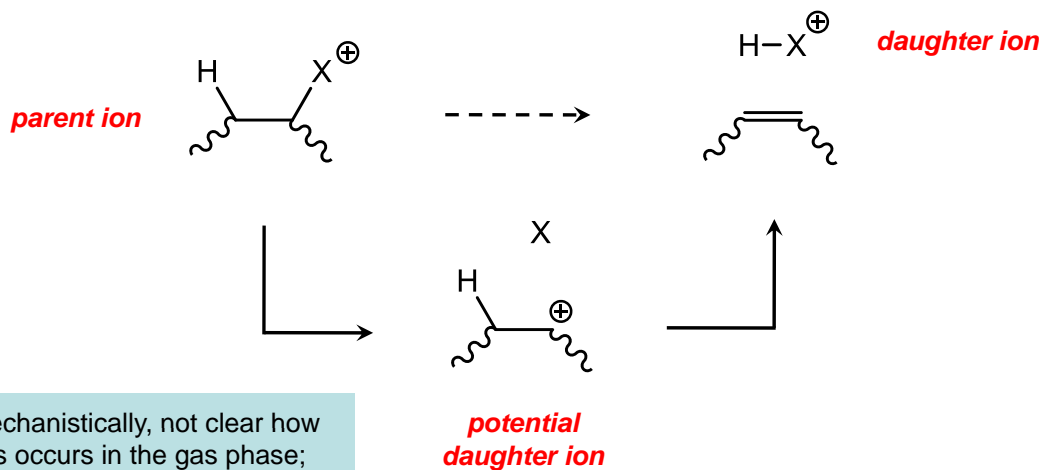


Even-Electron Ion Fragmentation

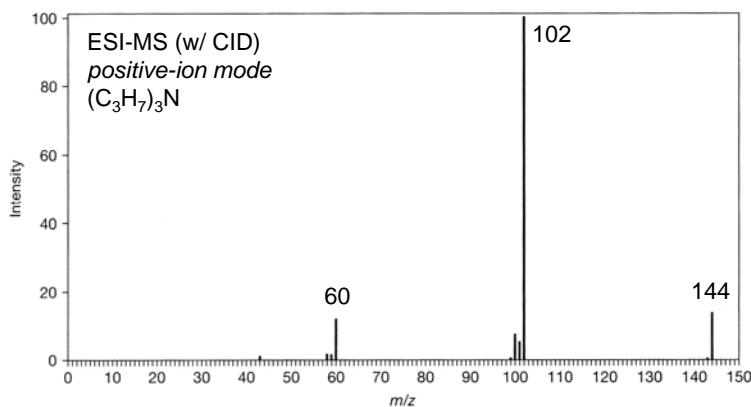
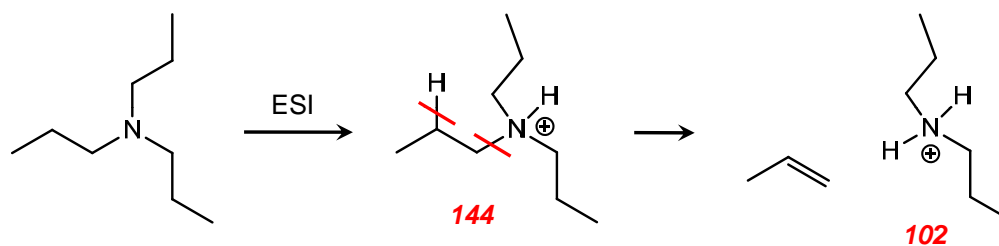
Even-electron ions generated by “soft” ionization techniques—CI, MALDI, ESI, FAB—don’t fragment as much as odd-electron ions.

When they do, is typically via β -elimination.



Mechanistically, not clear how this occurs in the gas phase; appears to be unimolecular, but may be assisted.

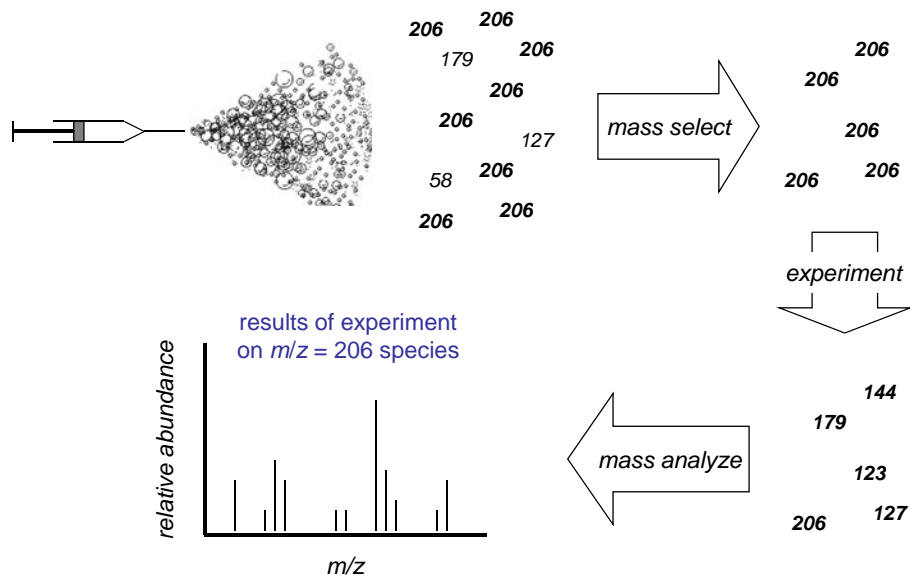
Even-Electron Ion Fragmentation



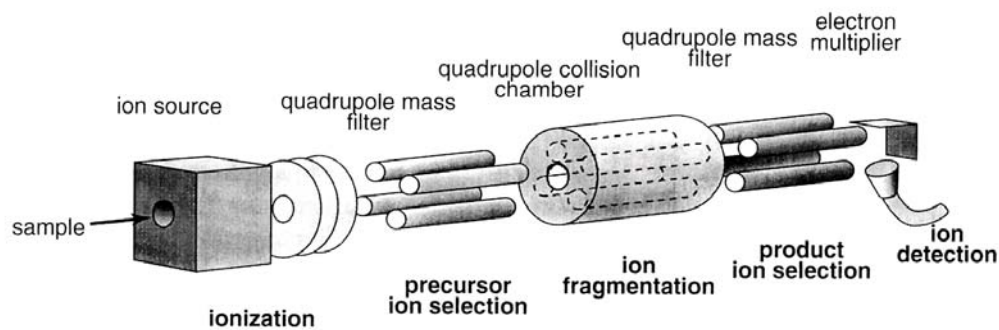
How is $m/z = 60$ peak generated?

Tandem Mass Spectrometry (MS/MS)

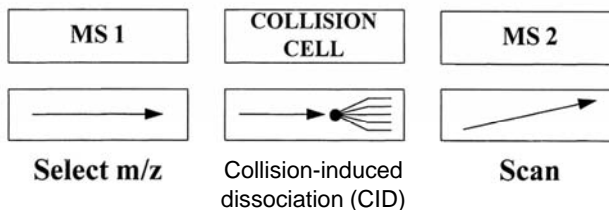
Method that forces specific ions to undergo fragmentation.
Provides structural information about those specific ions.



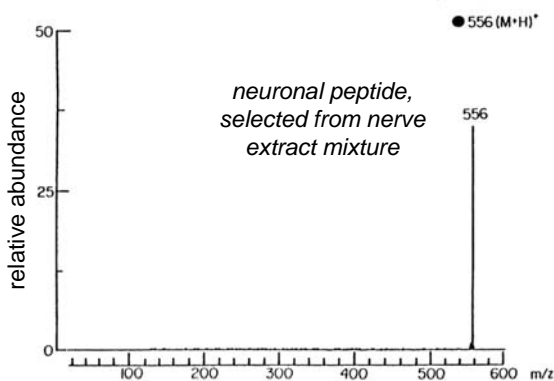
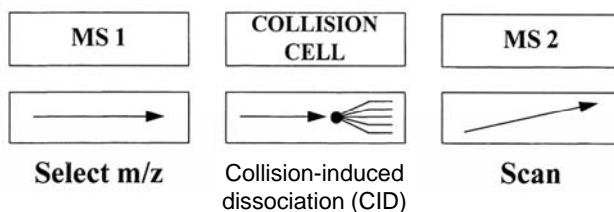
Tandem Mass Spectrometry (MS/MS)



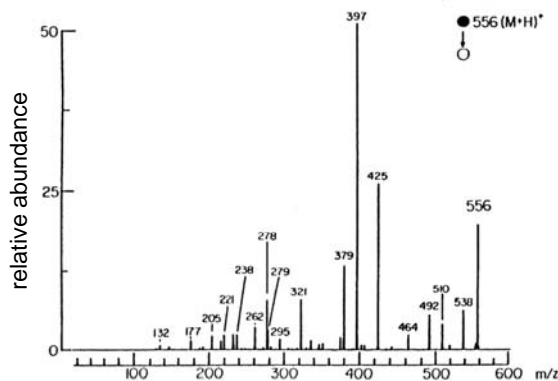
Most common experiment:



Tandem Mass Spectrometry (MS/MS)



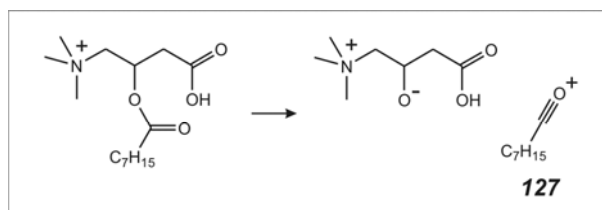
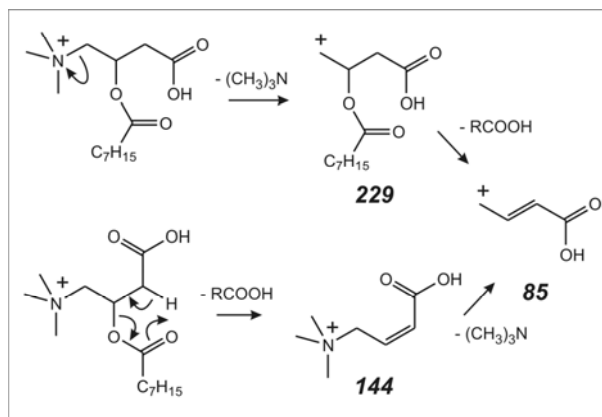
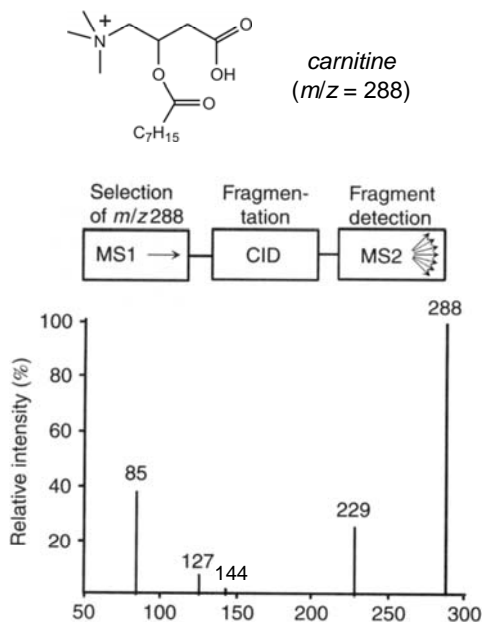
collision cell empty



collision cell containing 1 mTorr Xe

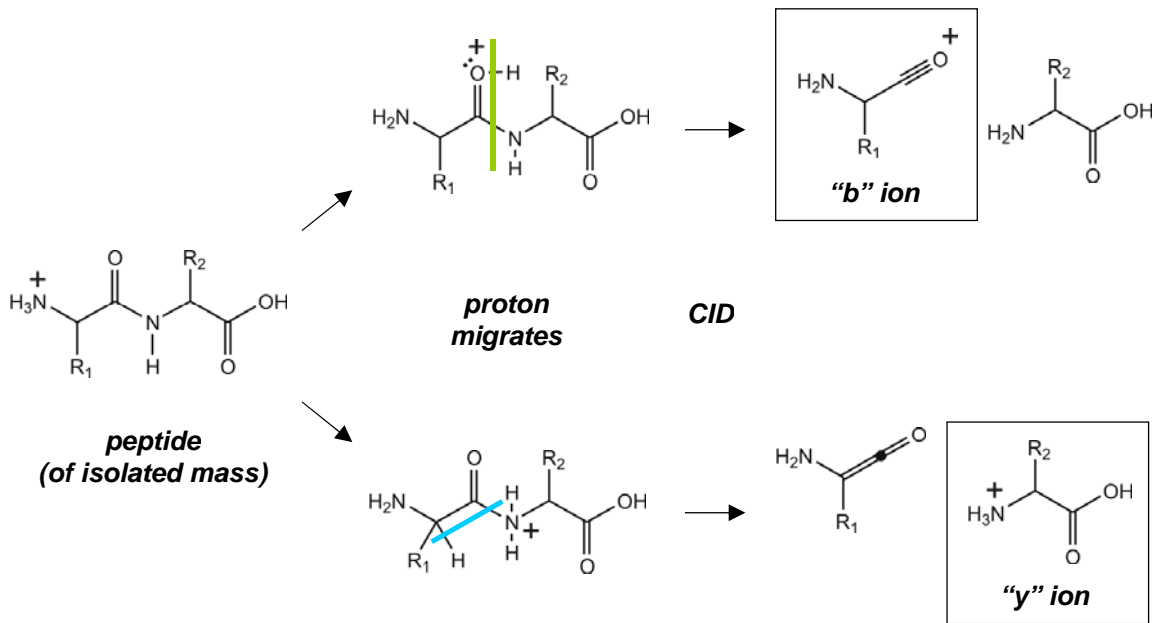
Tandem Mass Spectrometry (MS/MS)

- For small molecules isolated from mixtures, allows for some molecular info.



Tandem Mass Spectrometry (MS/MS)

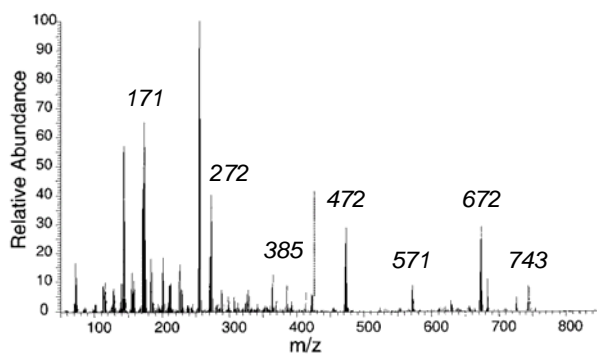
- For macromolecules, CID allows molecule to be “sequenced”.



Tandem Mass Spectrometry (MS/MS)

H₂N - Val - Ala - Thr - Val - Ser - Leu - Pro - Arg - COOH

[M + H] = 842



Tandem Mass Spectrometry (MS/MS)

