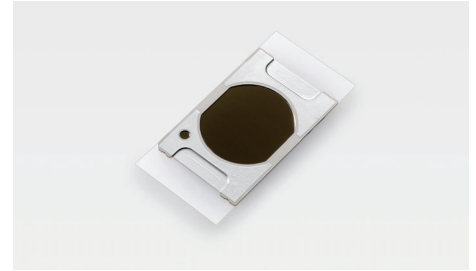


DIUTHAME MS imaging for a mouse brain using vapor extraction method

MSI(Mass Spectrometry Imaging) of dried samples can be taken by DIUTHAME once solvent is dropped from above DIUTHAME to extract components from the sample surface. However, for a large dried sample, large amount of the solvent is necessary to cover the sample area and it leads spatial resolution degradation of MSI due to solvent spreading. Therefore, the MSI of a large dried sample taken by dropping method is much worse than that of a frozen sample taken by thawing extraction method. This paper reports validation of extensive and uniform MSI using vapor extraction method as new method for a large dried sample.

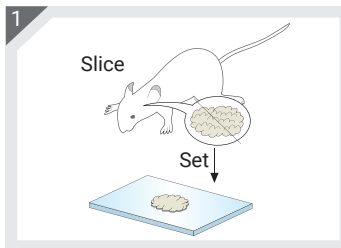


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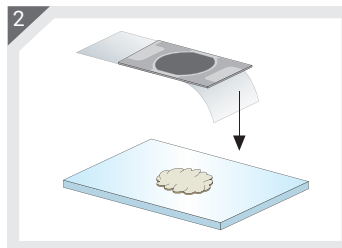
Measurement condition

Measurement mode : Laser pitch 70 μm
 Reflectron, Positive ion mode
 Sample : Mouse brain slice thickness of 20 μm
 Extraction vapor : Pure water of 70 degrees, 10 seconds x 3 times

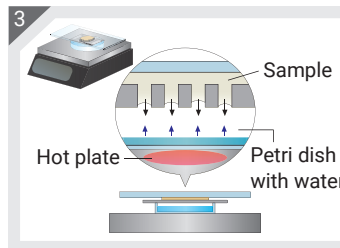
Method



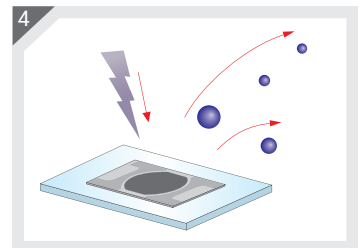
1 Set a slice of mouse brain on an ITO glass slide.



2 After drying, place DIUTHAME on the mouse brain section.



3 Place a petri dish with water on a hot plate and extract the components from the sample with water vapor.



4 Start measurement after the sample dries.

Result

The results of frozen mouse brain section using thawing extraction known as the conventional method of DIUTHAME-MSI in biological samples, and dried mouse brain section using water vapor extraction are shown below. Vapor extraction method obtained a clear and uniform MSI similar to thawing extraction method.

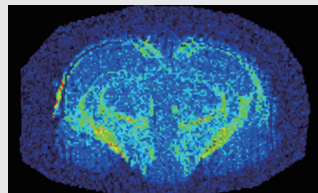
From these results suggested that vapor extraction method was able to provide extensive and uniform MSI for large dried sample.

Thawing extraction of frozen mouse brain section

Optical image



m/z 848.6 [PC(38:4)+K]⁺

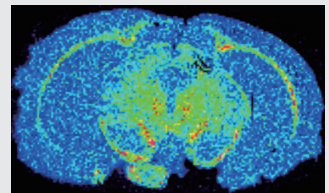


Vapor extraction of dried mouse brain section

Optical image



m/z 848.6 [PC(38:4)+K]⁺



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