

Product Data Sheet

Product Name: Adrenocorticotrophic Hormone (ACTH) (1-39), rat

Cat. No.: GC35254

Chemical Properties

Cas. No. 77465-10-2

Formula $C_{210}H_{315}N_{57}O_{57}S$

M.Wt 4582.23

Solubility Soluble in DMSO

Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

SYSMEHFRWGKPVGKKRRPVKVYPNVAENESAEAFPLEF

Protocol

Animal experiment: Rats[2] 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].

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

References:

- [1]. 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.
- [2]. 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.

Background

Adrenocorticotrophic Hormone (ACTH) (1-39), rat is a potent melanocortin 2 (MC2) receptor agonist. Melanocortin 2 receptor[1]

ACTH 1-39 at concentrations of 100-400 nM has no toxic effect on neurons, while ACTH provides protection from excitotoxic neuronal death induced by glutamate (100 μ M), NMDA (1 mM), AMPA (50 μ M), and kainate (25 μ M). ACTH at 400 nM provides substantial protection in each case. ACTH at either 200 or 400 nM protects neurons from quinolinic acid (25 μ M). There is also protection by ACTH from cell death induced by 2 μ M H₂O₂, which gives rise to reactive oxygen species (ROS), with significantly more protection at 400 nM ACTH compared to 200 nM. ACTH gives modest protection against rapid release of nitric oxide (NO) by NOC-12 but not slow release by NOC-18. ACTH (200 or 400 nM) protects neurons from cytotoxic effects of staurosporine (10-20 nM), a classic inducer of cell death via apoptosis. ACTH reduces cell death from 80% to 55%[1].

The icv injection of ACTH significantly reduces cumulative food intake over the observation period compared with the saline/IgG group. The injection of ACTH Ab into the PVN abolishes the anorexigenic effect of ACTH. Infusion icv of ACTH significantly decreases cumulative food intake in rats that receive α -MSH Ab into the PVN and ACTH icv, and food intake is as low as in the group treated with ACTH icv and IgG into the PVN. Injection of either ACTH Ab or α -MSH Ab into the PVN significantly increase cumulative food intake compared with IgG-treated animals; the combined application of both Ab's do not increase food intake further[2].

- [1]. 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. [2]. 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.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA