# Orexin A (human, rat, mouse)

**Cat. No.:** HY-106224

**CAS No.:** 205640-90-0

**Molecular Formula:** $C_{152}H_{243}N_{47}O_{44}S_4$

**Molecular Weight:** 3561.1

**Sequence Shortening:** {Glp}-PLPDCCRQKTCSCRLYELLHGAGNHAAGILTL-NH2 (Disulfide bridge: Cys6-Cys12, Cys7-Cys14)



**Target:** Orexin Receptor (OX Receptor)

**Pathway:** GPCR/G Protein; Neuronal Signaling

**Storage:** Sealed storage, away from moisture

Powder -80°C 2 years

-20°C 1 year

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

## SOLVENT & SOLUBILITY

**In Vitro**

$H_2O$ : ≥ 50 mg/mL (14.04 mM)

* "≥" means soluble, but saturation unknown.

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 0.2808 mL | 1.4041 mL | 2.8081 mL |
| | 5 mM | 0.0562 mL | 0.2808 mL | 0.5616 mL |
| | 10 mM | 0.0281 mL | 0.1404 mL | 0.2808 mL |

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

## BIOLOGICAL ACTIVITY

**Description**

Orexin A (human, rat, mouse) (Hypocretin-1 (human, rat, mouse)), a 33 amino acid excitatory neuropeptide, orchestrates diverse central and peripheral processes. Orexin A (human, rat, mouse) is a specific, high-affinity agonist for G-protein-coupled receptor OX1R. Orexin A (human, rat, mouse) has a role in the regulation of feeding behavior. Orexin A (human, rat, mouse) is an effective anti-nociceptive and anti-hyperalgesic agent in mice and rats[1][2].

**$IC_{50}$ & Target**

$OX_1$ Receptor

**In Vitro**

Orexin A (human, rat, mouse) has high affinity for OX1R, with 38 nM $IC_{50}$ and 34 nM $EC_{50}$ values in the the $[Ca^{2+}]i$ transient assay[1].

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

**In Vivo**

Orexin A (human, rat, mouse) (3-30 mg/kg; i.v.; 5 min pre-test) significantly increases the latency to response at 10 and 30

mg/kg i.v. when given 5 min pre-test from 24.8±2.0 s in vehicle-treated mice to 35.0±3.7 s and 45.7±4.5 s, respectively[2]. Orexin A (human, rat, mouse) (3, 10 and 30 mg/kg; i.v.) was given immediately before phenylp-quinone (PPQ) and increases the latency to the first PPQ-induced constriction from 357.4±35.2 s in vehicle-treated mice to 500.3±31.2 s at 10 mg/kg and 594.5±5.5 s at 30 mg/kg[2].

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

| | |
|---|---|
| Animal Model: | Female mice (mouse carrageenan-induced thermal hyperalgesia test)[2] |
| Dosage: | 3, 10 and 30 mg/kg |
| Administration: | i.v.; 5 min pre-test |
| Result: | Significantly increased the latency to response at 10 and 30 mg/kg. |

## CUSTOMER VALIDATION

- J Inflamm Res. 2021 May 18;14:2007-2017.
- Brain Res Bull. 2021 Apr;169:81-93.
- Med Sci Monit. 2019 Apr 19;25:2886-2895.

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## REFERENCES

[1]. Sakurai T, et al. Orexins and orexin receptors: a family of hypothalamic neuropeptides and G protein-coupled receptors that regulate feeding behavior. Cell. 1998 Feb 20;92(4):573-85.

[2]. Bingham S, et al. Orexin-A, an hypothalamic peptide with analgesic properties. Pain. 2001 May;92(1-2):81-90.



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