Data Sheet (Cat.No.T10251)

TargetMol

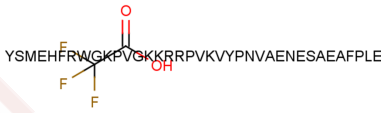
Adrenocorticotropic Hormone (ACTH) (1-39), rat TFA

Chemical Properties

CAS No. :

Formula: C212H316F3N57O59S

Molecular Weight: 4696.18



Storage: Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Adrenocorticotropic Hormone (ACTH) (1-39), rat (TFA), is a potent agonist of the melanocortin 2 receptor (MC2).
Targets(IC50)	Others,Melanocortin Receptor
In vitro	ACTH 1-39, within the concentration range of 100-400 nM, exhibits no cytotoxic effects on neurons and notably safeguards them against excitotoxic neuronal death triggered by various agents such as glutamate (100 μM), NMDA (1 mM), AMPA (50 μM), and kainate (25 μM), with the 400 nM concentration ensuring substantial protection across all instances. Similarly, ACTH at both 200 and 400 nM concentrations effectively shields neurons from the detrimental effects of quinolinic acid (25 μM). Furthermore, ACTH mitigates cell mortality caused by 2 μM H2O2, which leads to the production of reactive oxygen species (ROS), with protection being notably greater at 400 nM than at 200 nM. Additionally, ACTH offers limited defense against the immediate release of nitric oxide (NO) by NOC-12, albeit it does not counter the slow release by NOC-18. Moreover, at concentrations of 200 or 400 nM, ACTH affords neuronal protection from the cytotoxic impacts of staurosporine (10-20 nM), a well-established inducer of apoptosis, consequently reducing cell death from 80% to 55% [1].
In vivo	Intracerebroventricular (icv) administration of ACTH notably lowers total food consumption over the study period in comparison to the saline/IgG control group. Introducing ACTH antibody (Ab) into the paraventricular nucleus (PVN) negates ACTH's appetite-suppressing effect. Conversely, ACTH's icv infusion markedly reduces food intake in rats also receiving α-MSH Ab in the PVN, aligning their consumption levels with rats given ACTH icv and IgG in the PVN. Moreover, injecting either ACTH Ab or α-MSH Ab into the PVN significantly boosts food intake relative to animals treated with IgG alone [2].
Animal Research	Male Wistar rats (weight range 225-250 g at purchase) are used throughout the study. Animals receive a PVN application of ACTH Ab (2 μg/rat) or IgG (2 μg/rat); administration of either ACTH (1 nM/rat) or saline icv is performed 5 min later [2].

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.2129 mL	1.0647 mL	2.1294 mL
5 mM	0.0426 mL	0.2129 mL	0.4259 mL
10 mM	0.0213 mL	0.1065 mL	0.2129 mL
50 mM	0.0043 mL	0.0213 mL	0.0426 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Lisak RP, et al. Melanocortin receptor agonist ACTH 1-39 protects rat forebrain neurons from apoptotic, excitotoxic and inflammation-related damage. Exp Neurol. 2015 Nov;273:161-7.
Schulz C, et al. Endogenous ACTH, not only alpha-melanocyte-stimulating hormone, reduces food intake mediated by hypothalamic mechanisms. Am J Physiol Endocrinol Metab. 2010 Feb;298(2):E237-44.