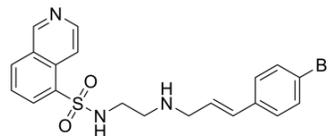


H-89

Cat. No.:	HY-15979
CAS No.:	127243-85-0
Molecular Formula:	C ₂₀ H ₂₀ BrN ₃ O ₂ S
Molecular Weight:	446.36
Target:	PKA; Autophagy
Pathway:	Protein Tyrosine Kinase/RTK; Stem Cell/Wnt; Autophagy
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	H-89 is a potent and selective inhibitor of cyclic AMP-dependent protein kinase (protein kinase A) with IC ₅₀ of 48 nM and has weak inhibition on PKG, PKC, Casein Kinase, and others kinases.
IC₅₀ & Target	IC ₅₀ : 48 nM (protein kinase A)
In Vitro	H-89 inhibits protein kinase A, in competitive fashion against ATP. H-89 causes a dose-dependent inhibition of the forskolin-induced protein phosphorylation, with no decrease in intracellular cyclic AMP levels in PC12D cells. H-89 significantly inhibits the forskolin-induced neurite outgrowth from PC12D cells. H-89 (30 μM) inhibits significantly cAMP-dependent histone IIb phosphorylation activity in PC12D cell lysates ^[1] . H-89 (1-2 μM) significantly slows the repriming rate in rat skinned fibres, most likely due to it deleteriously affecting the T-system potential. H-89 (10-100 μM) inhibits net Ca ²⁺ uptake by the SR and affects the Ca ³² -sensitivity of the contractile apparatus in rat skinned fibres ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	H-89 (0.2 mg/100g, i.p.) significantly increases seizure latency and threshold in PTZ-treated animals. H-89 (0.05, 0.2 mg/100 g, i.p.) prevents the epileptogenic activity of bucladesine (300 nM) with significant increase of seizure latency and seizure threshold ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay ^[1]	Kinase activities are assayed at 30°C for 2-5 min by measuring the transfer of ³² P from [γ- ³² P]ATP to substrates. The reaction is terminated by adding 1 mL of 20% trichloroacetic acid, following the addition of 100 μg of bovine serum albumin as a carrier protein. The sample is centrifuged at 3000 rpm for 10 min, the pellet is resuspended in 5% trichloroacetic acid solution, the final pellet is dissolved in 1 mL of 1 N NaOH and the radioactivity is measured in a liquid scintillation counter. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Cell Assay ^[1]	After 48 h in culture, PC12D cells are cultured in test medium containing 30 μM H-89 for 1 h and then exposed to fresh medium that contained both 10 μM forskolin and 30 μM H-89. Cells are scraped off with a rubber policeman and sonicated in the presence of 0.5 mL of 6% trichloroacetic acid. To extract trichloroacetic acid, 2 mL of petroleum ether is added, the preparation mixed and centrifuged at 3000 rpm for 10 min. After aspiration of the upper layer, the residue sample solution is used for determination.

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

Animal Administration ^[1]

Male albino mice weighing 20-25 g are obtained. Pentoxifylline (25, 50, 100 mg/kg), bucladesine (50, 100, 300 nM/mouse) and H-89 (0.05, 0.1, 0.2 mg/100 g) are administered intraperitoneally (i.p.) 30 min before intravenous (i.v.) infusion of PTZ. In combination groups, the first and second components are injected 45 and 30 min before PTZ infusion. In all groups, the respective control animals receive an appropriate volume of vehicle. For the i.v. infusion, the needle is inserted into the lateral tail vein, fixed to the tail vein by a narrow piece of adhesive tape, and the animal is allowed to move freely. PTZ solution is infused at a concentration rate of 1 mL/min.

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

CUSTOMER VALIDATION

- Cell Metab. 2021 Mar 2;33(3):565-580.e7.
- Prog Neurobiol. 2021 Mar 22;102041.
- Theranostics. 2021 Jan 1;11(6):2612-2633.
- Clin Transl Med. 2021 Jan 1.
- Aging Cell. 2018 Jun;17(3):e12754.

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REFERENCES

[1]. Chijiwa T, et al. Inhibition of forskolin-induced neurite outgrowth and protein phosphorylation by a newly synthesized selective inhibitor of cyclic AMP-dependent protein kinase, N-[2-(p-bromocinnamylamino)ethyl]-5-isoquinolinesulfonamide (H-89), of PC12D pheochromocytoma cells. J Biol Chem. 1990 Mar 25;265(9):5267-72.

[2]. Blazev R, et al. Effects of the PKA inhibitor H-89 on excitation-contraction coupling in skinned and intact skeletal muscle fibres. J Muscle Res Cell Motil. 2001;22(3):277-86.

[3]. Hosseini-Zare MS, et al. Effects of pentoxifylline and H-89 on epileptogenic activity of bucladesine in pentylenetetrazol-treated mice. Eur J Pharmacol. 2011 Nov 30;670(2-3):464-70.

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