

Data Sheet

Product Name:	Dynorphin A	
Cat. No.:	CS-0029455	
CAS No.:	80448-90-4	
Molecular Formula:	C ₉₉ H ₁₅₅ N ₃₁ O ₂₃	
Molecular Weight:	2147.48	YGGFLRRIRPKLKWDNQ
Target:	Apoptosis; Caspase; Endogenous Metabolite; Opioid Receptor	
Pathway:	Apoptosis; GPCR/G Protein; Metabolic Enzyme/Protease; Neuronal Signaling	
Solubility:	DMSO : 120 mg/mL (55.88 mM; Need ultrasonic)	

BIOLOGICAL ACTIVITY:

Dynorphin A is an endogenous opioid peptide involved in inhibitory neurotransmission in the central nervous system (CNS).

Dynorphin A is a highly potent **kappa opioid receptor (KOR)** agonist, and is also an agonist for other opioid receptors, such as mu (MOR) and delta (DOR). Dynorphin A can induce neuronal death, and can be used in the research of neurological disease^{[1][2]}. **In**

Vitro: Dynorphin A (10 μM, 4 h/72 h) increases caspase-3 activity and the level of cytochrome c released from mitochondria in mouse striatal neurons, and induces neuronal death^[3].

dynorphin A (33 μM, 4 h) elevates [Ca²⁺]_i and causes a significant loss of neurons^[4].

dynorphin A (1 μM) inhibits the release of vasopressin (VP) from the isolated neural lobe^[5]. **In Vivo:** Dynorphin A (intracerebroventricular injection, 1 μg of 2 μL, a single dose) inhibits vasopressin (VP) release in 24 h water-deprived male rats^[5].

Dynorphin A (intracerebroventricular injection, 500 pmol/5 μL per day for 4 d) alleviates stress-induced behavioral impairments in ddY mice accompanied by regulation of the 5-HTergic system in the brain^[6].

References:

[1]. Zhang, et al. Dynorphin A as a Potential Endogenous Ligand for Four Members of the Opioid Receptor Gene Family. *J Pharmacol Exp Ther.* 1998 Jul;286(1):136-41.

[2]. Aruna Sharma, et al. Monoclonal antibodies as novel neurotherapeutic agents in CNS injury and repair. *Int Rev Neurobiol.* 2012;102:23-45.

[3]. I. N. SINGH, et al. Dynorphin A (1–17) induces apoptosis in striatal neurons in vitro through AMPA/kainate receptor-mediated cytochrome c release and caspase-3 activation. *Neuroscience.* 2003;122(4):1013-23.

[4]. K F Hauser, et al. Dynorphin A (1-13) neurotoxicity in vitro: opioid and non-opioid mechanisms in mouse spinal cord neurons. *Exp Neurol.* 1999 Dec;160(2):361-75.

[5]. B J Van de Heijning, et al. Dynorphin-A and vasopressin release in the rat: a structure-activity study. *Neuropeptides.* 1994 Jun;26(6):371-8.

[6]. Takayoshi Mamiya, et al. Dynorphin a (1-13) alleviated stress-induced behavioral impairments in mice. *Biol Pharm Bull.* 2014;37(8):1269-73.

CAIndexNames:

Dynorphin A (swine)

SMILES:

Caution: Product has not been fully validated for medical applications. For research use only.

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