

Product Data Sheet

Product Name: β -CGRP, human TFA

Cat. No.: GC34944

Chemical Properties

Cas. No.

Formula $C_{164}H_{268}F_3N_{51}O_{50}S_3$ M.Wt 3907.38

Solubility Water : ≥ 50 mg/mL (12.80 mM) 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

ACNTATCVTHRLAGLLSRSGGMVKS NFVPTNVGSKAF-NH₂ (Disulfide bridge: Cys₂-Cys₉)



Protocol

Cell experiment [1]:

Cell lines A549 cells

A549 cells were stimulated with either fresh medium, β -CGRP, human of Preparation Method indicated concentrations or β -CGRP, human plus IL-1 β for 24h; supernatants were collected and assayed for IL-8 or MCP-1 by ELISA.

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

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Reaction
Conditions 0.1-10nM; 24h

Applications In A549 cells, β -CGRP, human markedly increases heart rate in rats, and reduces IL-1 β -induced production of IL-8 and MCP-1.

References:

[1]. Li W, Hou L, Hua Z, et al. Interleukin-1 β induces β -calcitonin gene-related peptide secretion in human type II alveolar epithelial cells[J]. The FASEB journal, 2004, 18(13): 1603-1605.

Background

β -CGRP, human TFA is a neuropeptide hormone produced by the calcitonin gene-related peptide family, which forms a complex with calcitonin receptor-like receptors CRLR and RAMP (CRLR/RAMP1: IC₅₀ = 1nM; CRLR/RAMP2: IC₅₀ = 300nM) [1]. β -CGRP, human TFA activates the adenylate cyclase-cAMP-PKA signaling pathway by binding to the CGRP receptor complex (composed of CALCRL and RAMP1), inducing physiological effects such as vascular smooth muscle relaxation, neuronal excitation regulation, and inflammation mediation [2-3]. β -CGRP, human TFA is mainly used in research on migraine, cardiovascular regulation, neuroinflammation, and pain [4].

In A549 cells, β -CGRP, human TFA (0.1-10nM; 24h) markedly increases heart rate in rats, and reduces IL-1 β -induced production of IL-8 and MCP-1 [5]. In endothelial cells, β -CGRP, human TFA (1-30 μ M; 24h) induces concentration-dependent relaxation of pre-contracted human intracranial arterial ring segments [6].

References:

[1]. McLatchie L M, Fraser N J, Main M J, et al. RAMPs regulate the transport and ligand specificity of the calcitonin-receptor-like receptor[J]. Nature, 1998, 393(6683): 333-339.
[2]. Bonura A, Brunelli N, Marcosano M, et al. Calcitonin gene-related peptide systemic effects: embracing the complexity of its biological roles—a narrative review[J]. International Journal of Molecular Sciences, 2023, 24(18): 13979.

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- [3]. Tsukiji J, Sango K, Uda N, et al. Long-term induction of β -CGRP mRNA in rat lungs by allergic inflammation[J]. Life sciences, 2004, 76(2): 163-177.
- [4]. Shen Y T, Pittman T J, Buie P S, et al. Functional role of α -calcitonin gene-related peptide in the regulation of the cardiovascular system[J]. The Journal of Pharmacology and Experimental Therapeutics, 2001, 298(2): 551-558. [1].
- [5]. Li W, Hou L, Hua Z, et al. Interleukin-1 β induces β -calcitonin gene-related peptide secretion in human type II alveolar epithelial cells[J]. The FASEB journal, 2004, 18(13): 1603-1605.
- [6]. Jansen-Olesen I, Jørgensen L, Engel U, et al. In-depth characterization of CGRP receptors in human intracranial arteries[J]. European journal of pharmacology, 2003, 481(2-3): 207-216.

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