

# AP-MALDI UHR imaging on an Orbitrap Exploris 480 instrument

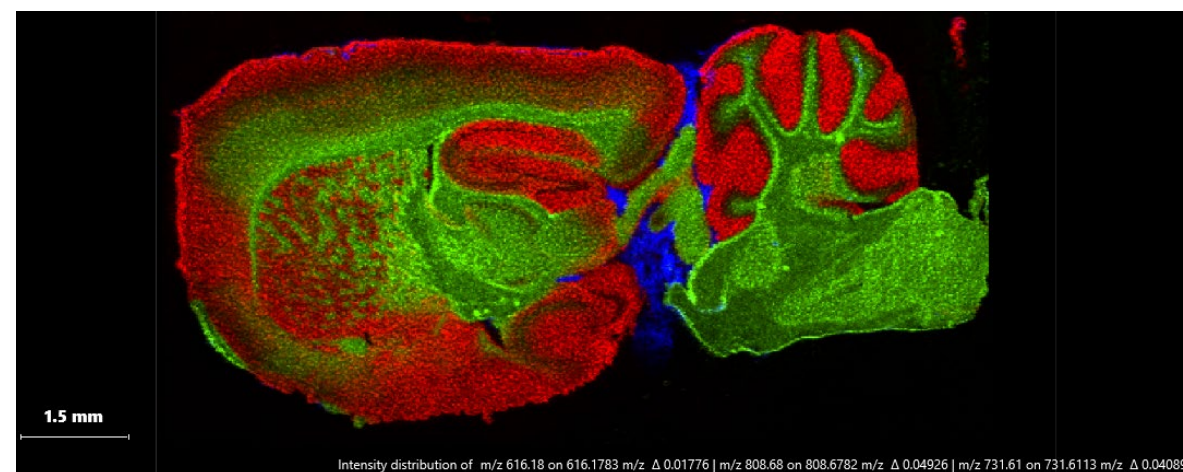
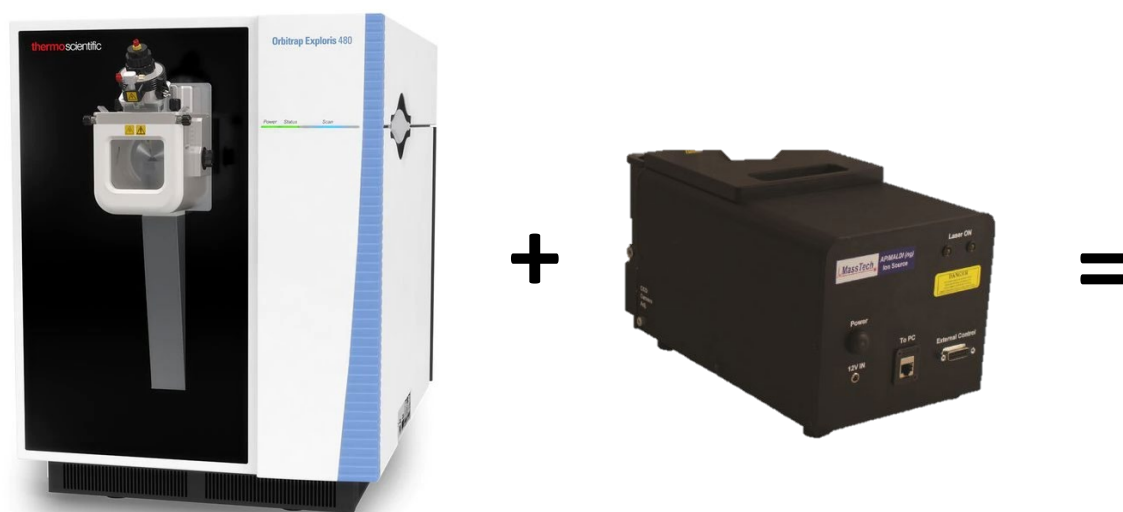
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## INTRODUCTION

AP-MALDI UHR module is a flexible add-on compatible with Thermo LC/HRMS Orbitrap equipment including the latest generation tribrid and Exploris platforms. AP-MALDI UHR module is a flexible add-on for existing Thermo LC/HRMS equipment.

This Application Note presents a protocol for AP-MALDI imaging workflows based on the Exploris 480. Mouse brain samples were provided by Professor William J. Griffiths, Swansea University.



MassTech AP/MALDI UHR and Thermo Orbitrap Exploris 480

## WORKFLOW

### Sample Preparation:

- 1) 10-15  $\mu\text{m}$ -cryosection of biological tissue
- 2) Matrix deposition with a **Suncollect sprayer (Sunchrom)**

### Data Acquisition:

- 1) Definition of image parameters (mode, dimension, pixels) in *Target* (Control software)  
→ Parameters are saved as .xml file
- 2) Molecular imaging using AP-MALDI UHR Source (MassTech) with Exploris 480 (Thermo) high resolution MS. → Data saved as .raw file

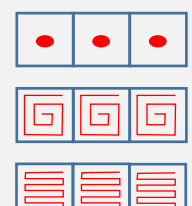

### Data Handling:

- 1) Data handling with ImageQuest (Thermo) using native files (xml and raw files) or **Multimaging (Imabiotech)**,
- 2) Conversion of xml and raw files into imzML file using MassTech imzML Converter
- 3) Data handling with Spectroswiss Mozaic, MSI reader, LipoStarMSI, DataCube Explorer, SCILS, Metaspac...

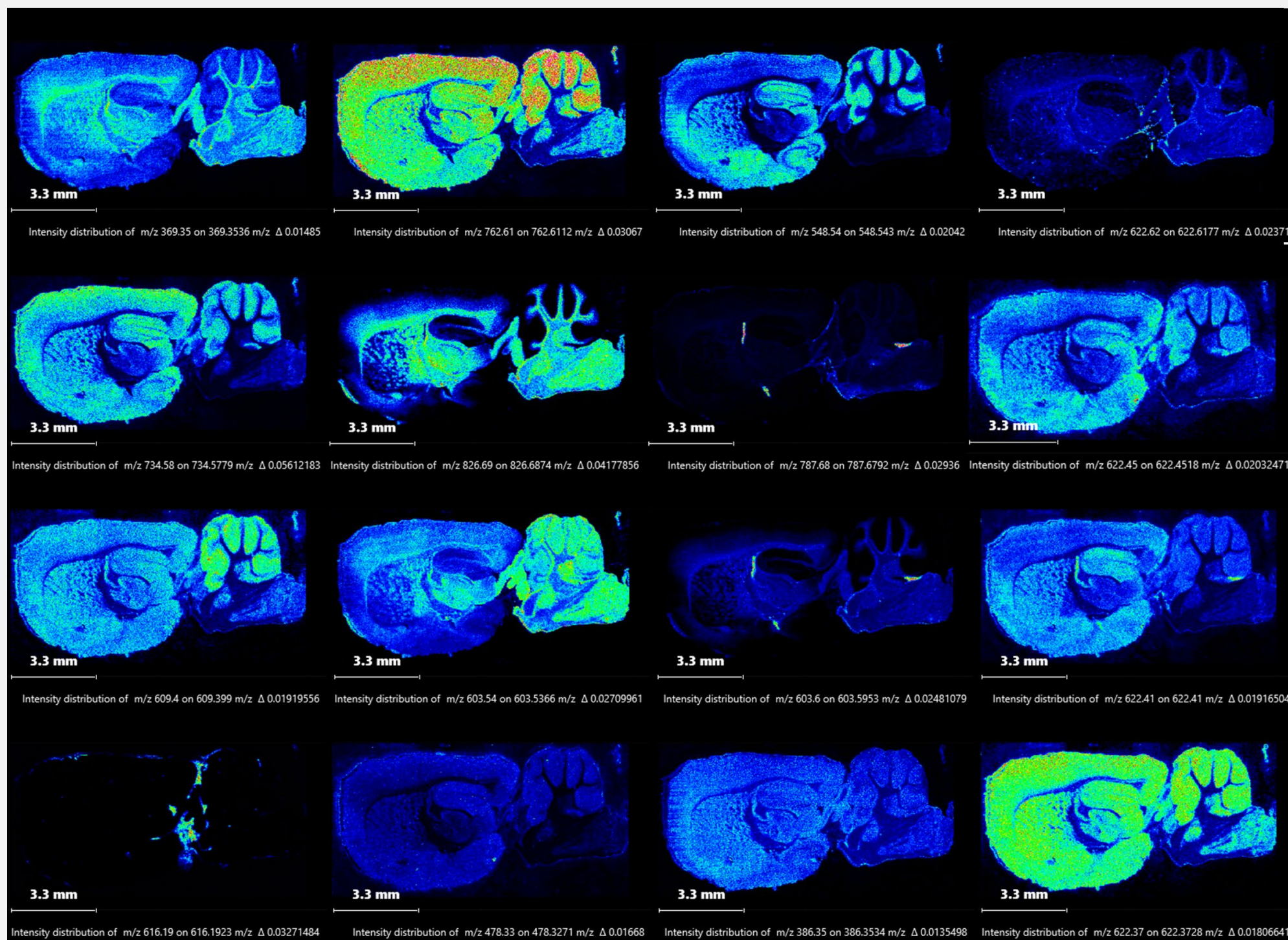
## KEY CHARACTERISTICS AND BENEFITS

- MALDI imaging capabilities down to less than 10-micron lateral resolution
- Switch from the AP-MALDI configuration to LCMS configuration within 2 minutes.
- Provides MALDI analysis and imaging capabilities to high-end LCMS instruments
- High repetition rate solid state laser (355 nm)

### Available modes of operation

- Sequential MALDI analysis of multiple spot analysis using spiral or raster motion (AB Sciex OptiTOF 192) with tunable parameters
- MALDI imaging using **Pixel-Map**, with tunable in-pixel spiral or raster motion for multiplexed analysis (HRMS, SRM...).  

- MALDI imaging using **Constant Speed Raster (CSR)** modes for increased pixel rate (MS dependent)  






Masstech AP-MALDI UHR / Thermo Orbitrap Exploris 480, 580x300 pixels = 174000 high resolution mass spectra (60k@m/z200), 20 um per pixel

### Conclusion:

MassTech AP-MALDI UHR provides imaging capabilities to existing LCMS instruments such as Thermo HRMS equipment. APMALDI/ESI swap is done within minutes. AP-MALDI HRMS images can be handled by **Multimaging (Imabiotech)** or alternative imzML-based software.

KR Analytical Ltd provides technical solutions for the analytical chemistry and biochemistry laboratory in a wide variety of industries. The AP-MALDI UHR is available worldwide exclusively from MassTech and authorized resellers, such as KR Analytical in Europe

To request further information, please contact MassTech ([sales@apmaldi.com](mailto:sales@apmaldi.com)) or KR analytical ([info@kranalytical.co.uk](mailto:info@kranalytical.co.uk))

MassTech selected LIST as European Application Lab.  
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