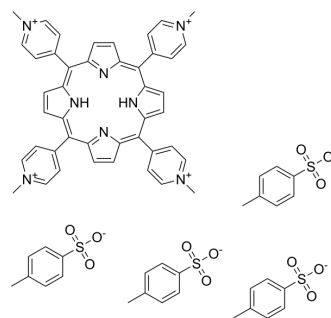


TMPyP4 tosylate

Cat. No.:	HY-108477
CAS No.:	36951-72-1
Molecular Formula:	C ₇₂ H ₆₆ N ₈ O ₁₂ S ₄
Molecular Weight:	1363.6
Target:	G-quadruplex; Telomerase; Cholinesterase (ChE); SARS-CoV
Pathway:	Cell Cycle/DNA Damage; Neuronal Signaling; Anti-infection
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	DMSO : 10 mg/mL (7.33 mM; Need ultrasonic)					
	H ₂ O : 5 mg/mL (3.67 mM; ultrasonic and warming and heat to 60°C)					
	Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		0.7334 mL	3.6668 mL	7.3335 mL
5 mM			0.1467 mL	0.7334 mL	1.4667 mL	
	10 mM		---	---	---	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: PBS Solubility: 7.14 mg/mL (5.24 mM); Clear solution; Need ultrasonic and warming and heat to 60°C					
	2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 1 mg/mL (0.73 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 1 mg/mL (0.73 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	TMPyP4 tosylate (TMP 1363) is a quadruplex-specific ligand. TMPyP4 tosylate inhibits the interaction between G-quadruplexes and IGF-1. TMPyP4 tosylate is a telomerase inhibitor and inhibits cancer cells proliferation. TMPyP4 tosylate is also a stabilizer of nucleic acid secondary structure and an acetylcholinesterase inhibitor. Besides, TMPyP4 tosylate has antiviral activity against SARS-CoV-2 ^{[1][2][3][6]} .			
IC₅₀ & Target	AChE	G-quadruplex	Telomerase	SARS-CoV-2
In Vitro	TMPyP4 tosylate (50 μM, 96 h) inhibits telomerase activity in telomerase positive HOS cells ^[2] .			

TMPyP4 tosylate (50 μ M, 48 or 96 h) inhibits the growth of HOS cells^[2].
 TMPyP4 tosylate (50 μ M, 96 h) induces cell apoptosis in HOS, Saos-2, MG-63, and U2OS cell lines^[2].
 TMPyP4 tosylate (100 μ M, 24 or 48 h) increases cell cycle regulatory proteins and MAPKs in K562 cells^[4].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay^[2]

Cell Line:	HOS cells
Concentration:	50 μ M
Incubation Time:	48 or 96 h
Result:	Time-dependently inhibited cell viability.

Western Blot Analysis^[4]

Cell Line:	K562 cells
Concentration:	100 μ M
Incubation Time:	24 or 48 h
Result:	Increased the expression of p21 ^{CIP1} protein and p57 ^{KIP2} protein.

In Vivo

TMPyP4 tosylate (10 and 20 mg/kg, i.p., two times weekly) inhibits tumor growth in MX-1 tumor model^[5].
 TMPyP4 tosylate (15 mg/kg or 30 mg/kg, i.n.) decreases the mean viral loads in SARS-CoV-2-infected hamster^[6].
 TMPyP4 tosylate (30 mg/kg, i.n., hamsters) shows a C_{max} of 17.88 μ g/mL at 1 h, and a half-life (T_{1/2}) of 6.36 h^[6].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	MX-1 mammary chemoadjuvant model ^[5]
Dosage:	10 and 20 mg/kg
Administration:	Intraperitoneal injection (i.p.), twice weekly.
Result:	Inhibited tumor growth and prolonged mice survival.

Animal Model:	SARS-CoV-2-infected hamster ^[6]
Dosage:	15 mg/kg or 30 mg/kg
Administration:	i.n., starting at 1 h prior to virus inoculation and continuing until 3 days post infection
Result:	Decreased the mean viral loads in the nasal wash, nasal turbinate and lung tissues.

CUSTOMER VALIDATION

- Microbiol Spectr. 2022 Apr 21;e0046022.

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REFERENCES

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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

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