis) is reflected off a mirror in the sample analysis chamber to remove sample debris from the first lens, thereby extending the robustness of your system even further.



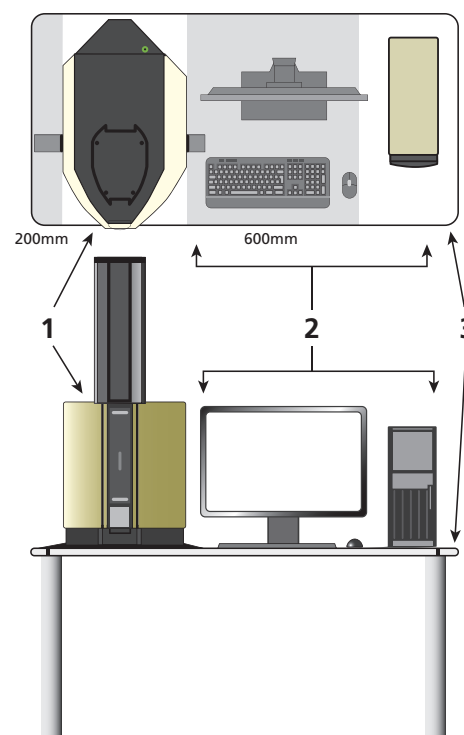
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Specifications	
Mass range	m/z 1 - 500,000
Mass resolution	>5000 FWHM – ACTH 18-39 (m/z 2465)
Accuracy	<20 ppm with internal calibration
	<150 ppm with external calibration†
Sensitivity	250 fmol – bovine serum albumin (loaded)
	250 amol – Glu-1-Fibrinopeptide B (loaded)
Size (w x d x h)	450 x 745 x 1055 mm [17.7" x 29.5" x 41.5"]
Incl. stabilizer	600 x 745 x 1055 mm [23.6" x 29.5" x 41.5"]
Weight	92 kg
† Nearest neighbour external calibration on FlexiMass-SR48 target, within 30 minutes All performance data are acquired using standard test samples on a FlexiMass-SR48 stainless steel target.	

Installation requirements		
Utilities	Power	100 to 240 VAC, 50/60 Hz, 1000 VA single phase
		A 'clean', stable and continuous mains supply is required for reliable operation
Environment	Temperature range	ambient 18°C to 28°C for performance
		ambient 15°C to 32°C for operation
	Relative humidity	less than 70%, non-condensing

Installation Example					
No.	Description	Dimensions (mm)			Weight (kg)
		W	D	H	
1	MALDI-8030	600	745	1055	92
2	Control PC, monitor, keyboard and mouse (reference)	850 approx.	550 approx.	500 approx.	10 approx.
3	Table (reference)	1500	750	750	



MALDI Solutions, QC Reporter, SampleStation, AuraSolution, FlexiMass, TrueClean and WideBore are trademarks of Kratos Analytical Ltd.

eMSTAT Solution is a trademark of Shimadzu Corporation.



Discover application notes!

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