

**PT7 Unusual reaction product from the gas-phase ozonolysis of an unsaturated phosphatidylethanolamine sodium adduct: Possible insights into the ozonolysis mechanism**

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An unusual ozonolysis product of a phospholipid ion is observed and characterized.

Recently we have developed a technique for determining carbon-carbon double bond position whereby ozone is introduced into the bath gas of an ion-trap mass spectrometer. We now referred to this as Ozone-Induced Dissociation (OzID) [1]. To perform ozonolysis, the ion of interest is first isolated and then trapped for up to 10 s in the presence of ozone. Typically, two abundant ozonolysis product ions are observed from the cleavage of C=C double bonds within the unsaturated fatty acids substituents [1]. These two ions have the same  $m/z$  as the expected decomposition products of the primary ozonide; the aldehyde and carbonyl oxide. In this poster we present results from the gas-phase ozonolysis of an unsaturated phosphatidylethanolamine sodium adduct. An unexpected ion of 14 Da greater than the precursor ion was observed corresponding to the addition of  $O_3 - H_2O_2$ . CID was performed after OzID to aid in the structural identification. Interestingly, CID provided strong evidence of imine formation involving the amine of the ethanolamine headgroup. We propose that a reaction between either the neutral carbonyl oxide fragment or primary ozonide occurs with subsequent loss of hydrogen peroxide forming the imine. This would suggest an interaction of the phospholipid headgroup with the site of oxidation or the presence of a short lived carbonyl oxide.

[1] M.C. Thomas, T.W. Mitchell, D.G. Harman, J.M. Deeley, J.R. Nealon, S.J. Blanksby, *Anal. Chem.* 2008, 80: 303-11.