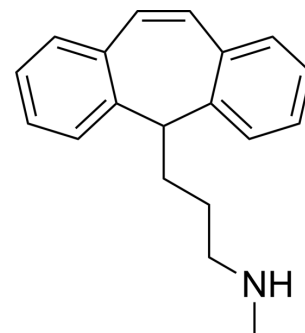


Protriptyline

Cat. No.:	HY-B0949A
CAS No.:	438-60-8
Molecular Formula:	C ₁₉ H ₂₁ N
Molecular Weight:	263.38
Target:	Cholinesterase (ChE); Amyloid-β
Pathway:	Neuronal Signaling
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Protriptyline is a potent antidepressant agent. Protriptyline inhibits AChE activity with IC ₅₀ value of 0.06 mM and inhibits Aβ Self-Assembly. Protriptyline can be used for depression and Alzheimers disease ^{[1][2][3]} .									
IC₅₀ & Target	AChE 0.06 mM (IC ₅₀)									
In Vitro	<p>Protriptyline (0-70 μM; 24 hours; PC3 cells) causes cytotoxicity in PC3 cells^[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. Cell Cytotoxicity Assay^[2]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>PC3 cells</td> </tr> <tr> <td>Concentration:</td> <td>50, 60 and 70 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>Decreased cell viability in a concentration-dependent manner.</td> </tr> </table>		Cell Line:	PC3 cells	Concentration:	50, 60 and 70 μM	Incubation Time:	24 hours	Result:	Decreased cell viability in a concentration-dependent manner.
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In Vivo	<p>Protriptyline (10 mg/kg; i.p.; for 21 days; rat model of AD) improves spatial learning and retention memory in STZ treated rats^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>Rat model of AD^[3]</td> </tr> <tr> <td>Dosage:</td> <td>10 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Intraperitoneal injection; for 21 days.</td> </tr> <tr> <td>Result:</td> <td>Reduced pTau, Aβ42 and BACE-1 levels, neurodegeneration, oxidative stress and glial activation. Improved p-ERK/ERK ratio and enhanced BDNF and CREB levels by reducing NF κB and GFAP expression.</td> </tr> </table>		Animal Model:	Rat model of AD ^[3]	Dosage:	10 mg/kg	Administration:	Intraperitoneal injection; for 21 days.	Result:	Reduced pTau, Aβ42 and BACE-1 levels, neurodegeneration, oxidative stress and glial activation. Improved p-ERK/ERK ratio and enhanced BDNF and CREB levels by reducing NF κB and GFAP expression.
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CUSTOMER VALIDATION

- Biochem Biophys Res Commun. 2022.

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REFERENCES

- [1]. Bansode SB, et, al. Molecular investigations of protriptyline as a multi-target directed ligand in Alzheimer's disease. PLoS One. 2014 Aug 20;9(8):e105196.
- [2]. Chang HT, et, al. The mechanism of protriptyline-induced Ca²⁺ movement and non-Ca²⁺-triggered cell death in PC3 human prostate cancer cells. J Recept Signal Transduct Res. 2015;35(5):429-34.
- [3]. Tiwari V, et, al. Protriptyline improves spatial memory and reduces oxidative damage by regulating NFκB-BDNF/CREB signaling axis in streptozotocin-induced rat model of Alzheimer's disease. Brain Res. 2021 Mar 1;1754:147261.
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Caution: Product has not been fully validated for medical applications. For research use only.

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