



Optimise your Incubation Workflow

SunDigest

Fully Controlled Tissue Section Incubation System



Enzymatic On-Tissue Digestion for MALDI-Imaging

Full Digestion Process Control

Standardized Conditions

Reproducible Results

The Importance of Reproducible Incubation Reactions for MALDI-MS-Imaging.

While small molecules like pharmaceuticals and lipids can often be ionized directly after matrix deposition on the sample, a direct analysis of the vast majority of proteins is not possible. Larger proteins, membrane proteins or even protein complexes with several subunits need to be cut into smaller peptide fragments which then can be subsequently ionized and analyzed by MALDI MS.

Further challenges in MALDI-MSI are poor sensitivity for some classes of molecules due to their low abundance or limited ionisability. To overcome these challenges, there are a variety of innovative chemicals that are used, for example, to derivatise certain classes of molecules to significantly increase sensitivity for these analytes. However, it is always important in derivatization processes not to lose spatial resolution during incubation. Therefore, a fast, efficient and reproducible incubation, as provided by SunDigest, is of great importance.



SunDigest tissue section incubation chamber

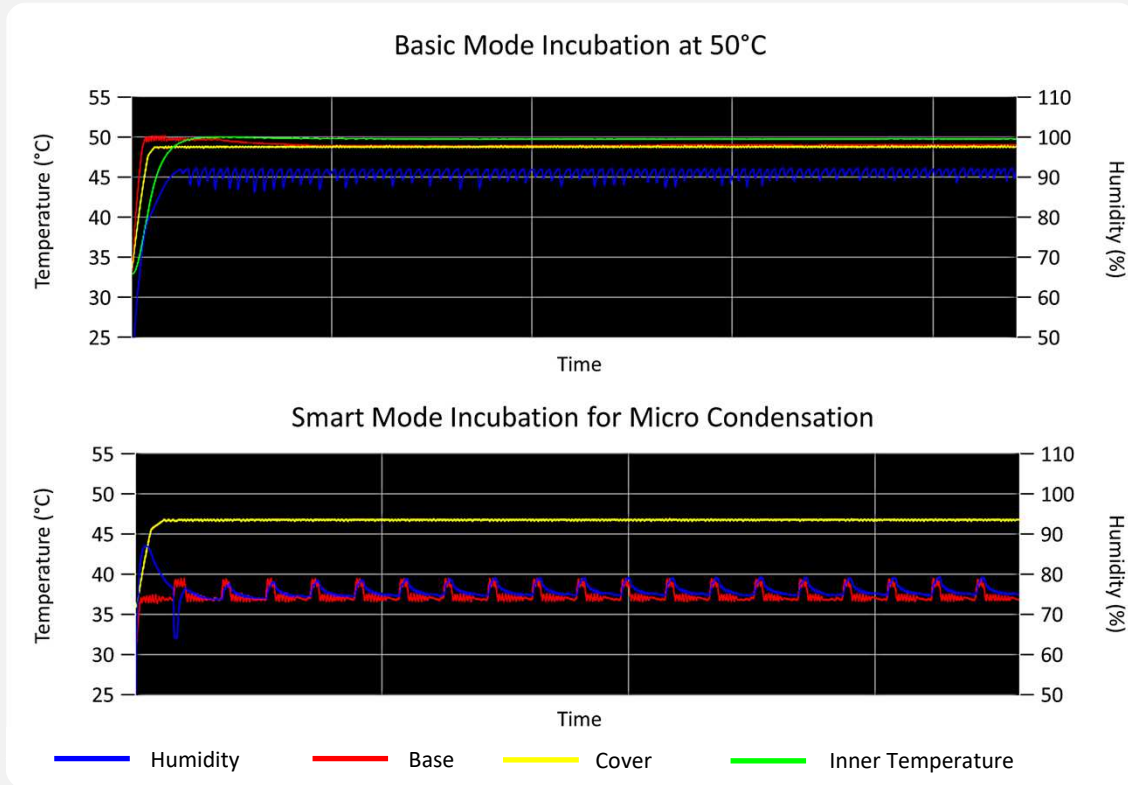


SunDigest with open cover



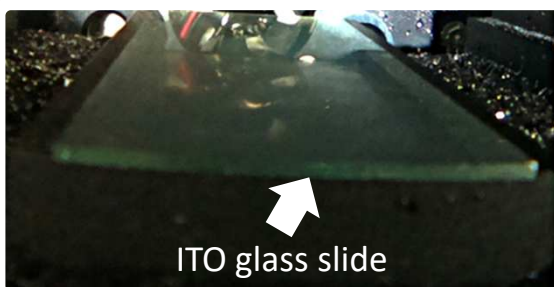
Fully Controlled Incubation

The SunDigest incubator actively controls, regulates and records the humidity as well as three different temperatures: Cover and Base temperature and the Inner temperature (on-tissue):



The new and innovative micro condensation procedure:

The latest technical improvement of the SunDigest incubator allows the induction of micro condensation directly on the tissue sections: Microscopic water droplets provide the best possible environment for all water soluble enzymes. The fine structure of the condensate preserve the spatial resolution of the analytes.



Smart Mode incubation for micro condensation

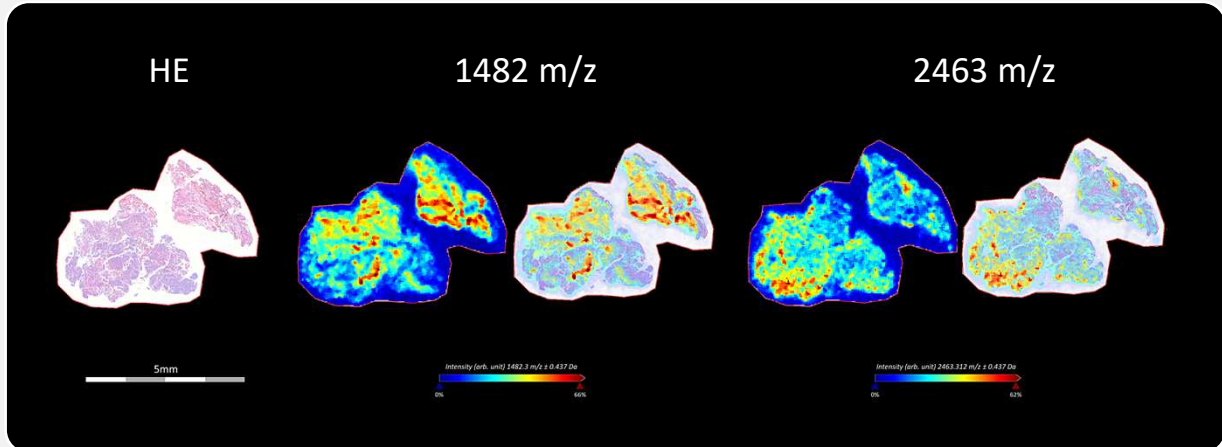


Basic Mode incubation at 37°C



MALDI Imaging of Peptides

MALDI Imaging of peptides after two hours of protein digestion using tissue sections of a human oral squamous cell carcinoma. The samples were incubated using the SunDigest incubation chamber for two hours at 50°C and 95% relative humidity.



Outstanding Features of the SunDigest Incubation Chamber

- Full digestion process control
- Temperatures precisely adjustable between 4 °C and 50 °C
- Controllable humidity between 60-100 % rel. humidity
- Preservation of spatial resolution
- New and innovative on-tissue micro condensation incubation procedure for highest enzymatic efficiency
- Essential for reproducible results

Technical Specifications

Dimensions:	B 35 cm (13.7") x D 42 cm (16.5") x H 20 cm (7.9")
Weight:	12 kg (26 lb)
Power requirements:	100 – 140VAC 50/60Hz
Number of sample slides:	9 standard glass slides for standard incubations and two standard slides for micro condensation incubation
Instrument control:	Windows laptop or tablet PC

For research use only. Not for use in diagnostic procedures.