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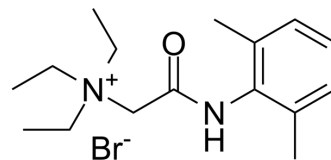
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QX-314 bromide

Cat. No.:	HY-101350
CAS No.:	24003-58-5
Molecular Formula:	C ₁₆ H ₂₇ BrN ₂ O
Molecular Weight:	343.3
Target:	Sodium Channel
Pathway:	Membrane Transporter/Ion Channel
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	H ₂ O : 100 mg/mL (291.29 mM; Need ultrasonic)				
	DMSO : 50 mg/mL (145.65 mM; ultrasonic and warming and heat to 60°C)				
	Preparing Stock Solutions	Solvent Concentration Mass	1 mg	5 mg	10 mg
		1 mM	2.9129 mL	14.5645 mL	29.1290 mL
		5 mM	0.5826 mL	2.9129 mL	5.8258 mL
10 mM		0.2913 mL	1.4565 mL	2.9129 mL	
Please refer to the solubility information to select the appropriate solvent.					
In Vivo	1. Add each solvent one by one: PBS Solubility: 50 mg/mL (145.65 mM); Clear solution; Need ultrasonic				
	2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (6.06 mM); Clear solution				
	3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (6.06 mM); Clear solution				
	4. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (6.06 mM); Clear solution				

BIOLOGICAL ACTIVITY

Description	QX-314 bromide is a membrane-impermeable permanently charged sodium channel blocker ^[1] .
IC ₅₀ & Target	sodium channel ^[1]
In Vitro	QX-314 bromide exerts biphasic effects on transient receptor potential vanilloid subtype 1 channels (TRPV1) in vitro ^[1] . QX-314 bromide (1–60 mM) directly activates TRPV1 in a concentration-dependent manner ^[1] .

	QX-314 bromide (≥ 30 mM) produces oocyte membrane blackening and cell death ^[1]. QX-314 bromide inhibits calcium currents in hippocampal CA1 pyramidal neurons intracellular, and the low-threshold (T-type) Ca^{2+} currents are on average $< 10\%$ of control amplitude ^[3]. QX-314 bromide shifts the current-voltage relationships (I-Vs) in the positive voltage direction due to the presence of intracellular Br^- ^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.								
In Vivo	QX-314 bromide (1.6 mg/kg; i.c.) abolishes responses to noxious mechanical and thermal stimuli without motor or tactile deficits when co-treatment with capsaicin^[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. <table> <tr> <td>Animal Model:</td><td>Male Sprague-Dawley rats (250-290 g)^[2]</td></tr> <tr> <td>Dosage:</td><td>1.6 mg/kg</td></tr> <tr> <td>Administration:</td><td>Intracutaneous injection</td></tr> <tr> <td>Result:</td><td>Abolished responses to noxious mechanical and thermal stimuli without motor or tactile deficits when co-treatment with capsaicin.</td></tr> </table>	Animal Model:	Male Sprague-Dawley rats (250-290 g) ^[2]	Dosage:	1.6 mg/kg	Administration:	Intracutaneous injection	Result:	Abolished responses to noxious mechanical and thermal stimuli without motor or tactile deficits when co-treatment with capsaicin.
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Dosage:	1.6 mg/kg								
Administration:	Intracutaneous injection								
Result:	Abolished responses to noxious mechanical and thermal stimuli without motor or tactile deficits when co-treatment with capsaicin.								

REFERENCES

- [1]. Rivera-Acevedo RE, et al. The quaternary lidocaine derivative, QX-314, exerts biphasic effects on transient receptor potential vanilloid subtype 1 channels in vitro. *Anesthesiology*. 2011 Jun;114(6):1425-34.
- [2]. Binshtok AM, et al. Coapplication of lidocaine and the permanently charged sodium channel blocker QX-314 produces a long-lasting nociceptive blockade in rodents. *Anesthesiology*. 2009 Jul;111(1):127-37.
- [3]. Talbot MJ, et al. Intracellular QX-314 inhibits calcium currents in hippocampal CA1 pyramidal neurons. *J Neurophysiol*. 1996 Sep;76(3):2120-4.

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

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