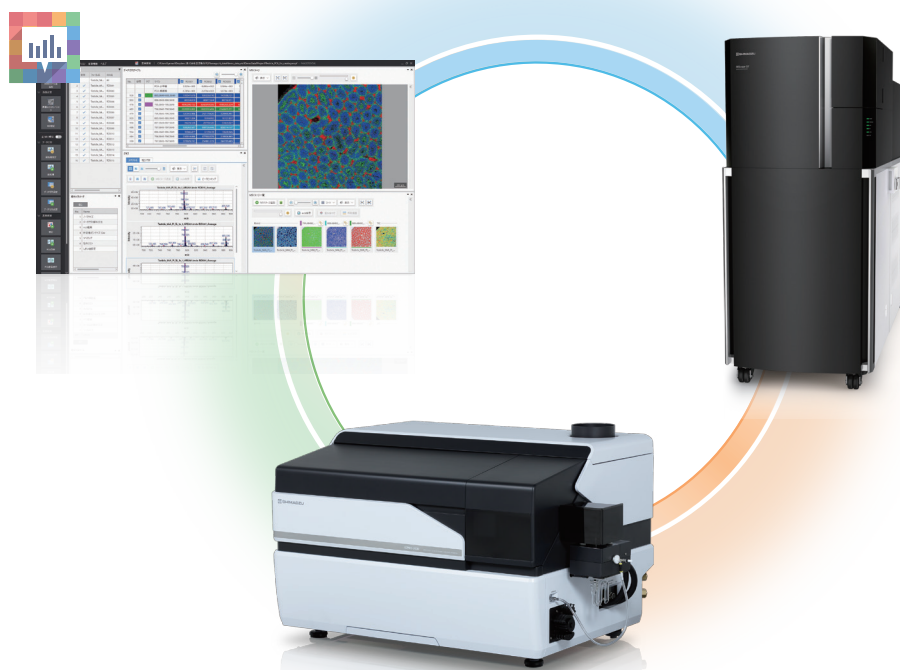
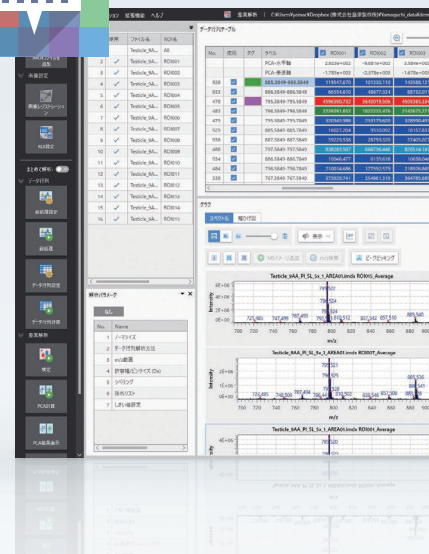


Multimodal Imaging System



Shimadzu Multimodal Imaging System

Molecular Imaging



Imaging Mass Microscope iMScope QT

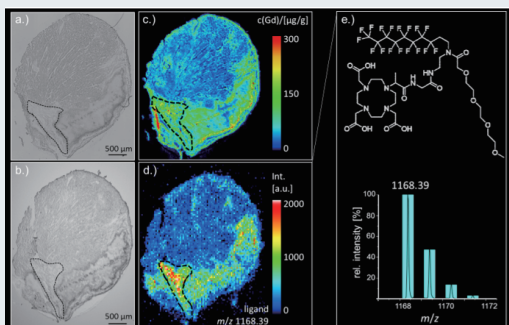
An atmospheric pressure MALDI-MS imaging system equipped with a high-resolution optical microscope. When combined with an LCMS-9030 mass spectrometer, the microscope acquires high spatial resolution and highly accurate images by MS imaging in $\leq 20\%$ the time of previous methods. The ability to attach and detach the LCMS-9030 allows the user to switch between acquiring positional information by mass spectrometry imaging and acquiring qualitative and quantitative information by LC/MS analysis.

Mass Spectrometry Imaging Data Analysis Software IMAGEREVEAL™ MS Ver.1.1

Mass spectrometry imaging data analysis software developed based on the concept of advanced functionality in a simple process. Uses simple procedures to analyze mass spectrometry imaging data and comes with different multivariate analysis functions that facilitate data analysis from a variety of perspectives with minimal time and effort. Analytical throughput is also improved due to support for large data sets and simultaneous analysis of multiple data sets.

Data Examples

Imaging of Gadolinium Contrast Medium in Mouse Cardiac Tissue



The gadolinium contrast medium Gadofluorine P exhibits a high affinity for the collagen-rich extracellular matrix secreted in cases of myocardial infarction. Gadofluorine P was administered to a myocardial infarction model mouse and the distribution of Gadofluorine P in mouse cardiac tissue was observed. Elemental imaging of gadolinium in the contrast medium was performed by LA-ICP-MS (top) and iMScope was used for molecular imaging of molecules with the same structure as Gadofluorine P (bottom). Combining these two imaging techniques enabled visualization of gadolinium contrast medium distributed in the cardiac tissue of the myocardial infarction model mouse.

MALDI-MS molecular imaging data and LA-ICP-MS elemental imaging data can be analyzed using a single software solution. That makes multimodal imaging more accessible.

Analysis

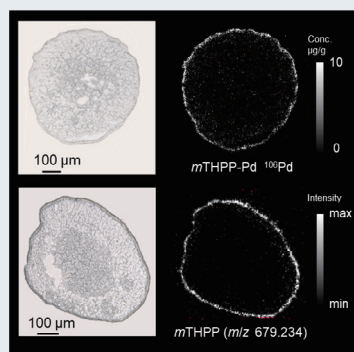
Elemental Imaging

Inductively Coupled Plasma Mass Spectrometer ICPMS-2030

The ICPMS-2030 can be combined with a laser ablation system to create an LA-ICP-MS system. This LA-ICP-MS system can provide molecular imaging information, complementary elemental imaging information, and highly sensitive quantitative information.

LA-ICP-MS software, which was developed specifically for LA-ICP-MS systems, outputs data in the imdx format, which is readable by IMAGEREVEAL MS and thereby eliminates the need for data conversion.

Imaging of Photosensitizer in a Tumor Spheroid



5,10,15,20-Tetrakis(3-hydroxyphenyl)porphyrin (mTHPP) is a photosensitizer used in photodynamic therapy, a type of cancer treatment. A tumor spheroid derived from HT-29 human colonic adenocarcinoma cells was separately immersed in mTHPP and mTHPP-Pd (mTHPP labeled with metallic palladium) and the distribution of mTHPP and mTHPP-Pd in the tumor spheroid was observed. Elemental imaging of palladium by LA-ICP-MS (top) and molecular imaging of mTHPP with iMScope (bottom) show the same distribution of mTHPP and mTHPP-Pd. Elemental imaging by LA-ICP-MS provides quantitative information in addition to the elemental distribution.

Please refer to the catalogs below for more information about each product.

- iMScope QT Imaging Mass Microscope C 146-E415
- LCMS-9030 High-Performance Liquid Chromatograph Mass Spectrometer C 146-E365
- ICPMS-2030 Inductively Coupled Plasma Mass Spectrometer C 113-E018
- IMAGEREVEAL MS Ver. 1.1 Mass Spectrometry Imaging Data Analysis Software C 146-E400

A fully functional 30-day trial version of IMAGEREVEAL MS is available for download from the website below.

<https://www.shimadzu.com/an/products/life-science-lab-instruments/imaging/imagereveal-ms/index.html>

Operating Environment for IMAGEREVEAL MS Ver. 1.1

OS	Windows® 10 Professional 64-bit English/Japanese
CPU	Intel® Core™ i7 or Xeon® 32 GB or more
RAM	32 GB or more
Storage	Used for both data file storage and temporary data storage. Requires a storage capacity of at least 5 times the file sizes being processed.

Please inquire for more details on the recommended computer specifications.

Compatible Formats

The “kbd” iMScope data format and the common MS imaging formats “imzML” and “Analyze7.5” can be converted to the “imdx” data format readable by IMAGEREVEAL MS.

IMAGEREVEAL is a trademark of Shimadzu Corporation.
Windows is either a registered trademark or a trademark of Microsoft Corporation in the United States and/or other countries.
Intel and intel core are trademarks of Intel Corporation or its subsidiaries.



Shimadzu Corporation
www.shimadzu.com/an/

For Research Use Only. Not for use in diagnostic procedures.

This publication may contain references to products that are not available in your country. Please contact us to check the availability of these products in your country.

Company names, products/service names and logos used in this publication are trademarks and trade names of Shimadzu Corporation, its subsidiaries or its affiliates, whether or not they are used with trademark symbol “TM” or “®”.

Third-party trademarks and trade names may be used in this publication to refer to either the entities or their products/services, whether or not they are used with trademark symbol “TM” or “®”.

Shimadzu disclaims any proprietary interest in trademarks and trade names other than its own.

The contents of this publication are provided to you “as is” without warranty of any kind, and are subject to change without notice. Shimadzu does not assume any responsibility or liability for any damage, whether direct or indirect, relating to the use of this publication.