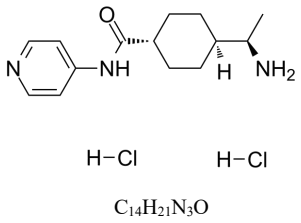
Y-27632 dihydrochloride

Catalog Number: C629401

OrganRegen, INC.
Creating Solutions for Organoid Cultures

DESCRIPTION

Background	Y-27632 dihydrochloride is an orally active, ATP-competitive inhibitor of ROCK-I and ROCK-II, with Kis of 220 and 300 nM, respectively. Y-27632 dihydrochloride attenuates Doxorubicin-induced apoptosis of human cardiac stem cells. Y-27632 also suppresses dissociation-induced apoptosis of murine prostate stem/progenitor cells. Y-27632 dihydrochloride primes human induced pluripotent stem cells (hIPSCs) to selectively differentiate towards mesendodermal lineage via epithelial-mesenchymal transition-like modulation[1][2][3][4][5].		
M. W t	320.26		
Formula	$C_{14}H_{23}Cl_2N_3O$		
CAS No	129830-38-2		
Storage	Powder	-20 °C	3 years
	In solvent	-80°C	6 months
		-20 °C	1 month
Solubility	DMSO	33.33 mg/mL(104.07 mM; Need ultrasonic)	
	H_2O	100 mg/mL(312.25 mM; Need ultrasonic)	



$C_{14}H_{21}N_3O$

BIOLOGICAL ALTIVITY

In Vitro

Y-27632 inhibits the ROCK family of kinases 100 times more potently than other kinases including protein kinase C, cAMP-dependent kinase and myosin light chain kinase. Y-27632 prolongs the lag time and delays the appearance of BrdU-labeled cells in a concentration-dependent manner, delays of about 1 and 4 h are noticed in the Swiss 3T3 cells treated with 10 and 100 μM Y-27632, respectively[1].

Y-27632 promotes neuronal differentiation of adipose tissue-derived stem cells (ADSCs). Compared to 1.0 and 2.5 μM Y-27632 induced groups, percentages of neuroal-like cells achieved a peak in the 5.0 μM Y-27632 induced group[2].

In Vivo

Y-27632 (5 and 10 mg/kg) significantly prolongs the onset time of myoclonic jerks when compare with saline group. Y-27632 (5 and 10 mg/kg) significantly prolongs the onset time of clonic convulsions when compare with saline group[3].

Treatment with Dimethylnitrosamine (DMN) causes a significant decrease in rat body and liver weight (DMN-S group) compared with control animals (S-S group). Oral Y27632 (30 mg/kg) essentially prevents this DMN-induced rat body and liver weight loss (DMN-Y group)[4].

REFERENCES

[1]. Ishizaki T, et al. Pharmacological properties of Y-27632, a specific inhibitor of rho-associated kinases. Mol Pharmacol. 2000 May;57(5):976-83.

[2]. Xue ZW, et al. Rho-associated coiled kinase inhibitor Y-27632 promotes neuronal-like differentiation of adult human adipose tissue-derived stem cells.Chin Med J (Engl). 2012 Sep;125(18):3332-5.

[3]. Tada S, et al. A selective ROCK inhibitor, Y27632, prevents dimethylnitrosamine-induced hepatic fibrosis in rats. J Hepatol. 2001 Apr;34(4):529-36.

[4]. Inan S, et al. Antiepileptic effects of two Rho-kinase inhibitors, Y-27632 and fasudil, in mice. Br J Pharmacol. 2008 Sep;155(1):44-51.

[5]. Maldonado M, et al. ROCK inhibitor primes human induced pluripotent stem cells to selectively differentiate towardsmesendodermal lineage via epithelial-mesenchymal transition-like modulation. Stem Cell Res. 2016 Sep;17(2):222-227.