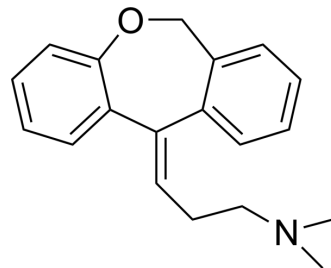


## Doxepin

Cat. No.:	HY-B0725A
CAS No.:	1668-19-5
Molecular Formula:	C <sub>19</sub> H <sub>21</sub> NO
Molecular Weight:	279.38
Target:	mTOR; PI3K; Akt
Pathway:	PI3K/Akt/mTOR
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

<b>Description</b>	Doxepin inhibits reuptake of serotonin and norepinephrine as a tricyclic antidepressant. Doxepin has therapeutic effects in atopic dermatitis, chronic urticaria, can improve cognitive processes, protect central nervous system. Doxepin has also been proposed as a protective factor against oxidative stress <sup>[1][2][3]</sup> .								
<b>In Vitro</b>	<p>The protective effect of doxepin is associated with the enhancement of PSD-95 and synapsin 1 expression via PI3K/AKT/mTOR signaling pathway<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis<sup>[4]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>SH-SY5Y human neuroblastoma cell line</td> </tr> <tr> <td>Concentration:</td> <td>10 ng/mL</td> </tr> <tr> <td>Incubation Time:</td> <td>2 h</td> </tr> <tr> <td>Result:</td> <td>Improved the protein expression levels of PSD-95, synapsin 1 and p-AKT in SH-SY5Y cells, and decreased the protein expression level of p-mTOR in SH-SY5Y cells.</td> </tr> </table>	Cell Line:	SH-SY5Y human neuroblastoma cell line	Concentration:	10 ng/mL	Incubation Time:	2 h	Result:	Improved the protein expression levels of PSD-95, synapsin 1 and p-AKT in SH-SY5Y cells, and decreased the protein expression level of p-mTOR in SH-SY5Y cells.
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<b>In Vivo</b>	<p>Doxepin (intraperitoneal injection of 1 mg/kg and 5 mg/kg doxepin once a day for 21 days) can protect against the Aβ<sub>1-42</sub>-induced memory impairment in rats<sup>[4]</sup>.</p> <p>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>SD male rats<sup>[4]</sup></td> </tr> <tr> <td>Dosage:</td> <td>1, 5mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Doxepin (intraperitoneal injection of 1 mg/kg and 5 mg/kg doxepin once a day for 21 days)</td> </tr> <tr> <td>Result:</td> <td>Improved the protein expression levels of PSD-95 and synapsin 1 in hippocampus and temporal lobe, and decreased the protein expression level of p-AKT in hippocampus and temporal lobe after treatment of 1 mg/kg of doxepin.</td> </tr> </table>	Animal Model:	SD male rats <sup>[4]</sup>	Dosage:	1, 5mg/kg	Administration:	Doxepin (intraperitoneal injection of 1 mg/kg and 5 mg/kg doxepin once a day for 21 days)	Result:	Improved the protein expression levels of PSD-95 and synapsin 1 in hippocampus and temporal lobe, and decreased the protein expression level of p-AKT in hippocampus and temporal lobe after treatment of 1 mg/kg of doxepin.
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## CUSTOMER VALIDATION

- Nat Commun. 2022 Nov 10;13(1):6796.
- Cell Commun Signal. 2023 May 25;21(1):123.
- Virus Res. 2022 Aug;317:198816.
- J Appl Toxicol. 2023 Apr 14.

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## REFERENCES

- [1]. Annemiek Vermeeren, et al. Effects of the use of hypnotics on cognition. Progress in brain research vol. 190 (2011): 89-103.
- [2]. G Hajak, et al. Doxepin in the treatment of primary insomnia: a placebo-controlled, double-blind, polysomnographic study. The Journal of clinical psychiatry vol. 62,6 (2001): 453-63.
- [3]. Mahsa Gharzi, et al. Effects of different doses of doxepin on passive avoidance learning in rats. Advanced biomedical research vol. 2 66. 30 Jul. 2013.
- [4]. Jimei Bu, et al. Mechanism underlying the effects of doxepin on  $\beta$ -amyloid -induced memory impairment in rats. Iran J Basic Med Sci. 2017 Sep;20(9):1044-1049.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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