**[Sar9,Met(O2)11]-Substance P**

Cat. No.: HY-P1012  
CAS No.: 110880-55-2  
Molecular Formula: $C_{64}H_{100}N_{18}O_{15}S$  
Molecular Weight: 1393.66  
Sequence: Arg-Pro-Lys-Pro-Gln-Gln-Phe-[Sar]-Leu-Met[O2]-NH2

Sequence Shortening: RPKPQFF-[Sar]-LM[O2]-NH2

Target: Neurokinin Receptor  
Pathway: GPCR/G Protein; Neuronal Signaling

Storage: Powder  
-80°C  2 years  
-20°C  1 year  
In solvent  
-80°C  6 months  
-20°C  1 month

**SOLVENT & SOLUBILITY**

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Concentration</th>
<th>Stock Mass</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td></td>
<td>0.7175 mL</td>
<td>3.5877 mL</td>
<td>7.1754 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td></td>
<td>0.1435 mL</td>
<td>0.7175 mL</td>
<td>1.4351 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td></td>
<td>0.0718 mL</td>
<td>0.3588 mL</td>
<td>0.7175 mL</td>
</tr>
</tbody>
</table>

H$_2$O: 50 mg/mL (35.88 mM; Need ultrasonic)

Preparing Stock Solutions

Please refer to the solubility information to select the appropriate solvent.

**BIOLOGICAL ACTIVITY**

**Description**  
[Sar9,Met(O2)11]-Substance P is a tachykinin NK$_1$ receptor selective agonist.

**IC$_{50}$ & Target**  
NK$_1$ receptor$^{[1]}$

**In Vitro**  
[Sar9,Met(O2)11]-Substance P and peptide (10-100 pmol per rat, i.c.v.) are equipotent in increasing mean arterial blood pressure (MAP) and heart rate (HR), yet they have dissimilar time-course. Both agonists increase dose-dependently face washing and sniffing while [Sar9,Met(O2)11]-Substance P is the sole to produce grooming$^{[1]}$.

**PROTOCOL**
Rats initially receive an i.c.v. injection of artificial cerebrospinal fluid (aCSF; 1 μl) followed 60 min later by a single dose of either [Sar9, Met(O2)11]-Substance P (10 pmol (n=9), 25 pmol (n=9), 65 pmol (n=8) or 100 pmol (n=8)) or septide (10 pmol (n=12), 25 pmol (n=9), 65 pmol (n=6) or 100 pmol (n=6)) to construct a complete dose-response curve. Each rat is selected randomly and injected with only one of the two agonists for the remainder of the protocol. Increasing doses of [Sar9, Met(O2)11]-Substance P or septide are given at 24 h intervals on day 1 (10 pmol), day 2 (25 pmol), day 3 (65 pmol) and day 4 (100 pmol). Control rats (n=18) receive only the vehicle (aCSF) each day of experiment. Peptides are administered in a volume of 1 μl of vehicle followed by 5 μL flush volume of aCSF which corresponds to the void volume of the catheter. Each dose is calculated per rat in 1 μL solution[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES