Product Data Sheet

Product Name: β-CGRP, human
Cat. No.: GC33595

Chemical Properties

Cas. No.	101462-82-2		
SMILES	Ala-Cys-Asn-Thr-Ala-Thr-Cys-Val-Thr-His-Arg-Leu-Ala-Gly-Leu-Leu-Ser-Arg-Ser-Gly-Gly-Met-Val-Lys-Ser-Asn-Phe-Val-Pro-Thr-Asn-Val-Gly-Ser-Lys-Ala-Phe-NH2(Disulfide bridge: Cys2-Cys7)		
Formula	$C_{162}H_{267}N_{51}O_{48}S_3$	M.Wt	3793.41
Solubility	Soluble in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	β-CGRP, human		

Protocol

Cell experiment [1]:

Cell lines	A549 cells
Preparation Method	A549 cells were stimulated with either fresh medium, β-CGRP, human of indicated concentrations or β-CGRP, human plus IL-1ß for 24h; supernatants were collected and assayed for IL-8 or MCP-1 by ELISA.
Reaction Conditions	0.1-10nM; 24h

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

References:
[1]. Li W, Hou L, Hua Z, et al. Interleukin-1β 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 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: IC_{50} =1nM; CRLR/RAMP2: IC_{50} = 300nM) [1]. β-CGRP, human 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 is mainly used in research on migraine, cardiovascular regulation, neuroinflammation, and pain [4].

In A549 cells, β-CGRP, human (0.1-10nM; 24h) markedly increases heart rate in rats, and reduces IL-1β-induced production of IL-8 and MCP-1 [5]. In endothelial cells, β-CGRP, human (1-30μM; 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.
[3]. Tsukiji J, Sango K, Udaka N, et al. Long-term induction of β-CGRP mRNA in rat lungs

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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-1β 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.