



Figure S1. Proposed fragmentation scheme and fragment ions observed in the MS^n spectra acquired by collision induced dissociation for piperazine derivative (2).

Table S1. Main fragmentation schemes proposed for morpholine derivatives following CID-MS² and MS³ experiments.

Morpholine derivative	MS ² fragmentation scheme	MS ³ fragmentation scheme
<p>(3)</p> <p>MS² Collision Energy: 7.3 eV</p> <p>MS³ Collision Energy: 8.8 eV</p>	<p>$C_{23}H_{37}N_3O_2^+$ m/z 373.2</p> <p>m/z 286</p>	<p>m/z 105</p> <p>m/z 173</p> <p>m/z 91</p> <p>m/z 204</p> <p>$C_{19}H_{28}NO^+$ m/z 286.1</p>
<p>(4)</p> <p>MS² Collision Energy: 7.7 eV</p> <p>MS³ Collision Energy: 8.8 eV</p>	<p>$C_{21}H_{33}N_3O_2^+$ m/z 345.2</p> <p>m/z 258</p>	<p>m/z 105</p> <p>m/z 173</p> <p>m/z 91</p> <p>$C_{17}H_{24}NO^+$ m/z 258.0</p>
<p>(5)</p> <p>MS² Collision Energy: 8.8 eV</p> <p>MS³ Collision Energy: 11.2 eV</p>	<p>m/z 167</p> <p>m/z 184</p> <p>m/z 280</p> <p>$C_{23}H_{31}N_3O_2^+$ m/z 367.1</p>	<p>m/z 152</p> <p>m/z 152</p> <p>$C_{13}H_{11}^+$ m/z 167.0</p>
<p>(6)</p> <p>MS² Collision Energy: 7 eV</p> <p>MS³ Collision Energy: 10.5 eV</p>	<p>m/z 171</p> <p>m/z 159</p> <p>m/z 259</p> <p>$C_{20}H_{32}N_3O_2^+$ m/z 346.1</p>	<p>m/z 128</p> <p>m/z 100</p> <p>$C_8H_{15}N_2O_2^+$ m/z 171.0</p>