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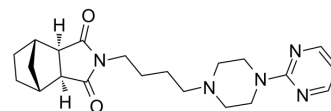
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Tandospirone

Cat. No.:	HY-14558
CAS No.:	87760-53-0
Molecular Formula:	C ₂₁ H ₂₉ N ₅ O ₂
Molecular Weight:	383.49
Target:	5-HT Receptor
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 16.67 mg/mL (43.47 mM; Need ultrasonic)
H₂O : < 0.1 mg/mL (insoluble)

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		2.6076 mL	13.0381 mL	26.0763 mL
	5 mM		0.5215 mL	2.6076 mL	5.2153 mL
	10 mM		0.2608 mL	1.3038 mL	2.6076 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Tandospirone (SM-3997) is a potent and selective 5-HT_{1A} receptor partial agonist, with a K_i of 27 nM. Tandospirone has anxiolytic and antidepressant activities. Tandospirone can be used for the research of the central nervous system disorders and the underlying mechanisms^{[1][2][3]}.

IC₅₀ & Target

5-HT_{1A} Receptor
27 nM (K_i)

In Vitro	Tandospirone is approximately two to three orders of magnitude less potent at 5-HT₂, 5-HT_{1C}, α1-adrenergic, α2-adrenergic and dopamine D1 and D2 receptors (K_i values ranging from 1300 to 41000 nM) than 5-HT_{1A}^[1]. Tandospirone is essentially inactive at 5-HT_{1B} receptors; 5-HT uptake sites; beta-adrenergic, muscarinic cholinergic, and benzodiazepine receptors^[1]. Tandospirone activates postsynaptic 5-HT_{1A} receptor coupled with G-protein (G_{i/o}), resulting in inhibition of protein kinase A (PKA)-mediated protein phosphorylation and neuronal activity^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.								
In Vivo	Tandospirone (10-80 mg/kg; i.p.) inhibits freezing behavior in the conditioned fear stress-induced freezing behavior rat model^[3]. Tandospirone exhibits the anxiolytic effect dependent on the plasma concentration of at 0.5 hours but not 4 hours^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. <table border="1" data-bbox="345 552 1515 823"> <tr> <td>Animal Model:</td><td>Seven-week-old male Sprague-Dawley rats (260-300 g), conditioned fear stress-induced freezing behavior rat model^[3]</td></tr> <tr> <td>Dosage:</td><td>10 mg/kg, 20 mg/kg, 40 mg/kg, 80 mg/kg</td></tr> <tr> <td>Administration:</td><td>Intraperitoneal injection</td></tr> <tr> <td>Result:</td><td>Inhibited freezing behavior in a dose-dependent manner.</td></tr> </table>	Animal Model:	Seven-week-old male Sprague-Dawley rats (260-300 g), conditioned fear stress-induced freezing behavior rat model ^[3]	Dosage:	10 mg/kg, 20 mg/kg, 40 mg/kg, 80 mg/kg	Administration:	Intraperitoneal injection	Result:	Inhibited freezing behavior in a dose-dependent manner.
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Administration:	Intraperitoneal injection								
Result:	Inhibited freezing behavior in a dose-dependent manner.								

CUSTOMER VALIDATION

- Pharmacology. 2020;105(7-8):369-376.
- Neurosci Lett. 2022 Jan 15;136459.

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REFERENCES

- [1]. Hamik A, et al. Analysis of tandospirone (SM-3997) interactions with neurotransmitter receptor binding sites. Biol Psychiatry. 1990 Jul 15;28(2):99-109.
- [2]. Xuefei Huang, et al. Role of tandospirone, a 5-HT_{1A} receptor partial agonist, in the treatment of central nervous system disorders and the underlying mechanisms. Oncotarget. 2017 Nov 24; 8(60): 102705–102720.
- [3]. Kyoko Nishitsuji, et al. The pharmacokinetics and pharmacodynamics of tandospirone in rats exposed to conditioned fear stress. Eur Neuropsychopharmacol. 2006 Jul;16(5):376-82.

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

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