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Orexin A (human, rat, mouse) (TFA)

Cat. No.: HY-106224A

Molecular Formula: $C_{152}H_{243}N_{47}O_{44}S_4.xC_2HF_3O_2$

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

{Glp}-PLPDCCRQKTCSCRLYELLHGAGNHAAGILTL-NH$_2$ (Disulfide bridge: Cys$_6$-Cys$_{12}$, Cys$_7$-Cys$_{14}$) (TFA salt)

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 : 100 mg/mL (Need ultrasonic)

BIOLOGICAL ACTIVITY

Description	Orexin A (human, rat, mouse) (Hypocretin-1 (human, rat, mouse)) TFA, a 33 amino acid excitatory neuropeptide, orchestrates diverse central and peripheral processes. Orexin A (human, rat, mouse) TFA binds and activates two types of G protein-coupled receptors, the orexin-1 receptor (OX1R) and the orexin-2 receptor (OX2R). Orexin A (human, rat, mouse) TFA has a role in the regulation of feeding behavior. Orexin A (human, rat, mouse) TFA is an effective anti-nociceptive and anti-hyperalgesic agent in mice and rats[1][2][3].

IC_{50} & Target	OX_1 Receptor	OX_2 Receptor

In Vitro	Orexin A (human, rat, mouse) TFA has high affinity for OX1R and OX2R, 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) TFA (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) TFA (3, 10 and 30 mg/kg; i.v.) is 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 Neuroinflammation. 2024 May 17;21(1):131.
- 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]. Kaminski T, et al. Expression of orexin receptors in the pituitary. Vitam Horm. 2012;89:61-73.

[2]. 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.

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

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