

## TAT-DEF-Elk-1

<b>Cat. No.:</b>	HY-P2262	
<b>CAS No.:</b>	1220751-16-5	
<b>Molecular Formula:</b>	C <sub>155</sub> H <sub>259</sub> N <sub>57</sub> O <sub>40</sub>	
<b>Molecular Weight:</b>	3561.07	GRKKRRQRRRPPSPAKLSFQFPSSGSAQVHI
<b>Sequence Shortening:</b>	GRKKRRQRRRPPSPAKLSFQFPSSGSAQVHI	
<b>Target:</b>	Others	
<b>Pathway:</b>	Others	
<b>Storage:</b>	Sealed storage, away from moisture and light, under nitrogen	
	Powder	-80°C 2 years -20°C 1 year
	* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light, under nitrogen)	

### SOLVENT & SOLUBILITY

<b>In Vitro</b>	H <sub>2</sub> O : 5 mg/mL (1.40 mM; Need ultrasonic)				
		Solvent Concentration	Mass		
	<b>Preparing Stock Solutions</b>	1 mM	0.2808 mL	1.4041 mL	2.8081 mL
		5 mM	---	---	---
		10 mM	---	---	---
Please refer to the solubility information to select the appropriate solvent.					

### BIOLOGICAL ACTIVITY

<b>Description</b>	TAT-DEF-Elk-1 (TDE) is a cell-penetrating peptide inhibitor of Elk-1, mimics and specifically interferes with the DEF domain of Elk-1. TAT-DEF-Elk-1 blocks Elk-1 phosphorylation and prevents Elk-1 nuclear translocation without interfering with ERK nor MSK1 activation. TAT-DEF-Elk-1 is a useful tool to analyze the role of Elk-1 in this process during the development of neuronal plasticity <sup>[1]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	IC <sub>50</sub> : Elk-1 <sup>[1]</sup>
<b>In Vitro</b>	Elk-1 phosphorylation on Ser383/389 has a dual function and triggers both Elk-1 nuclear translocation and SRE-dependent gene expression <sup>[1]</sup> . TAT-DEF-Elk-1 (5-10 μM; 1 hour) specifically inhibits glutamate-induced elk-1 activation and does not interfere with ERK, MSK-1, or CREB phosphorylation <sup>[1]</sup> . TAT-DEF-Elk-1 (5 μM; 2 hour) treatment shows a significant inhibition of c-Fos, Zif268 and JunB, but has no effects on c-Jun expression <sup>[1]</sup> .

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### Western Blot Analysis<sup>[1]</sup>

Cell Line:	Neurons
Concentration:	5 $\mu$ M; 10 $\mu$ M
Incubation Time:	1 hour
Result:	Decreased Elk-1 expression and had no effects on ERK, MSK-1, or CREB phosphorylation.

#### RT-PCR<sup>[1]</sup>

Cell Line:	Primary striatal neurons
Concentration:	5 $\mu$ M
Incubation Time:	2 hour
Result:	Decreased c-Fos, Zif268 and JunB mRNA level but did not effect c-Jun.

#### In Vivo

TAT-DEF-Elk-1 (intraperitoneal injection; 1mg/kg; daily; 14 days) reflects antidepressant efficacy in mice, it decreases immobility similar to the reference antidepressants fluoxetine and desipramine (DMI)<sup>[2]</sup>.

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Animal Model:	C57Bl6 mice (3-6 months old males) are subjected to social defeat stress <sup>[2]</sup>
Dosage:	1mg/kg;
Administration:	Intraperitoneal injection; daily; 14 days
Result:	Reversed social-defeat induced decrease of hippocampal Bdnf expression by repeated TDE administration.

## CUSTOMER VALIDATION

- Research Square Preprint. 2022 Jan.

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## REFERENCES

[1]. Lavaur J, et al. A TAT-DEF-Elk-1 peptide regulates the cytonuclear trafficking of Elk-1 and controls cytoskeleton dynamics. J Neurosci. 2007 Dec 26;27(52):14448-58.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA