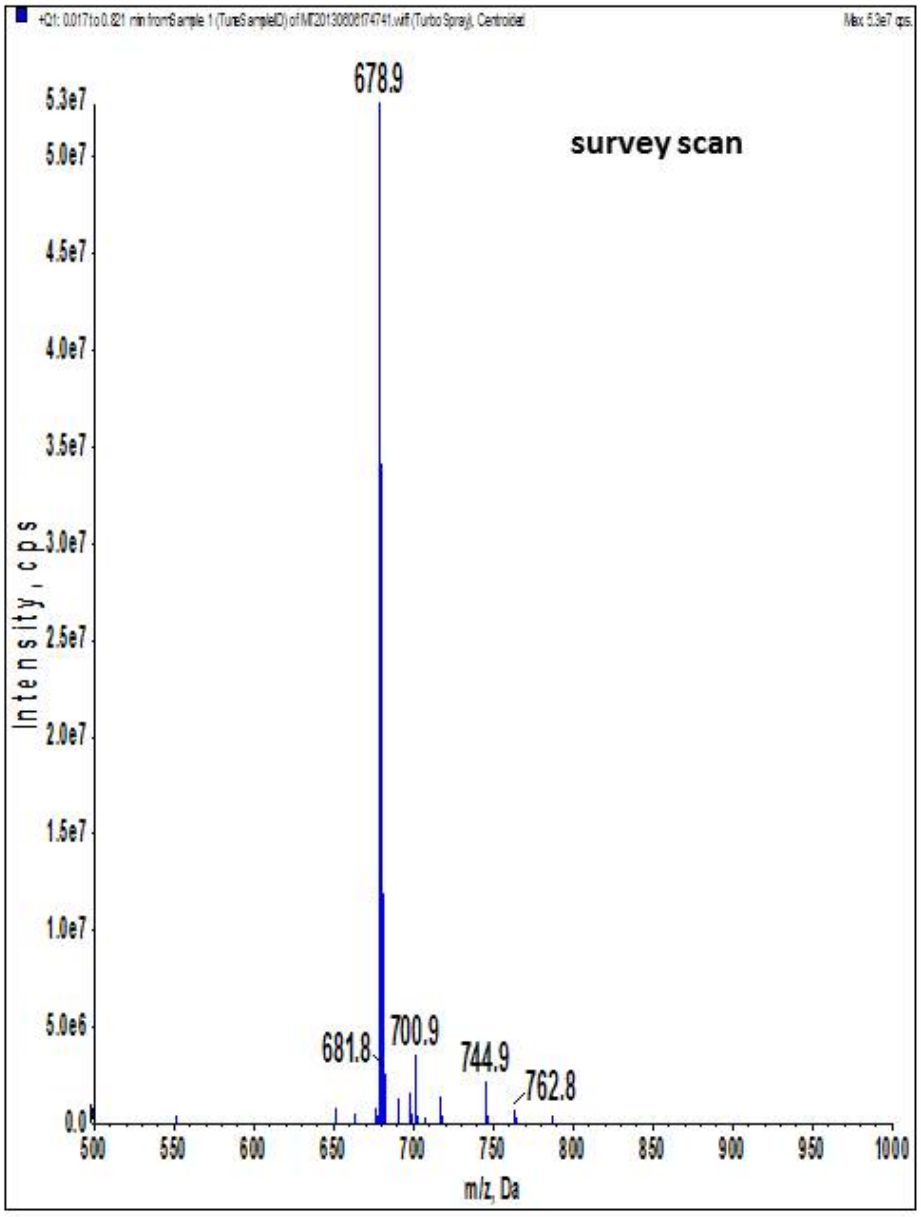
# Lipidomics Analysis using Tandem Mass Spectrometry

## Determination of Three Classes of Lipids using Precursor Ion Scans and Neutral Loss Scans

# Precursor Ion Scan

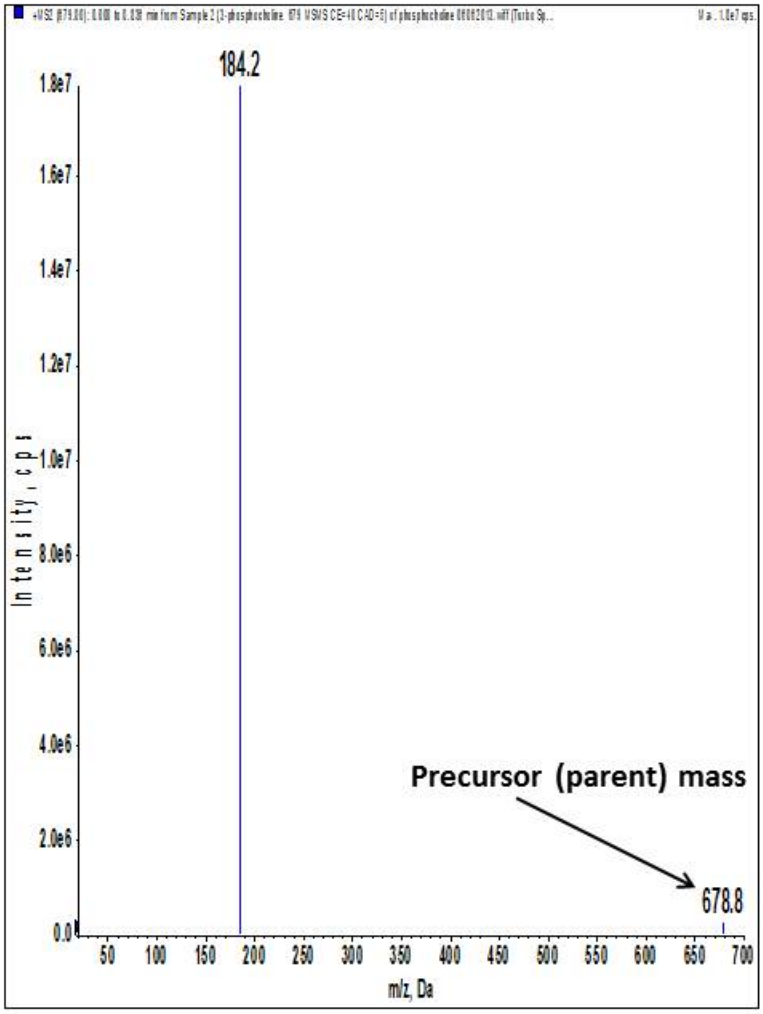
**Always verify the molecular weight of the precursor ion.**

## 1,2-dimistroyl-sn-glycero-3-phosphocholine

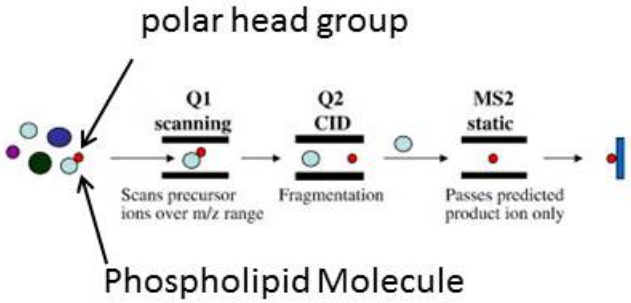


# Fragmentation of 1,2-dimistroyl-sn-glycero-3-phosphocholine

**m/z = 184 is a Characteristic fragment of phosphocholine**

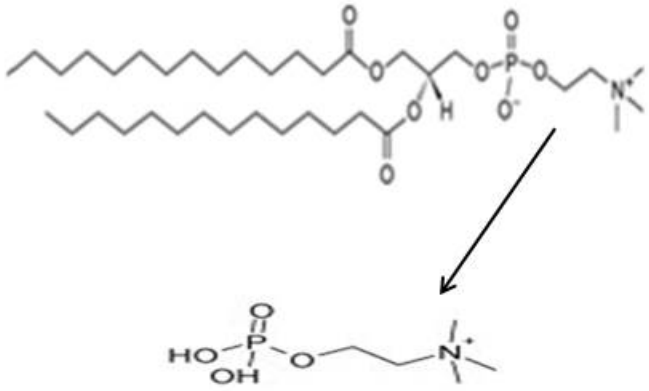


## Basic Principle of Precursor Ion Scanning

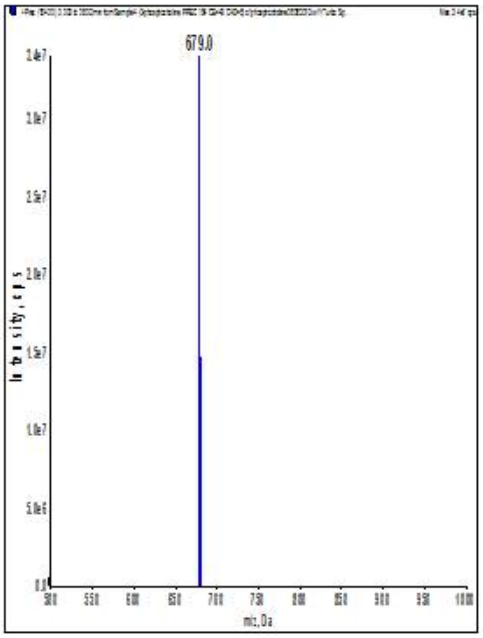



During a precursor ion scan, quadrupole 3 (Q3) is locked onto a specific fragment mass while Q1 scans to determine the mass of an ion that produces the fragment.

The polar head group of a phospholipid will generate a characteristic fragment at m/z = 184. Scanning for the precursors of the 184 fragment is a very common technique to identify phospholipids.

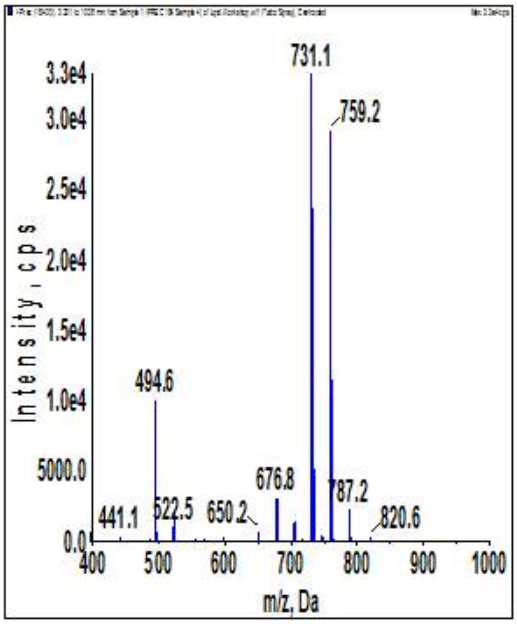


**A precursor ion scan for m/z = 184 positively identifies 3-phosphocholine (precursor ion = 679 m/z)**

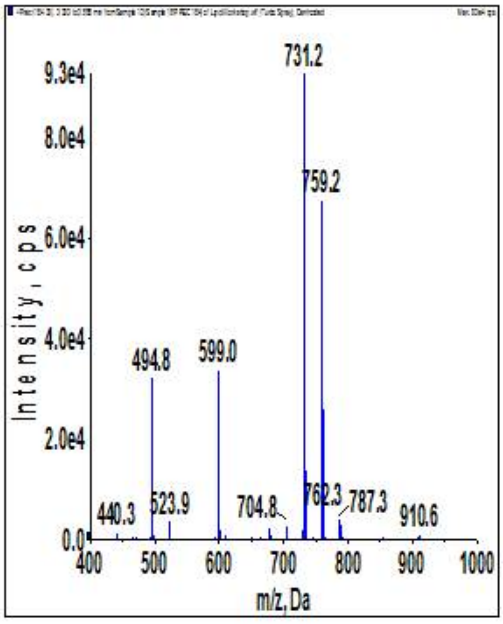



Precursor Ion Scan (184) of Two Unknown Samples

Sample 4



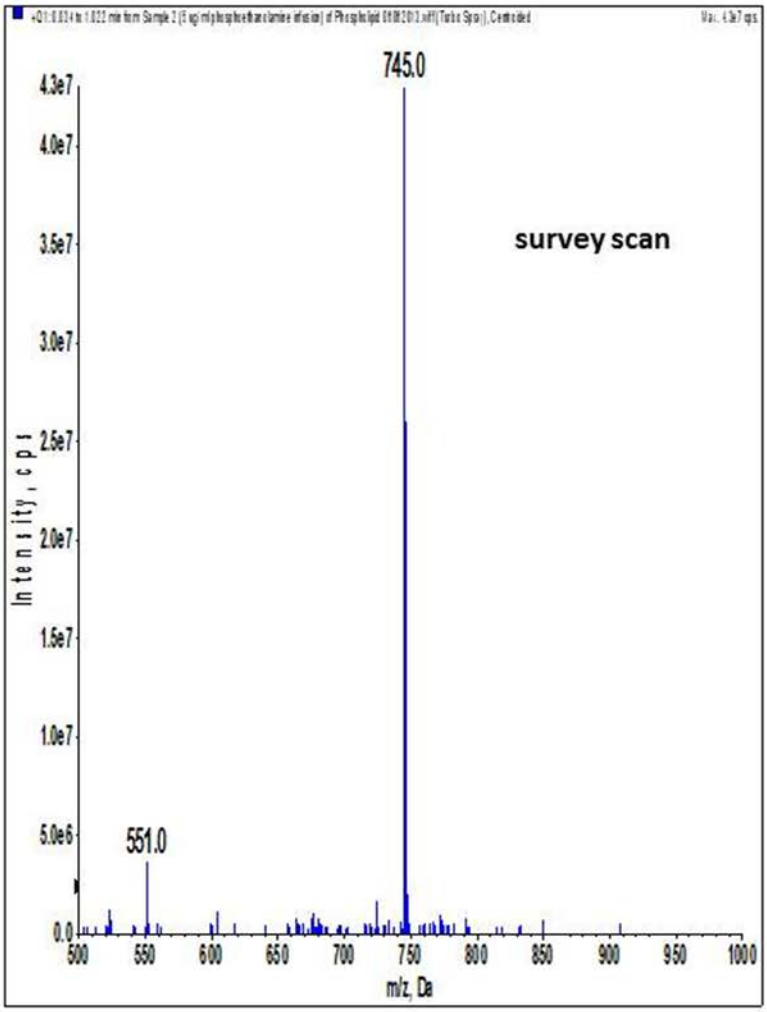

Sample 16

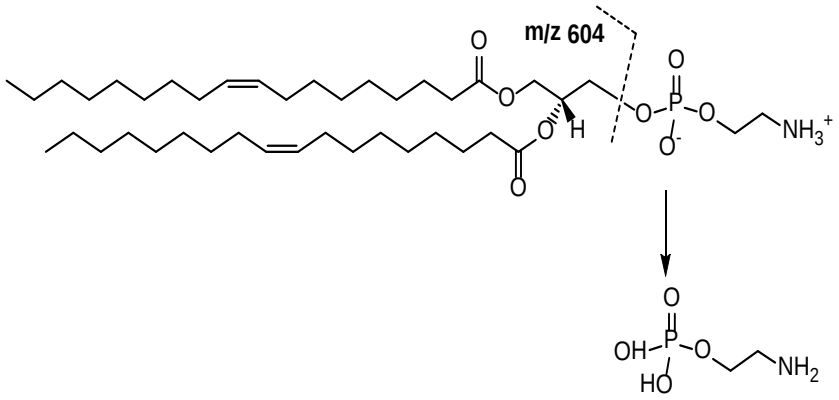


# Neutral Loss Scan

**When developing a neutral loss method, always verify the molecular weight of the target molecule.**

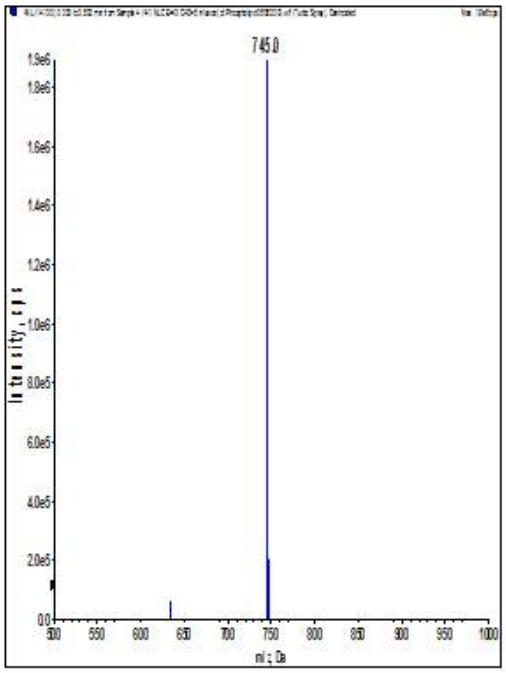
## 1,2-dioleoyl-sn-glycero-3-phosphoethanolamine





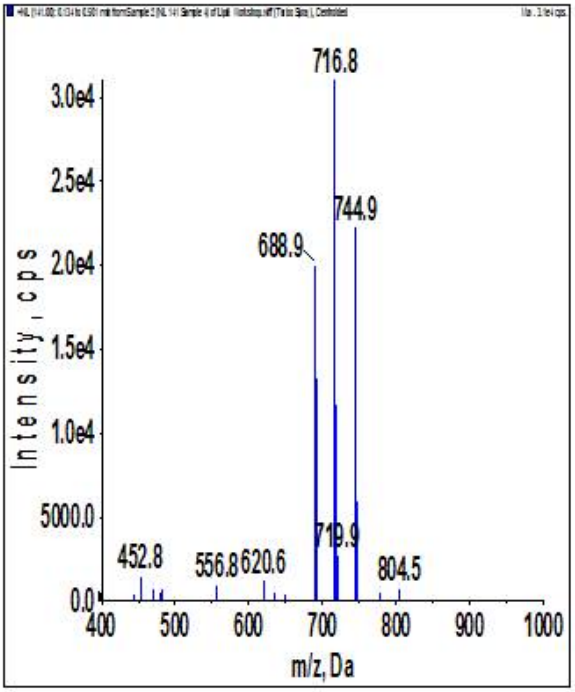

**NL 141**

**A neutral loss fragment of 141 mass units will positively identify 3-phosphoethanolamine**

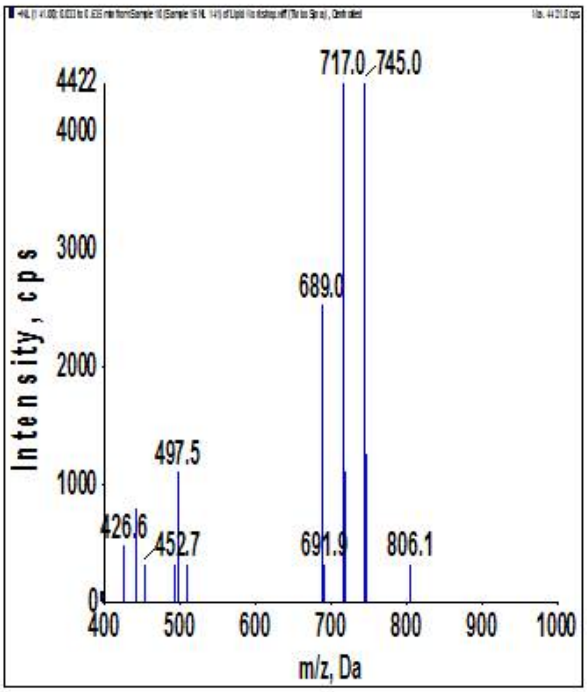



Neutral Loss Scan of 141 to Analyze Two Unknown Samples

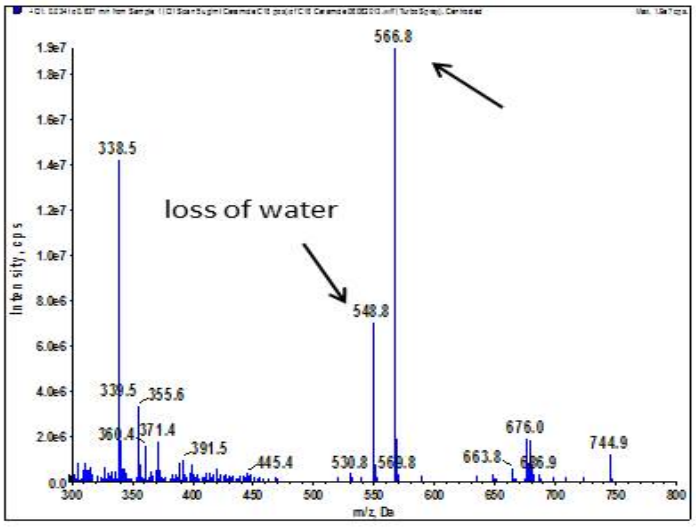
Sample 4



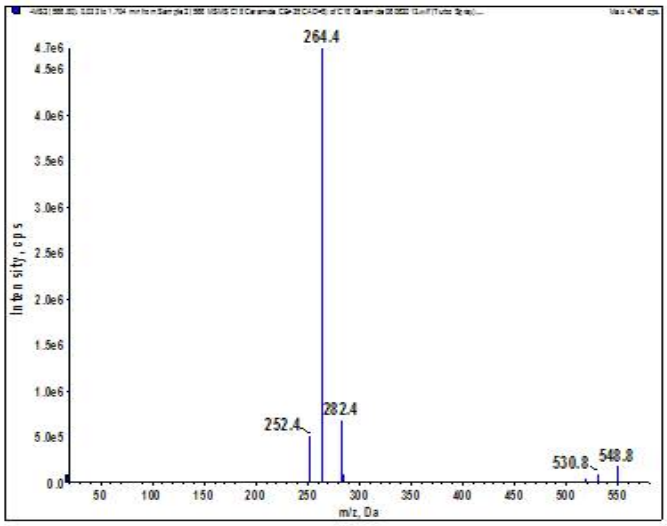

Sample 16

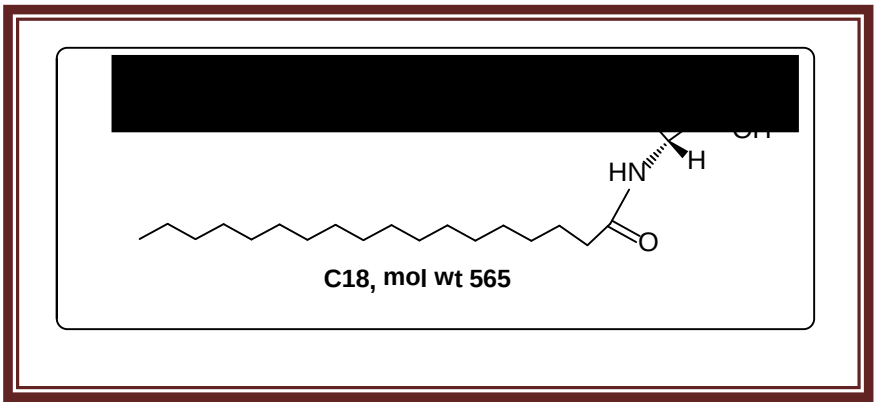


## Survey Scan of C18 Ceramide

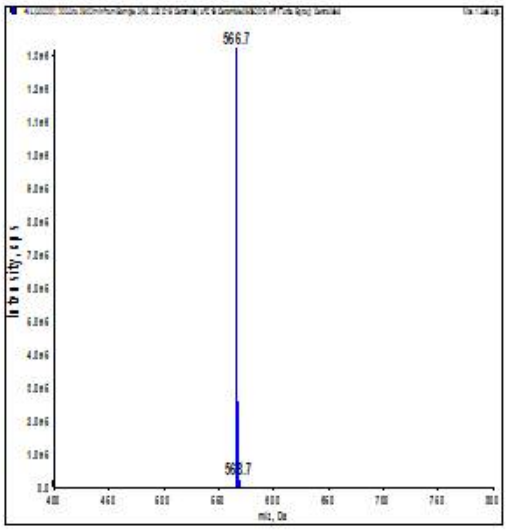



## Fragmentation of C18 Ceramide



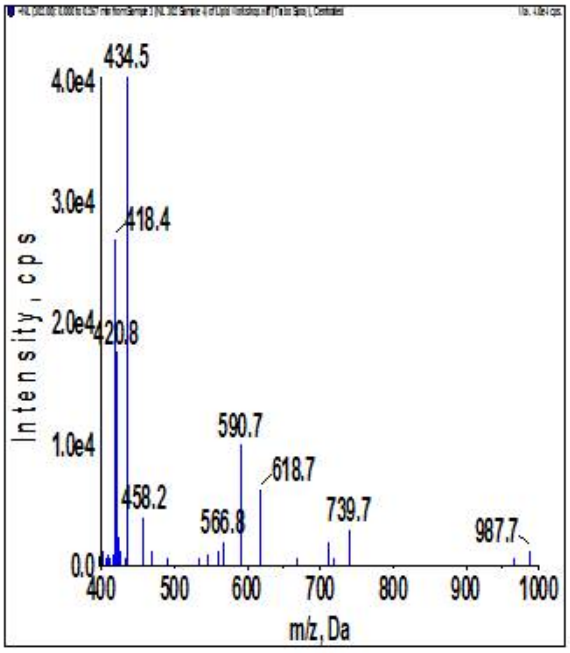



**A neutral loss fragment of 302 mass units will positively identify C18 Ceramide**




**Neutral Loss Scan of 302 to Analyze Two Unknown Samples**

**Sample 4**




**Sample 16**