

Product Data Sheet

Product Name: CGRP 8-37 (human)

Cat. No.: GC16147

Chemical Properties

Cas. No. 119911-68-1

SMILES CC(C[C@@]/N=C(O)/C/N=C(O)/[C@]/N=C(O)/[C@]/N=C(O)/[C@]/N=C(O)/[C@]/N=C(O)/[C@](N)([H])C(C)C([H])[C@@](O)([H])C([H])CC1=CN=CN1([H])C CCNC(N)=N([H])CC(C)C([H])C([H])/C(O)=N/[C@@]/C(O)=N/[C@@]/C(O)=N/[C@@]/C(O)=N/[C@@]/C(O)=N/C/C(O

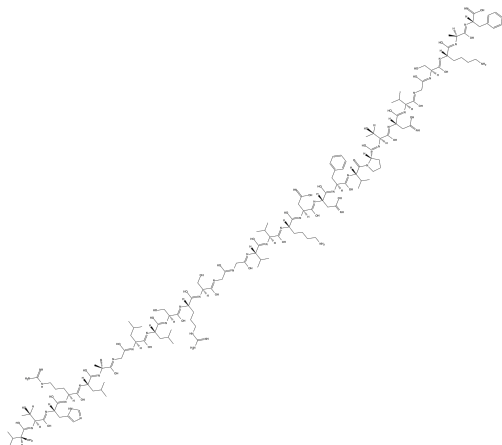
Formula C₁₃₉H₂₃₀N₄₄O₃₈ M.Wt 3125.59

Solubility Soluble to 0.50 mg/ml in sterile water Storage Desiccate 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



Protocol

Cell experiment [1]:	
Cell lines	A549 cells

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

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Preparation Method	A549 cells were cultured in DMEM medium, supplemented with 5% fetal bovine serum (FBS), and 0.1% penicillin/streptomycin, at 37°C in an incubator with 5% CO ₂ . Cells were seeded into 96-well plates at a density of 3×10 ⁴ cells/ml and incubated for 24h at 37°C. Cells were exposed to CGRP 8-37 (10nM) and CGRP (0.1nM) for 24h, and cell proliferation was measured.
Reaction Conditions	10nM; 24h
Applications	CGRP 8-37 significantly inhibited CGRP-induced proliferation in A549 cells.
Animal experiment [2]:	
Animal models	Sprague-Dawley (SD) rats
Preparation Method	Sprague-Dawley (SD) rats (7 weeks old) were housed in specific pathogen-free conditions with ad libitum access to food and normal drinking water. After one week of routine feeding to acclimate to the environment, rats were randomly divided into 4 groups (n=15), namely control group (saline), LPS group (10mg/kg), CGRP 8-37 treatment group (0.5mg/kg), and CGRP 8-37+ LPS treatment group. Rats were anesthetized with pentobarbital sodium (30mg/kg), followed by CGRP 8-37 intraperitoneal injection. After 20min, LPS (10mg/kg) in 100μl sterile saline was given. The rats in the control group received sterile saline instead. Six hours later, the rats were sacrificed, and the the lung tissues were collected for analysis.
Dosage form	0.5mg/kg; once; i.p.

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Applications	CGRP 8-37 treatment aggravated the LPS-induced pulmonary inflammatory response in mice, accompanied by inflammatory neutrophil infiltration, interstitial edema, interstitial patchy hemorrhage, and thickened alveolar septum.
References: [1] Kawanami Y, Morimoto Y, Kim H, et al. Calcitonin gene-related peptide stimulates proliferation of alveolar epithelial cells[J]. Respiratory research, 2009, 10(1): 8. [2] Hong-Min F, Chun-Rong H, Rui Z, et al. CGRP 8-37 enhances lipopolysaccharide-induced acute lung injury and regulating aquaporin 1 and 5 expressions in rats: Hong-min et al[J]. Journal of physiology and biochemistry, 2016, 73(3): 381-386.	

Background

CGRP 8-37 (human) is a potent antagonist of the CGRP receptor, with an IC₅₀ value of 0.0321nM^[1]. By antagonizing the activity of CGRP, CGRP 8-37 inhibits the activation of the cAMP-PKA/ERK signaling pathway and reduces the production of IL-1 β as well as the concentration of cAMP^[2-3]. CGRP 8-37 has been widely used to inhibit the vasodilation induced by peripheral nerve stimulation around the arteries^[4].

In vitro, CGRP 8-37 pre-treatment (10nM) for 24h significantly suppressed CGRP (0.1nM; 24h)-induced proliferation and DNA synthesis in A549 cells^[5]. Treatment with 30 μ M CGRP 8-37 for 30 minutes reversed the inhibitory effect of CGRP on oxidative stress in vascular smooth muscle cells (VSMCs) and promoted the activation of Src/STAT3 induced by Ang II^[6].

In vivo, CGRP 8-37 treatment via a single intraperitoneal injection at a dose of 0.5mg/kg exacerbated lipopolysaccharide (LPS)-induced acute lung injury in rats within 6 hours, and decreased the expression of AQP1 and AQP5 in the lung tissue of the rats^[7]. A single intraperitoneal injection of CGRP 8-37 (10 μ g/kg) eliminated the anorexic effect of CGRP on 24-hour fasting non-diabetic rats and increased food intake within 1 hour^[8].

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References:

- [1] Chiba T, Yamaguchi A, Yamatani T, et al. Calcitonin gene-related peptide receptor antagonist human CGRP-(8-37)[J]. American Journal of Physiology-Endocrinology and Metabolism, 1989, 256(2): E331-E335.
- [2] Tran M T, Ritchie M H, Lausch R N, et al. Calcitonin gene-related peptide induces IL-8 synthesis in human corneal epithelial cells[J]. The Journal of Immunology, 2000, 164(8): 4307-4312.
- [3] Permpoonputtana K, Porter J E, Govitrapong P. Calcitonin gene-related peptide mediates an inflammatory response in Schwann cells via cAMP-dependent ERK signaling cascade[J]. Life sciences, 2016, 144: 19-25.
- [4] Han S P, Naes L, Westfall T C. Inhibition of periarterial nerve stimulation-induced vasodilation of the mesenteric arterial bed by CGRP (8–37) and CGRP receptor desensitization[J]. Biochemical and biophysical research communications, 1990, 168(2): 786-791.
- [5] Kawanami Y, Morimoto Y, Kim H, et al. Calcitonin gene-related peptide stimulates proliferation of alveolar epithelial cells[J]. Respiratory research, 2009, 10(1): 8.
- [6] Luo H, Wu X, Xian X, et al. Calcitonin gene-related peptide inhibits angiotensin II-induced NADPH oxidase-dependent ROS via the Src/STAT3 signalling pathway[J]. Journal of Cellular and Molecular Medicine, 2020, 24(11): 6426-6437.
- [7] Hong-Min F, Chun-Rong H, Rui Z, et al. CGRP 8-37 enhances lipopolysaccharide-induced acute lung injury and regulating aquaporin 1 and 5 expressions in rats: Hong-min et al[J]. Journal of physiology and biochemistry, 2016, 73(3): 381-386.
- [8] Lutz T A, Pieber T R, Walzer B, et al. Different influence of CGRP (8-37), an amylin and CGRP antagonist, on the anorectic effects of cholecystokinin and bombesin in diabetic and normal rats[J]. Peptides, 1997, 18(5): 643-649.

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