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Ibutamoren Mesylate

Cat. No.: HY-50844

CAS No.: 159752-10-0

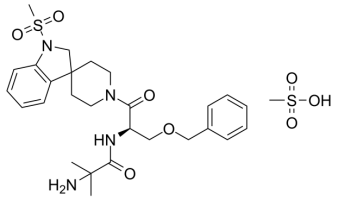
Molecular Formula: $C_{28}H_{40}N_4O_8S_2$

Molecular Weight: 624.77

Target: GHSR

Pathway: GPCR/G Protein

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (80.03 mM; Need ultrasonic)
H_2O : ≥ 50 mg/mL (80.03 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.6006 mL	8.0029 mL	16.0059 mL
	5 mM	0.3201 mL	1.6006 mL	3.2012 mL
	10 mM	0.1601 mL	0.8003 mL	1.6006 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (160.06 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (4.00 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.00 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.00 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ibutamoren Mesylate (MK-677) is a potent, non-peptide Growth hormone secretagogue receptor (GHSR) agonist. Ibutamoren Mesylate is an orally active growth hormone (GH) secretagogue.

In Vivo

Ibutamoren mesylate (5 mg/kg/day) results in a statistically significant increases body weight gain and increases serum IGF-1 and GH levels in dogs. Ibutamoren mesylate results in no significant increase in CSF IGF-1 or GH levels on days 7 or 15 of

the study[1]. Pretreating mice with GH blocks activation of these neurons by Ibutamoren mesylate (50 μg, i.p.). In the knockout mice, both GH and octreotide fail to inhibit Ibutamoren mesylate activation of arcuate neurons[2]. Chronic oral administration of MK-0677 is associated with significant increases in GH and IGF-I levels that are maintained for the duration of the treatment. The GH profile following MK-0677 administration consists of episodic increases above control[3]. MK-0677 significantly increases peak GH concentrations after oral administration. MK-0677 is a potent GH secretagogue that induces an immediate, large, long lasting increase in GH levels when administered orally or i.v[4].

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

PROTOCOL

Animal Administration [2]

Compounds used are: Ibutamoren mesylate (50 μg), octreotide (100 μg), and mGH (30 μg). Mice are give an initial ip injection (0.1 mL) of either saline, octreotide or mGH, followed 10 min later by an ip injection (0.1 mL) of either saline or Ibutamoren mesylate. Thus, the first study comprised of the following groups: saline/saline, saline/Ibutamoren mesylate, mGH/saline, mGH/Ibutamoren mesylate saline/saline, saline/Ibutamoren mesylate, mGH/saline, mGH/Ibutamoren mesylate, and the second study of: saline/saline, saline/Ibutamoren mesylate, octreotide/saline, octreotide/Ibutamoren mesylate. Additionally, a number of mice are injected ip with hypertonic saline (0.2 mL, 1.5 M) to serve as positive controls for the immunocytochemistry. Ninety minutes after injection animals are terminally anesthetized with sodium pentobarbitone (60 mg/kg, ip) and perfused transcardially with heparinized saline followed by 4% paraformaldehyde in 0.1mol/Lphosphate buffer (PB, pH 7.4). Brains are then removed and placed in the same solution for 24 h before being stored at− 80°C until processing. Coronal sections of forebrain (40 μM) are cut on a freezing microtome and placed in 0.1mol/LPB containing Triton X-100 (PB-T, pH 7.4). Sections are incubated for 24 h at 4°C in Ab-2 Fos antibody (rabbit polyclonal; 1:1000 in 1% normal sheep serum). The antibody-antigen complex is localized with a 1-h incubation in biotinylated anti-rabbit Ig, followed by a 1-h incubation in avidin, biotinylated horseradish peroxidase. The reaction product is visualized using a glucose oxidase-diaminobenzidine-nickel method, and Fos-like immunoreactivity is visualized as a dense purple-black precipitate restricted to the nucleus. The number of c-fos positive nuclei in the arcuate and periventricular nuclei (six to eight sections per mouse) are counted double-blind and a group mean calculated (mean±sem). Statistical analysis is performed by a two-way ANOVA followed by an all pairwise multiple comparison of data with significance taken as $P < 0.05$.

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

CUSTOMER VALIDATION

- Anal Bioanal Chem. 2020 Jun;412(15):3765-3777.
- Amino Acids. 2015 Oct;47(10):2237-43.
- Drug Test Anal. 2020 Dec 7.
- Drug Test Anal. 2018 Nov;10(11-12):1755-1760.
- German College for Physical Education. Institut für Biochemie.

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REFERENCES

[1]. Prahalada S, et al. Insulin-like growth factor-1 and growth hormone (GH) levels in canine cerebrospinal fluid are unaffected by GH or GH secretagogue (MK-0677) administration. Horm Metab Res. 1999 Feb-Mar;31(2-3):133-7.

[2]. Zheng H, et al. Somatostatin receptor subtype 2 knockout mice are refractory to growth hormone-negative feedback on arcuate neurons. Mol Endocrinol. 1997 Oct;11(11):1709-17.

[3]. Hickey GJ, et al. Repeat administration of the GH secretagogue MK-0677 increases and maintains elevated IGF-I levels in beagles. J Endocrinol. 1997 Feb;152(2):183-92.

[4]. Jacks T, et al. MK-0677, a potent, novel, orally active growth hormone (GH) secretagogue: GH, insulin-like growth factor I, and other hormonal responses in beagles. Endocrinology. 1996 Dec;137(12):5284-9.

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