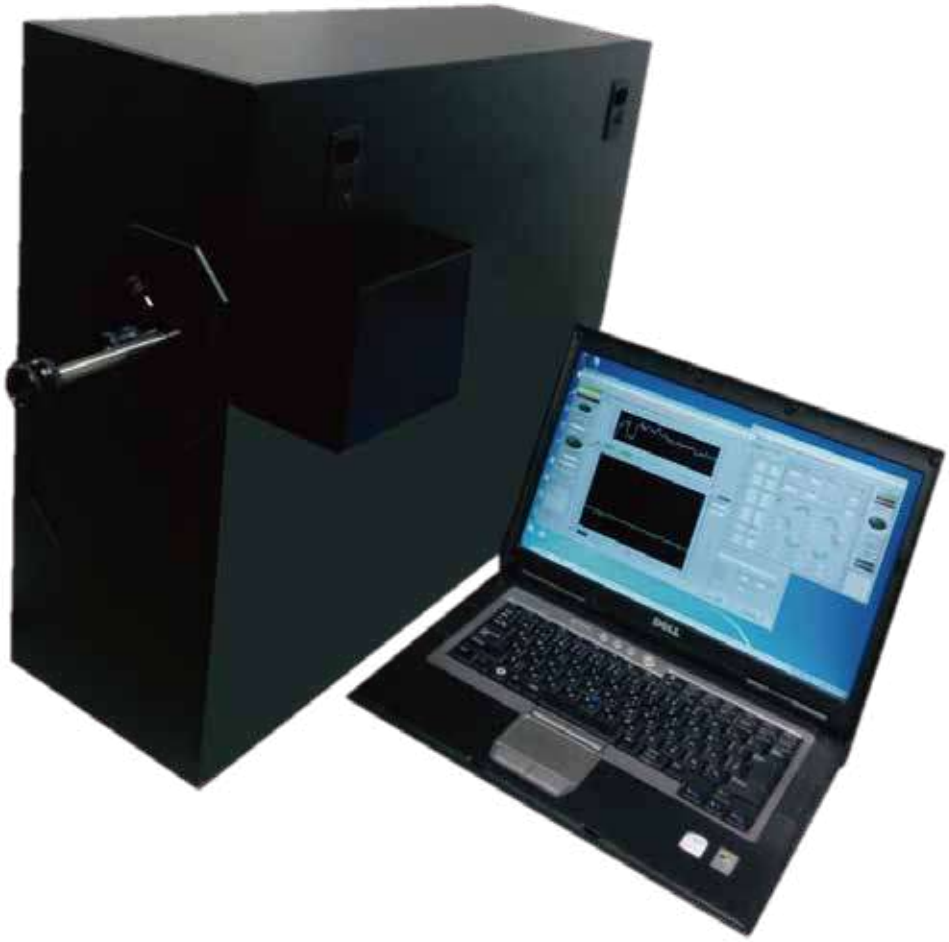
MSI TOKYO
A Kanomax company

infiTOF-FAB

Portable High Performance FAB/TOF-MS



Portable size Time of Flight (TOF) Mass Spectrometer, Realized by the innovative multi-turn technology.

High Performance and Small Foot print Time of Flight Mass Spectrometer by using the Multi-turn Technology

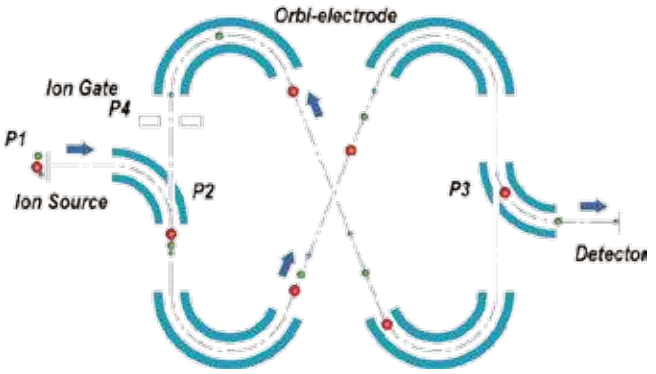
infiTOF-FAB

Hi-Resolution & Compact

There have been many attempts to miniaturize mass spectrometry, and miniaturized magnetic sector mass analyzers, ion trap mass analyzers, quadrupole mass analyzers and time-of-flight (TOF) mass analyzers have been developed.
There are, however, correlations between instrument size and resolving power , so that it is hard to achieve more than 1000 in mass resolution with those miniaturized instruments.

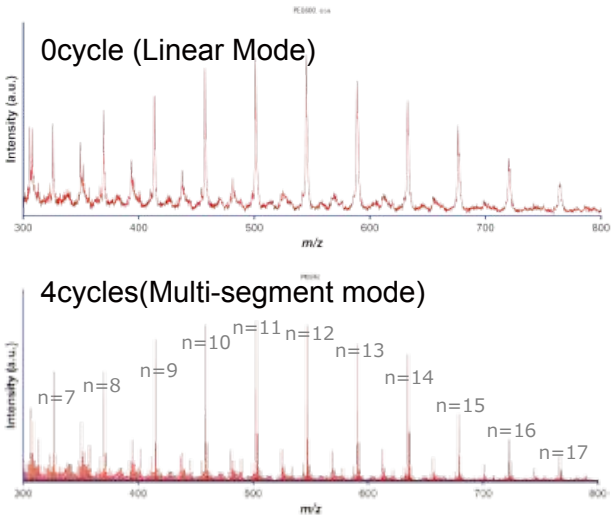
When those potable instruments are used for on-site measurements, it often happens that the result of the analysis does not give us reliable qualitative / quantitative data. Because, not like analysis in a laboratory environment, it is hard to separate, refine and perform pretreatment so that low resolution mass spectrometers cannot perform a sufficient analysis in separating targets from impurities as well as from adjacent mass weight substances.

Multi-turn TOF mass spectrometer developed by Osaka University realized both portable size and high resolution by making ions to orbit same space many times.



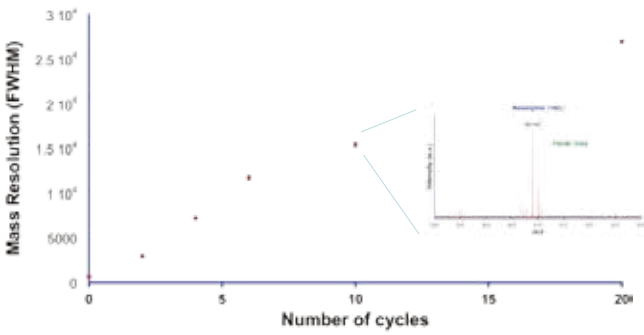
Multi-segment mode

Since different ions with different sizes are orbiting in the same closed space, the faster ions with smaller *m/z* overtake the slower ions with larger *m/z* . In order to avoid this “overtaking problem”, we introduced the Multi-segment mode. First the wide *m/z* range spectrum is obtained with the half cycle operation (Liner mode). Subsequently, the high-resolution spectrum of only the *m/z* areas of interest is obtained by the Multiturn mode. By connecting adjacent high-resolution spectrum in different *m/z* ranges, wide *m/z* range spectrum with high-resolution can be synthesized (Multi-segment mode). An appropriate *m/z* range for a particular resolution (number of cycles) is calculated by our software. By setting to Multi-segments mode, the software automatically synthesis segmented high-resolution spectra into one spectrum.The spectra on the right show difference between Liner (half cycle) and Multi-segment (4 cycles) mode using PEG600.



Tunable mass resolution

The number of the cycles can be adjusted by users for their purposes. The diagram on the right plots the correlation between the number of cycles and resolutions, using reserpine. 6 cycle analysis gives a mass resolution of 10,000 and 30,000 resolution is achieved by 20 cycles.



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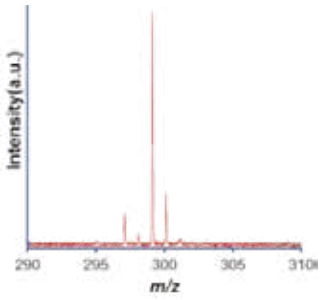
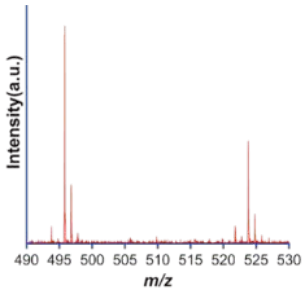
Measurement example of FAB ionization

1. Peptides, lipids

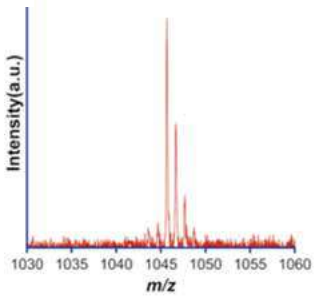
Fatty acid
(Methyl stearate)



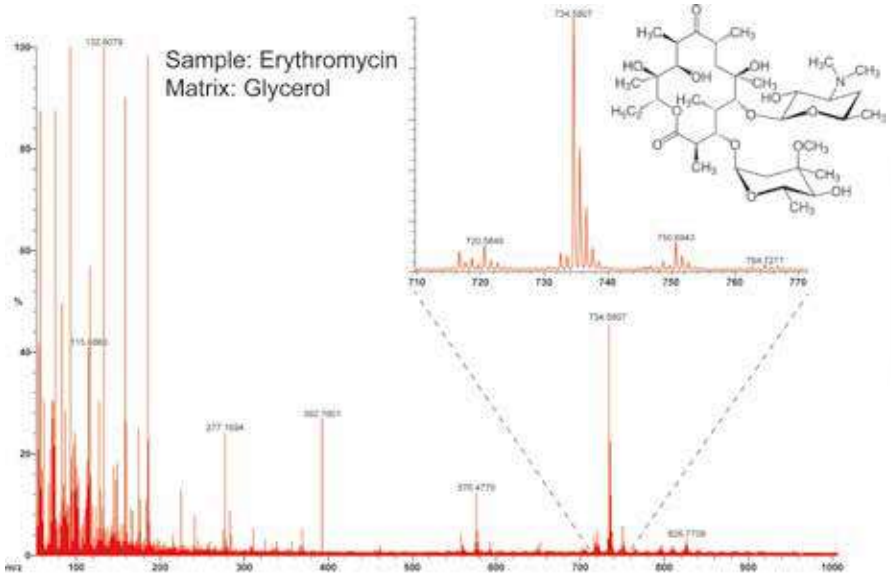
Phospholipid
(lysophosphatidylcholine)



Peptide
(Angiotensin)



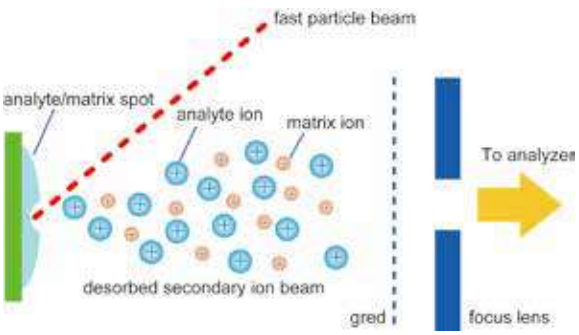
2. Erythromycin



Fast Atom Bombardment (FAB) Ion Source

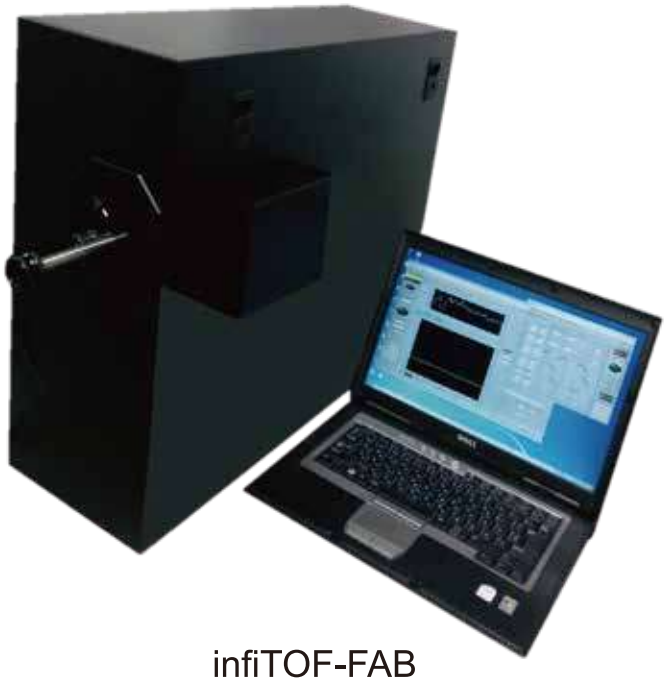
FAB is suitable for the following samples:
-Thermolabile sample
-Biosubstance sample
-Compound with high polarity

Common matrix:
- Glycerol
- Thioglycerol
- Triethanolamine
- 3-Nitrobenzyl alcohol (NBA)



Specification

Resolution	>30,000 (FWHM)
Mass range	1 to 3,000 *m/z*
ion-source	FAB(Pos)
Mass accuracy	<±0.005u
Necessary amount of sample	µg ~ mg
Data recording speed	up to 20spectra/sec
Dimensions(mm)	W230 x H520 x D510
Weight	45kg



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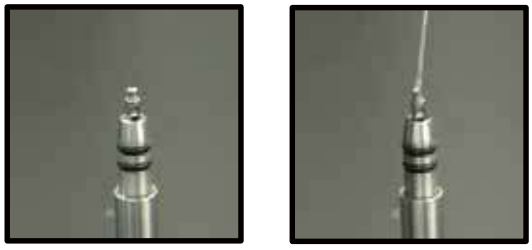
Sample introduction

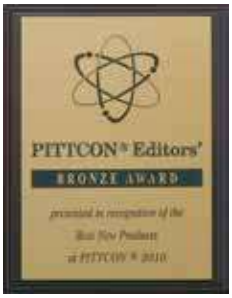
Fast and simple sample introduction to infiTOF-FAB



Daub a matrix mixed sample
on the probe tip.

The prepaired probe
can be inserted into the instrument
without breaking the vacuum.

Pittcon2010
Bronze Award



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