Ceruletide

Cat. No.: HY-A0190
CAS No.: 17650-98-5
Molecular Formula: C₅₈H₇₃N₁₃O₂₁S₂
Molecular Weight: 1352.41
Sequence: (pGlu)-Gln-Asp-Tyr(SO₃H)-Thr-Gly-Trp-Met-Asp-Phe-NH₂
Sequence Shortening: (pGlu)-QD-Y(SO₃H)-TGWMDF-NH₂
Target: Cholecystokinin Receptor
Pathway: GPCR/G Protein
Storage: Protect from light
Powder -80°C 2 years
-20°C 1 year
In solvent -80°C 6 months
-20°C 1 month

SOLVENT & SOLUBILITY

In Vitro
- H₂O: ≥ 100 mg/mL (73.94 mM)
- DMSO: ≥ 100 mg/mL (73.94 mM)

* “≥” means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td>0.7394 mL</td>
<td>3.6971 mL</td>
<td>7.3942 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>0.1479 mL</td>
<td>0.7394 mL</td>
<td>1.4788 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.0739 mL</td>
<td>0.3697 mL</td>
<td>0.7394 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: ≥ 2.08 mg/mL (1.54 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (1.54 mM); Clear solution

3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 2.08 mg/mL (1.54 mM); Clear solution; Need warming

BIOLOGICAL ACTIVITY

Description: Ceruletide, a biologically active decapeptide isolated from the skin of the Australian frog Hyla caerulea, is a potent...
cholecystokinin receptor agonist.

| IC₅₀ & Target | Cholecystokinin receptor[4] |

**In Vitro**

Ceruletide is similar chemically and biologically to the human gastrointestinal hormones cholecystokinin-pancreozymin (CCK) and gastrin II. Ceruletide stimulates gallbladder contraction, pancreatic exocrine secretion, gastric secretion, and motility in the distal duodenum, jejunum, ileum and colon, while delaying gastric emptying and inhibiting motility in the proximal duodenum[1]. Ceruletide in supramaximal but not in physiological doses activates NF-kappaB/Rel in vitro. This activation may induce a self-defending genetic program before the onset of cellular injury, which may prevent higher degrees of damage of pancreatic acinar cells after secretagogue hyperstimulation[2].

**In Vivo**

Ceruletide (0.4-0.5 mcg/kg, i.v.; 3-4 mcg/kg, s.c.) results in emesis and evacuation of the bowel in the intact conscious dog, and recovery is complete 15-30 min after i. v. administration and 2-4 hr after s.c. administration. Ceruletide (5-15 ng/kg, i.v.) shows a marked spasmogenic effect on the pylorus of rats. Ceruletide also reduces blood pressure in anesthetized dogs[1]. Ceruletide serum bile acid (SBA) stimulation circumvents exogenous and endogenous influences associated with postprandial (PP) SBA stimulation. Ceruletide SBA stimulation may perform as well as PP SBA stimulation in dogs with portosystemic shunt (PSS) and be more sensitive for the detection of hepatic dysfunction in dogs with upper respiratory disease (URD)[3].

**PROTOCOL**

**Animal Administration [3]**

Dogs[3]

All dogs undergo serum bile acid (SBA) stimulation with food (<5 kg/body weight [BW] 2 teaspoons, >5 kg BW 2 tablespoons) or 0.3 μg/kg BW Ceruletide IM, respectively, on consecutive days. A diet of moderate protein content and with an increased concentration of fiber is chosen to minimize metabolic complications such as hepatic encephalopathy. Before each test, the dogs are fasted for 12 hours. Blood samples are drawn at baseline, 60 and 120 minutes after feeding, and 20, 30, and 40 minutes postinjection, respectively. The blood samples are collected in plain tubes and left to clot; they are then centrifuged at 6,500 ×g for 1 minute, and the serum is used to measure SBA by a colorimetric test with endpoint determination[3].

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

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**REFERENCES**

