

Supplementary material

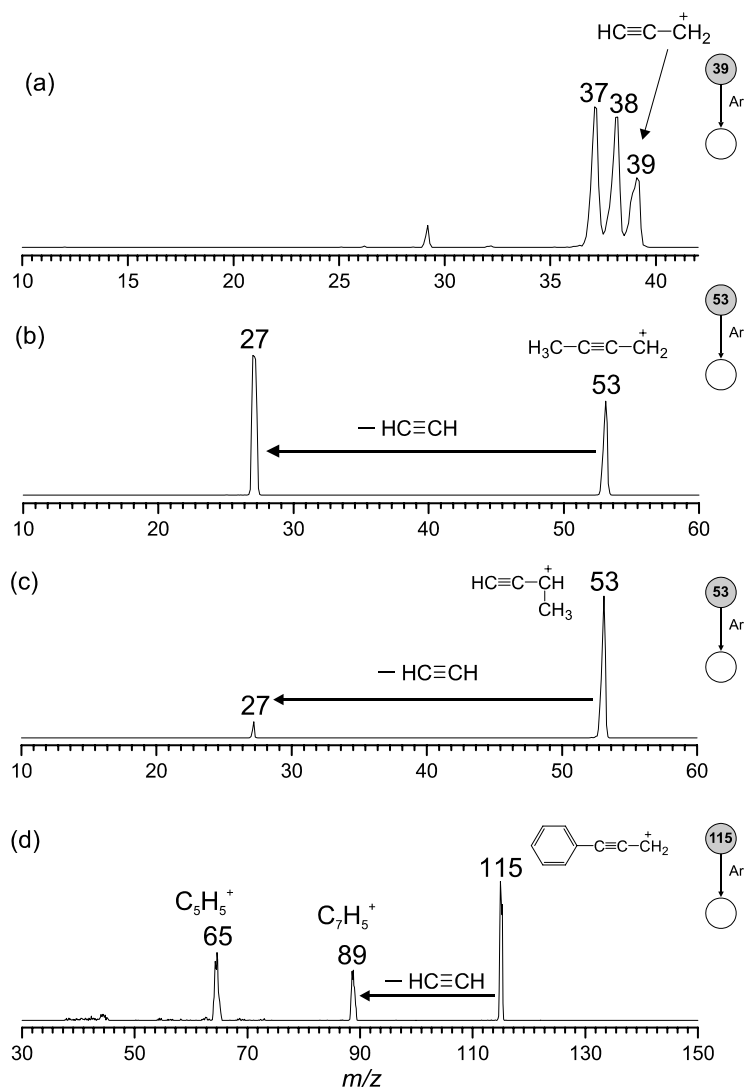


Figure S1. CID spectra for the parent ions (a) **1** of m/z 39, (b) **2** of m/z 53, (c) **3** of m/z 53 and (d) **4** of m/z 115.

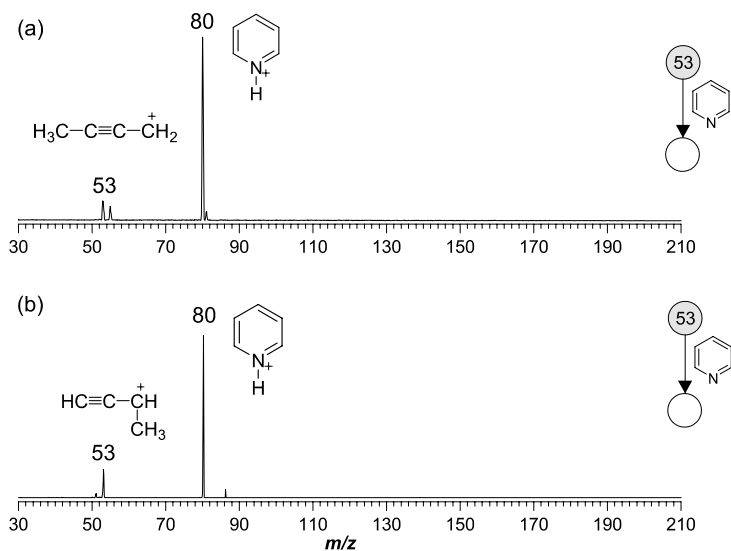
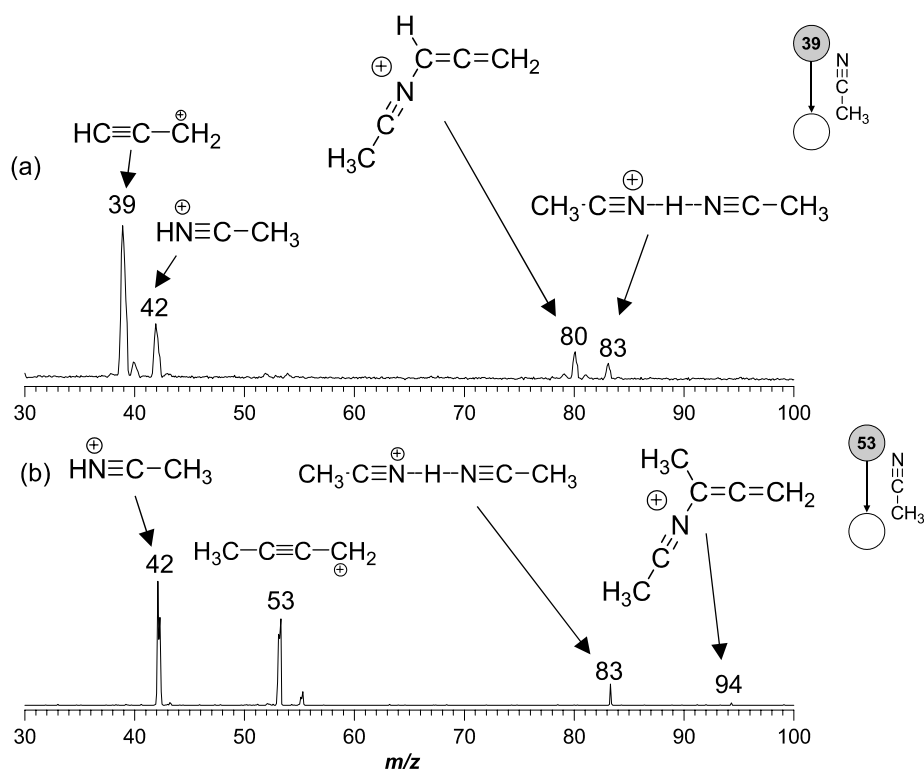
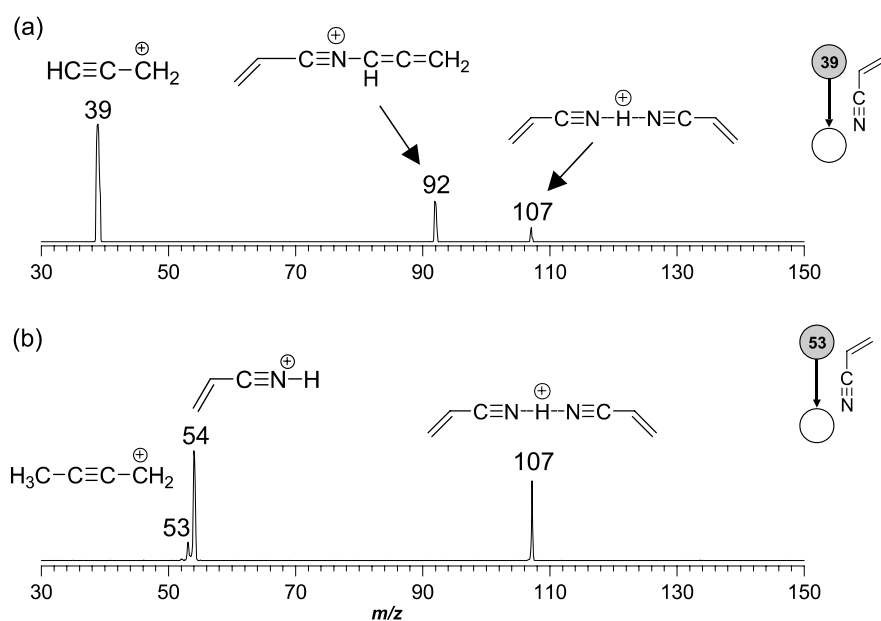


Figure S2. Double-stage (MS^2) product ion mass spectra for ion/molecule reactions between pyridine and (a) **2** of m/z 53 and (b) **3** of m/z 53.**Figure S3.** Double-stage (MS^2) product ion mass spectra for ion/molecule reactions between acetonitrile and (a) **1** of m/z 39 and (b) **2** of m/z 53.**Figure S4.** Double-stage (MS^2) product ion mass spectra for ion/molecule reactions between acrylonitrile and (a) **1** of m/z 39 and (b) **2** of m/z 53.

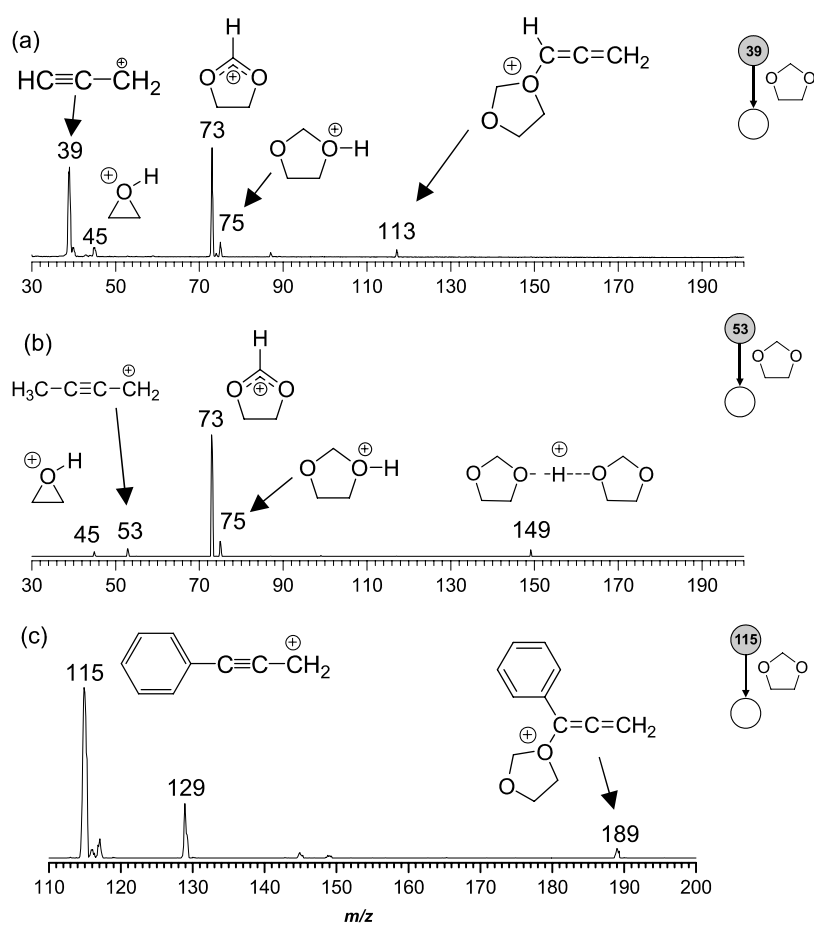


Figure S5. Double-stage (MS^2) product ion mass spectra for ion/molecule reactions between 1,3-dioxolane and (a) **1** of m/z 39, (b) **2** of m/z 53 and (c) **4** of m/z 115.

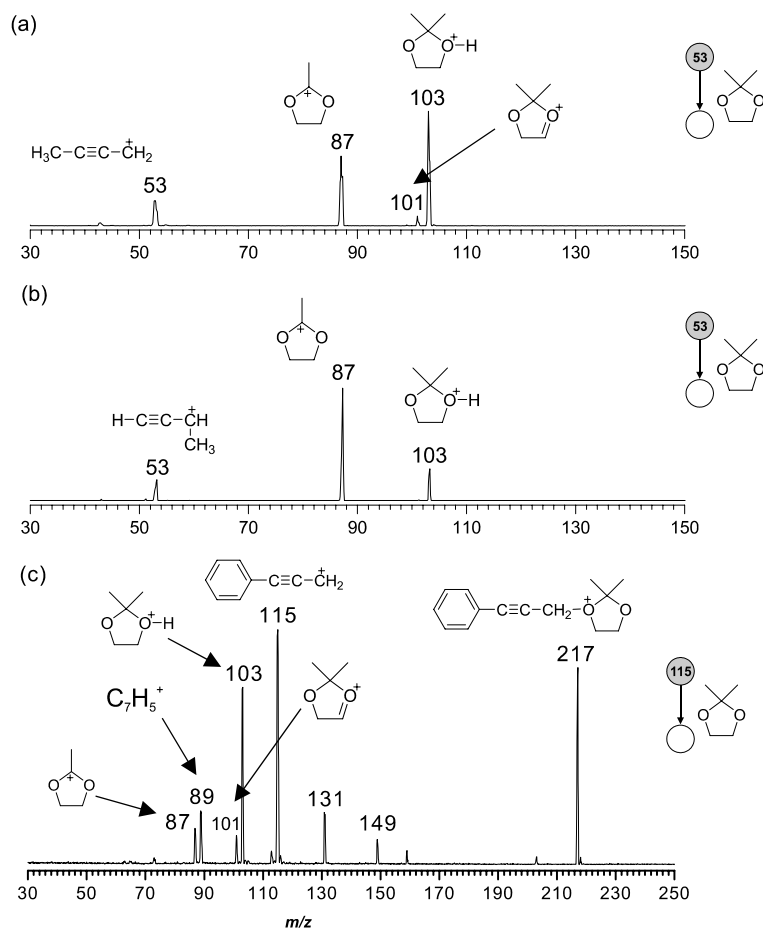


Figure S6. Double-stage (MS^2) product ion mass spectra for ion/molecule reactions between 2,2-dimethyl-1,3-dioxolane and (a) **2** of m/z 53, (b) **3** of m/z 53 and (c) **4** of m/z 115.

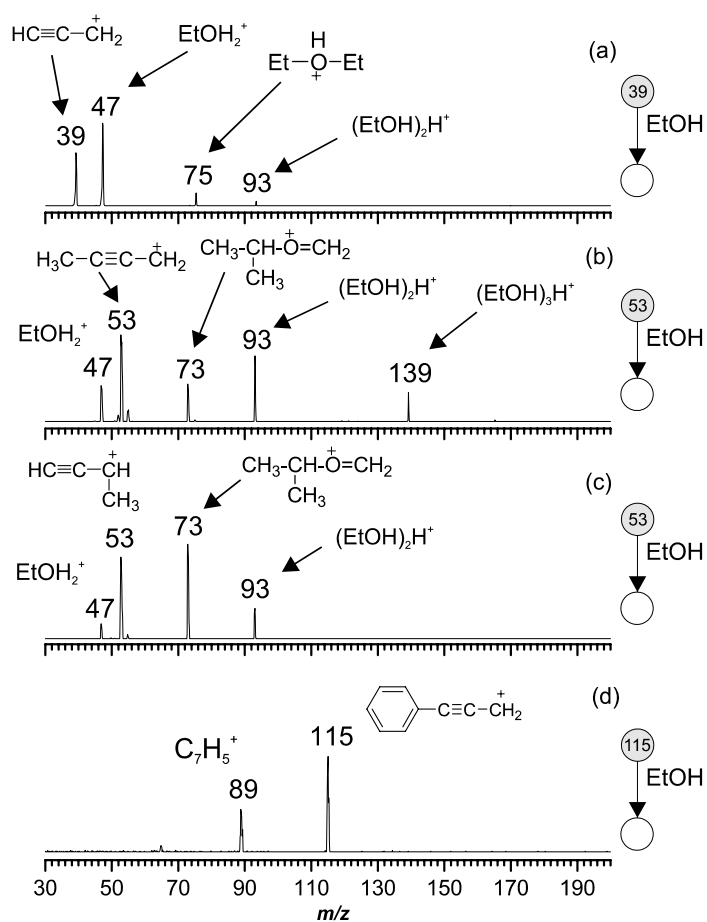


Figure S7. Double-stage (MS²) product ion mass spectra for ion/molecule reactions between ethanol and (a) **1** of *m/z* 39, (b) **2** of *m/z* 53, (c) **3** of *m/z* 53 and (d) **4** of *m/z* 115. Note that the ion of *m/z* 89 is a fragment of **4**.

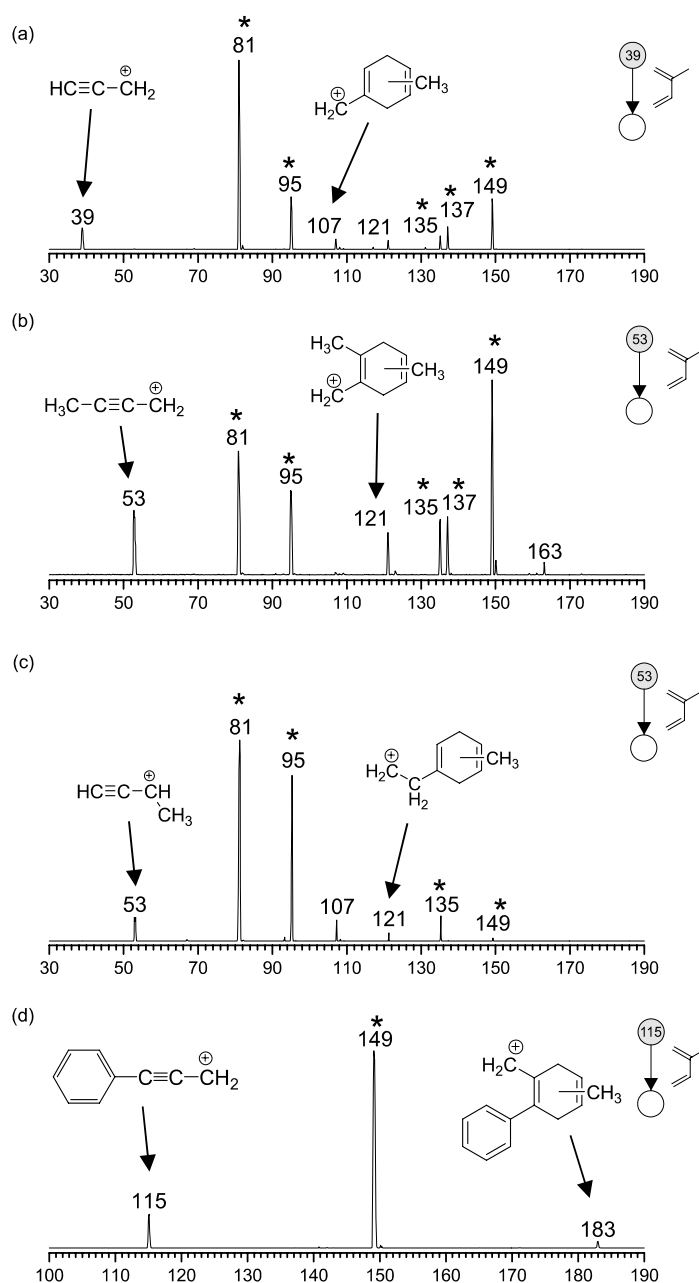


Figure S8. Double-stage (MS^2) product ion mass spectra for ion/molecule reactions between isoprene and (a) **1** of m/z 39, (b) **2** of m/z 53, (c) **3** of m/z 53 and (d) **4** of m/z 115. The product ions of m/z 81, 95, 135, 137 and 149 seem to arise from known reactions of protonated isoprene with neutral isoprene, see reference 29.