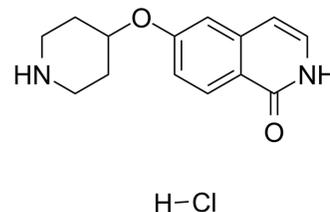


SAR407899 hydrochloride

Cat. No.:	HY-15687
CAS No.:	923262-96-8
Molecular Formula:	C ₁₄ H ₁₇ ClN ₂ O ₂
Molecular Weight:	280.75
Target:	ROCK
Pathway:	Cell Cycle/DNA Damage; Cytoskeleton; Stem Cell/Wnt; TGF-beta/Smad
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

H₂O : 50 mg/mL (178.09 mM; Need ultrasonic)
DMSO : 25 mg/mL (89.05 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	3.5619 mL	17.8094 mL	35.6189 mL
	5 mM	0.7124 mL	3.5619 mL	7.1238 mL
	10 mM	0.3562 mL	1.7809 mL	3.5619 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 25 mg/mL (89.05 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (8.90 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (8.90 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (8.90 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SAR407899 hydrochloride is a selective, potent and ATP-competitive ROCK inhibitor, with an IC₅₀ of 135 nM for ROCK-2, and K_s of 36 nM and 41 nM for human and rat ROCK-2, respectively.

IC₅₀ & Target

ROCK-2 102 nM (IC ₅₀)	ROCK-1 276 nM (IC ₅₀)
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In Vitro	<p>SAR407899 hydrochloride is a potent and ATP-competitive ROCK inhibitor, with K_is of 36 nM and 41 nM for human and rat ROCK-2, respectively. SAR407899 inhibits ROCK-2 better than ROCK-1, with IC_{50}s of 102 ± 19 nM and 276 ± 26 nM, respectively, in the presence of 40 μM ATP. SAR407899 also less potently inhibits PKC-Δ and MSK-1, with IC_{50}s of 5.4 and 3.1 μM, respectively. SAR407899 (0.1, 0.3, 1.0, and 3.0 μM) specifically inhibits the ROCK-mediated phosphorylation of MYPT^{T696} in HeLa cells stimulated with PHEN, and shows such effects at 1 μM and 10 μM in primary rat aortic smooth muscle cells. SAR407899 (3 μM) completely blocks thrombin-induced shrinkage of human umbilical vein endothelial cells (HUVECs) and stress fiber formation. SAR407899 concentration-dependently inhibits 5-bromodeoxyuridine incorporation into the cells with an IC_{50} of 5.0 ± 1.3 μM. SAR407899 also effectively inhibits THP-1 migration with an IC_{50} of 2.5 ± 1.0 μM. SAR407899 shows a potent vasorelaxant activity in a broad variety of isolated arteries taken from different vascular beds and species, with a range of IC_{50} values between 122 and 280 nM^[1]. SAR407899 dose-dependently relaxes the phenylephrine pre-contracted smooth muscle, with IC_{50}s of 0.07 and 0.05 μM, respectively^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>SAR407899 (3 mg/kg, i.v.) inhibits ROCK-mediated phosphorylation of MYPT^{T696} in thoracic aorta of spontaneously hypertensive rats (SHRs). SAR407899 (0.01-0.30 mg/kg, i.v.) efficiently reduces pressor responses to vasoconstrictor agents in rats. SAR407899 (1, 3, 10, and 30 mg/kg, p.o.) dose dependently lowers blood pressure in hypertensive SHRs^[1]. SAR407899 (1-3 mg/kg, i.v. or 3, 10 mg/kg, p.o.) increases the length of the penis in healthy rabbits. SAR407899 (3-10 mg/kg, p.o.) also dose-dependently increases penile length in diabetic rabbits^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

PROTOCOL

Animal Administration ^[2]

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

SAR407899 (0.3, 1, 3, 10 mg/kg) or orally with SAR407899 (1, 3, 10, 30 mg/kg) or sildenafil (2 or 6 mg/kg). Each animal is used several times for different doses and different agents, always with a week's washout. The length (mm) of uncovered penile mucosa (penile erection parameter) is measured at different time-points, using a sliding digital caliper. The results are expressed as mean \pm SEM penile length of 3-5 rabbits^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Science. 2017 Dec 1;358(6367):eaan4368.
- JCI Insight. 2018 Jun 7;3(11). pii: 98921.

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REFERENCES

- [1]. L?hn M, et al. Pharmacological characterization of SAR407899, a novel rho-kinase inhibitor. Hypertension. 2009 Sep;54(3):676-83.
- [2]. Guagnini F, et al. Erectile properties of the Rho-kinase inhibitor SAR407899 in diabetic animals and human isolated corpora cavernosa. J Transl Med. 2012 Mar 23;10:59.
- [3]. Chen W, et al. Screening RhoA/ROCK inhibitors for the ability to prevent chronic rejection of mouse cardiac allografts. Transpl Immunol. 2018 Jun 6. pii: S0966-3274(18)30029-7.