

## Certificate of Analysis

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**Product Name:** ACV 1  
**CAS Number:** 740980-24-9

**Catalog No.:** 3205      **Batch No.:** 1

### 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:**  $C_{71}H_{103}N_{23}O_{25}S_4$   
**Batch Molecular Weight:** 1806.98  
**Physical Appearance:** White lyophilised solid  
**Counter Ion:** Acetate  
**Storage:** Store at -20°C  
**Peptide Sequence:**  
Gly-Cys-Cys-Ser-Asp-Pro-Arg-Cys-Asn-Tyr-  
Asp-His-Pro-Glu-Ile-Cys-NH<sub>2</sub>

### 2. ANALYTICAL DATA

**HPLC:** Shows >99% purity  
**Mass Spectrum:** Consistent with structure

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

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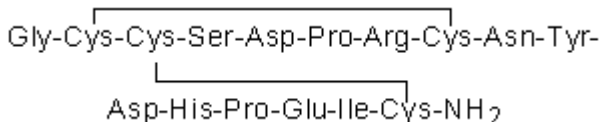
**Description:**

Neuronal nicotinic receptor antagonist that displays selectivity for the  $\alpha 9\alpha 10$  subtype ( $IC_{50}$  values are 19, 140, 980, 4200 and 7300 nM for  $\alpha 9\alpha 10$ ,  $\alpha 6/\alpha 3\beta 2\beta 3$ ,  $\alpha 6/\alpha 3\beta 4$ ,  $\alpha 3\beta 4$  and  $\alpha 3\beta 2$  subtypes respectively). Alleviates neuropathic pain in three rat models of human neuropathic pain and accelerates functional recovery of injured neurons.

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**Storage:** Store at -20°C

**Solubility & Usage Info:**

Most peptides are soluble in distilled water. If the peptide does not completely dissolve addition of 0.1M acetic acid (those containing Arg, Lys, His) or 0.1M ammonia (those containing Asp, Glu) may help. Occasionally 10% DMSO or DMF may be required for extremely insoluble peptides. In addition to these measures sonication may also be helpful.

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.

**Counter Ion:** Acetate

**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.

**Other Information:**

**This is a dual-use item with associated conditions of supply; the relevant licence/documentation from the appropriate governing body will be required.**

**Note on Biotubes:**

Toxins are supplied in protective biotubes. These biotubes have a screw top lid, which is manually tightened and can be easily unscrewed. If the lid is particularly tight, a coin placed in the top slot may be used to unscrew it.

**References:**

**Sandall et al** (2003) A novel  $\alpha$ -conotoxin identified by gene sequencing is active in suppressing the vascular response to selective stimulation of sensory nerves in vivo. *Biochemistry* **42** 6904. PMID: 12779345.

**Vinclair et al** (2006) Molecular mechanism for analgesia involving specific antagonism of  $\alpha 9\alpha 10$  nicotinic acetylcholine receptors. *Proc.Nat.Acad.Sci.USA* **103** 17880.

**Nevin et al** (2007) Are  $\alpha 9\alpha 10$  nicotinic acetylcholine receptors a pain target for  $\alpha$ -conotoxins? *Mol.Pharmacol* **72** 1406. PMID: 17804600.

**Halai et al** (2009) Scanning mutagenesis of  $\alpha$ -conotoxin Vc1.1 reveals residues crucial for activity at the  $\alpha 9\alpha 10$  nicotinic acetylcholine receptor *J.Biol.Chem.* **284** 20275. PMID: 19447885.

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