Silodosin

Cat. No.: HY-10122
CAS No.: 160970-54-7
Molecular Formula: C_{25}H_{32}F_{3}N_{3}O_{4}
Molecular Weight: 495.53
Target: Adrenergic Receptor
Pathway: GPCR/G Protein; Neuronal Signaling
Storage: Powder
-20°C 3 years
4°C 2 years
In solvent
-80°C 6 months
-20°C 1 month

SOLVENT & SOLUBILITY

In Vitro
DMSO : ≥ 50 mg/mL (100.90 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>2.0180 mL</td>
<td>10.0902 mL</td>
<td>20.1804 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.4036 mL</td>
<td>2.0180 mL</td>
<td>4.0361 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.2018 mL</td>
<td>1.0090 mL</td>
<td>2.0180 mL</td>
</tr>
</tbody>
</table>

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

In Vivo
1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (5.05 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (5.05 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (5.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Silodosin (Rapaflo; KMD-3213) is an α1-adrenoceptor antagonist with high uroselectivity; In treatment of dysuria, IC50 Value: Target: Adrenergic Receptor In vitro: Silodosin potently inhibited 2-[2-(4-hydroxy-3-[125I]iodophenyl)ethylaminomethyl]-alpha-tetralone binding to the cloned human alpha 1a-AR, with a Ki value of 0.036 nM, but had 583- and 56-fold lower potency at the alpha 1b- and alpha 1d-ARs, respectively. Silodosin inhibited norepinephrine-induced increases in intracellular Ca2+ concentrations in alpha 1a-AR-expressing Chinese
hamster ovary cells with an IC50 of 0.32 nM but had a much weaker inhibitory effect on the alpha 1b- and alpha 1d-ARs. In vivo: Using pharmacologically well characterized native rat tissues [submaxillary gland (alpha 1A-AR-expressing tissue), liver (alpha 1B-AR-expressing tissue), and heart (mixed alpha 1A- and alpha 1B-AR-expressing tissue)], binding studies showed that inhibition curves for Silodosin in submaxillary gland and liver best fit a one-site model (with Ki values of 0.15 and 16 nM, respectively), whereas Silodosin had high and low affinity sites in heart membranes. Chloroethylclonidine treatment of rat heart membranes completely eliminated the low affinity sites for Silodosin. Furthermore, in human liver and prostate Silodosin could identify high and low affinity sites, the Ki values of which corresponded well to those for the cloned human alpha 1a- and alpha 1b-ARs, respectively. Moreover, the affinity of Silodosin was found to be approximately 10-fold higher at the cloned human alpha 1a-AR than at the cloned rat alpha 1a-AR.

REFERENCES

[1]. Kobayashi, Shinya; Tomiyama, Yoshitaka; Effects of silodosin and tamsulosin on the urethra and cardiovascular system in young and old dogs with benign prostatic hyperplasia. European Journal of Pharmacology (2009), 613(1-3), 135-140.


