Product Data Sheet

Product Name: Amylin, amide, rat
Cat. No.: GC35333

Chemical Properties

Cas. No.	124447-81-0		
Formula	$C_{167}H_{272}N_{52}O_{53}S_2$	M.Wt	3920.44
Solubility	H_2O : 100 mg/mL (25.51 mM; Need ultrasonic); DMSO : 50 mg/mL (12.75 mM; Need ultrasonic)	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			

KCNTATCATQRLANFLVRSSNNLGPVLPPTNVGSNTY-NH_2 (Disulfide bridge: Cys_2-Cys_7)

Protocol

Cell experiment [1]:

Cell lines Human hepatoblastoma cell line (HepG2)

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Preparation Method	HepG2 cells were cultured in Minimum Essential Medium (MEM) supplemented with 10% fetal bovine serum at 37°C in a humidified 5% CO_2 atmosphere. For adenylate cyclase and desensitization experiments, cell membrane preparations or intact cells were treated with Amylin, amide, rat (1nM-1μM) or rat CGRP.
Reaction Conditions	1nM-1μM; 10-45min.
Applications	Amylin, amide, rat bound with high affinity (Kd=0.11nM) and specificity to distinct receptors on HepG2 cells. Amylin, amide, rat stimulated adenylate cyclase activity of HepG2 cell membranes in a dose-dependent manner, an effect significantly attenuated by the CGRP receptor antagonist hCGRP(8-37).

Animal experiment [2]:

Animal models	Male hooded rats
Preparation Method	Rats were implanted with a guide cannula targeting the left lateral cerebro-ventricle under anesthesia. After a recovery period of at least 4 days, Amylin, amide, rat (0.312-80.0μg per rat) was administered via intracerebroventricular (i.c.v.) injection. A battery of neurobehavioral tests (spontaneous motor activity, catalepsy, muscular tone, body temperature, nociception) was performed immediately before and at intervals for 2 hours after injection. For food intake studies, separate groups of rats on a restricted feeding schedule were injected prior to their feeding period.
Dosage form	0.312-80.0μg per rat; i.c.v.; single injection.

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

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Applications	Intracerebroventricular administration of Amylin, amide, rat significantly and dose-dependently reduced spontaneous motor activity and markedly increased body temperature. Amylin, amide, rat also significantly reduced food consumption in 22-hour food-deprived animals. However, even at the highest dose (80.0µg), Amylin, amide, rat did not affect nociceptive response, induce catalepsy, or alter muscular tone.

References:
[1] Sheriff S, Fischer JE, Balasubramaniam A. Characterization of amylin binding sites in a human hepatoblastoma cell line. Peptides. 1992 Nov-Dec;13(6):1193-9.
[2] Bouali SM, Wimalawansa SJ, Jolicoeur FB. In vivo central actions of rat amylin. Regul Pept. 1995 Apr 14;56(2-3):167-74.

Background

Amylin, amide, rat is a GABA uptake inhibitor selective for the BGT-1 (mGAT-2) transporter [1-2]. Amylin, amide, rat lowers blood glucose levels by inhibiting glucagon secretion and delaying gastric emptying, while also increasing satiety through central nervous system action to reduce food intake. Amylin, amide, rat and its analogs are utilized in research on diabetes and related metabolic disorders[3-4].

In vitro, HepG2 human liver cancer cells were treated with Amylin, amide, rat (1nM–1µM) for 10-45 minutes. Amylin, amide, rat dose-dependently stimulated adenylate cyclase activity in their cell membrane preparations[5]. Amylin, amide, rat (1nM–1µM) was applied to HEK293S and Cos 7 cells expressing human amylin receptors, and the cAMP response was measured. Amylin, amide, rat significantly activated the AMY1(a) and AMY3(a) receptors while enhancing cAMP production[6].

In vivo, Amylin, amide, rat (0.312-80.0µg) was administered to rats via intracerebroventricular injection. Amylin, amide, rat dose-dependently reduced their spontaneous motor activity, significantly increased body temperature, and decreased food intake in animals fasted for 22 hours[7]. In anesthetized male Sprague-Dawley rats, a single intravenous injection of Amylin, amide, rat (10-1000pmol/kg) elicited a significant pressor response at low doses (10-100pmol/kg), which appeared

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within 30-60 seconds and lasted for 15 minutes, while also increasing plasma renin activity. Higher doses (>1nmol/kg) induced a depressor response[8].

References:

[1] Bower RL, Hay DL. Amylin structure-function relationships and receptor pharmacology: implications for amylin mimetic drug development. Br J Pharmacol. 2016 Jun;173(12):1883-98.
[2] Gostynska SE, Karim JA, Ford BE, et al. Amylin receptor subunit interactions are modulated by agonists and determine signaling. Sci Signal. 2025 Aug 19;18(900):eadt8127.
[3] Harris PJ, Cooper ME, Hiranyachattada S, et al. Amylin stimulates proximal tubular sodium transport and cell proliferation in the rat kidney. Am J Physiol. 1997 Jan;272(1 Pt 2):F13-21.
[4] Vine W, Smith P, LaChappell R, et al. Effects of rat amylin on renal function in the rat. Horm Metab Res. 1998 Aug;30(8):518-22.
[5] Sheriff S, Fischer JE, Balasubramaniam A. Characterization of amylin binding sites in a human hepatoblastoma cell line. Peptides. 1992 Nov-Dec;13(6):1193-9.
[6] Gingell JJ, Burns ER, Hay DL. Activity of pramlintide, rat and human amylin but not Aβ1-42 at human amylin receptors. Endocrinology. 2014 Jan;155(1):21-6.
[7] Bouali SM, Wimalawansa SJ, Jolicoeur FB. In vivo central actions of rat amylin. Regul Pept. 1995 Apr 14;56(2-3):167-74.
[8] Haynes JM, Hodgson WC, Cooper ME. Rat amylin mediates a pressor response in the anaesthetised rat: implications for the association between hypertension and diabetes mellitus. Diabetologia. 1997 Mar;40(3):256-61.

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