

## Certificate of Analysis

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**Product Name:** Endomorphin-2

**Catalog No.:** 1056

**Batch No.:** 11

CAS Number: 141801-26-5

### 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:** C<sub>32</sub>H<sub>37</sub>N<sub>5</sub>O<sub>5</sub>  
**Batch Molecular Weight:** 571.65  
**Physical Appearance:** White lyophilised solid  
**Net Peptide Content:** 82%  
**Counter Ion:** TFA  
**Solubility:** Soluble to 0.40 mg/ml in water  
**Storage:** Desiccate at -20°C  
**Peptide Sequence:** Tyr-Pro-Phe-Phe-NH<sub>2</sub>

### 2. ANALYTICAL DATA

**HPLC:** Shows 97.7% purity  
**Mass Spectrum:** Consistent with structure

### 3. AMINO ACID ANALYSIS DATA

Amino Acid	Theoretical	Actual	Amino Acid	Theoretical	Actual
Ala			Lys		
Arg			Met		
Asx			Phe	2.00	2.00
Cys			Pro	1.00	1.01
Glx			Ser		
Gly			Thr		
His			Trp		
Ile			Tyr	1.00	0.99
Leu			Val		

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Tel: +1 612 379 2956

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**Batch No.:** 11

CAS Number: 141801-26-5

**Description:**

Endogenous peptide with extremely high affinity and selectivity for  $\mu$ -opioid receptors (with  $K_i$  values of 0.69, 9233 and 5240 nM for  $\mu$ ,  $\delta$  and  $\kappa$  respectively).

**Physical and Chemical Properties:**

Batch Molecular Formula:  $C_{32}H_{37}N_5O_5$

Batch Molecular Weight: 571.65

Physical Appearance: White lyophilised solid

**Peptide Sequence:**

Tyr-Pro-Phe-Phe-NH<sub>2</sub>

**Storage:** Desiccate at -20°C

**Solubility & Usage Info:**

Soluble to 0.40 mg/ml in water

**Net Peptide Content:** 82% (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 as 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  $\mu$ m filter to remove potential bacterial contamination whenever possible.

**References:**

**Goldberg et al** (1998) Pharmacological characterization of endomorphin-1 and endomorphin-2 in mouse brain. *J.Pharmacol.Exp.Ther.* **286** 1007. PMID: 9694962.

**Harrison et al** (1998) Differential effects of endomorphin-1, endomorphin-2, and tyr-W-MIF-1 on activation of G-proteins in SH-SY5Y human neuroblastoma membranes. *Peptides* **19** 749. PMID: 9622031.

**Chapman et al** (1997) Distinct inhibitory effects of spinal endomorphin-1 and endomorphin-2 on evoked dorsal horn neuronal responses in the rat. *Br.J.Pharmacol.* **122** 1537. PMID: 9422796.

**Zadina et al** (1997) A potent and selective endogenous agonist for the  $\mu$ -opiate receptor. *Nature* **386** 499. PMID: 9087409.

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