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Print Date: Jan 27th 2022

Certificate of Analysis

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Product Name: **Orexin A (human, rat, mouse)** **Catalog No.: 1455** **Batch No.: 17**

CAS Number: 205640-90-0

1. PHYSICAL AND CHEMICAL PROPERTIES

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

Batch Molecular Weight: 3561.12

Physical Appearance: White lyophilised solid

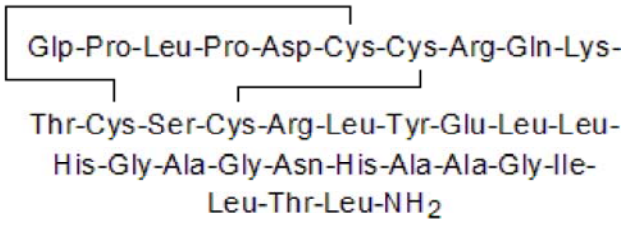
Net Peptide Content: 73%

Counter Ion: TFA

Solubility: Soluble to 1 mg/ml in water

Storage: Store at -20°C

Peptide Sequence:



2. ANALYTICAL DATA

HPLC: Shows 95% purity

Mass Spectrum: Consistent with structure

3. AMINO ACID ANALYSIS DATA

Amino Acid	Theoretical	Actual	Amino Acid	Theoretical	Actual
Ala	3.00	2.91	Lys	1.00	1.01
Arg	2.00	2.01	Met		
Asx	2.00	2.08	Phe		
Cys	4.00	2.04	Pro	2.00	2.00
Glx	3.00	3.09	Ser	1.00	0.86
Gly	3.00	2.96	Thr	2.00	1.84
His	2.00	2.06	Trp		
Ile	1.00	0.96	Tyr	1.00	0.95
Leu	6.00	5.91	Val		

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Product Name: **Orexin A (human, rat, mouse)** **Catalog No.: 1455** **Batch No.: 17**

CAS Number: 205640-90-0

Description:

Orexin A (human, rat, mouse) is an endogenous agonist with high affinity at orexin receptors (K_i values are 20 and 38 nM for OX_1 and OX_2 receptors respectively). Orexin A stimulates feeding following central administration and may be involved in the control of sleep-wake cycle and other hypothalamic functions. Orexin A impairs neurogenesis and hippocampal plasticity in mice. Orexin A improves glucose control and beta cell functions in type 2 diabetic animals.

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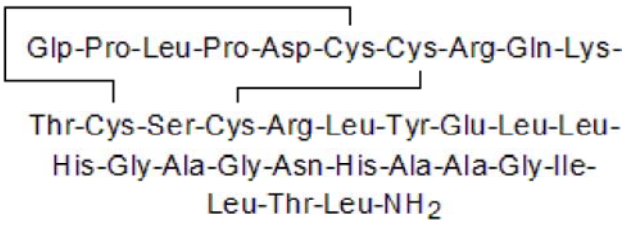

Storage: Store at -20°C

CAUTION - This product is light sensitive and we recommend that the solid material and any solutions obtained are protected from exposure to light.

Solubility & Usage Info:

Soluble to 1 mg/ml in water

This product is supplied as a lyophilized solid and may be very hard to visualize. Solutions should be made by adding solvent directly to the vial. The vial should then be vortexed vigorously to ensure the product has completely dissolved.

Net Peptide Content: 73% (Remaining weight made up of counterions and residual water).

Counter Ion: TFA

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Peptides in solution are much less stable than in lyophilized form. This is especially true for peptides whose sequences contain amino acids such Cys, Met,Trp, Asn, Gln, and N-terminal Glu.

Therefore we recommend storing peptides in solution for as short a time as possible. Avoid repeated freeze thaw cycles by dividing the peptide solution into aliquots and storing the aliquots at -20°C. Any portion of an aliquot unused after thawing should be discarded.

Peptides stored in solution can occasionally be susceptible to bacterial degradation. We recommend using sterile solutions or passing the peptide solution through a 0.2 µm filter to remove potential bacterial contamination whenever possible.

References:

Forte *et al* (2021) Orexin-A and endocannabinoids are involved in obesity-associated alteration of hippocampal neurogenesis, plasticity, and episodic memory in mice. Nat.Commun. ***12*** 6137. PMID: 34675233.

Kaczmarek *et al* (2017) Chronic orexin-A (hypocretin-1) treatment of type 2 diabetic rats improves glucose control and beta-cell functions. J.Physiol.Pharmacol. ***68*** 669. PMID: 29375041.

Kilduff and Peyron (2000) The hypocretin/orexin ligand-receptor system: implications for sleep and sleep disorders. TiNS ***23*** 359. PMID: 10906799.