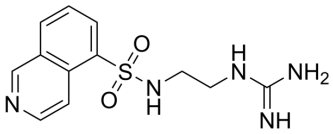
HA-1004

Cat. No.:	HY-123468
CAS No.:	91742-10-8
Molecular Formula:	$C_{12}H_{15}N_5O_2S$
Molecular Weight:	293.34
Target:	Cyclic GMP-AMP Synthase; PKA; ERK
Pathway:	Immunology/Inflammation; Stem Cell/Wnt; TGF-beta/Smad; MAPK/ERK Pathway
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



BIOLOGICAL ACTIVITY

Description	HA-1004 is a selective inhibitor of PKA, which can inhibit lipolysis and induce vascular relaxation. HA-1004 is also a dual inhibitor of cyclic GMP-dependent protein kinase and cyclic AMP-dependent protein, and is involved in smooth muscle, second messenger, cyclic AMP and cyclic GMP regulation mechanisms. HA-1004 can be used as a vasodilator to inhibit the contraction of rabbit aortic strips, or to antagonize ERK and tyrosine hydroxylase (TH) phosphorylation in morphine abstinence rat models[1][2][3].
IC_{50} & Target	cyclic GMP-dependent protein kinase, cyclic AMP-dependent protein[2]
In Vivo	HA-1004 (40 nmol/day; infused by minipumps and delivered at 1 μL/h), it acts simultaneously with morphine to antagonize the phosphorylation of ERK1/2 and TH and inhibit the increase of NA conversion during morphine withdrawal in rats[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Almela P, et al. Crosstalk between G protein-coupled receptors (GPCRs) and tyrosine kinase receptor (TXR) in the heart after morphine withdrawal. Front Pharmacol. 2013 Dec 27;4:164.

[2]. Goodman HM, et al. The isoquinoline sulfonamide inhibitors of protein phosphorylation, H-7, H-8, and HA-1004, also inhibit RNA synthesis: studies on responses of adipose tissue to growth hormone. Endocrinology. 1990 Jan;126(1):441-50.

[3]. Ishikawa T, et al. Relaxation of vascular smooth muscle by HA-1004, an inhibitor of cyclic nucleotide-dependent protein kinase. J Pharmacol Exp Ther. 1985 Nov;235(2):495-9.

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