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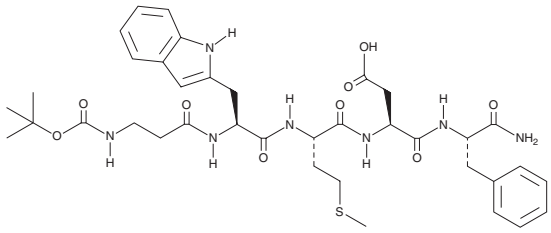
PRODUCT INFORMATION

Pentagastrin

Item No. 28546

CAS Registry No.: 5534-95-2
Formal Name: N-[(1,1-dimethylethoxy)carbonyl]-β-alanyl-L-tryptophyl-L-methionyl-L-α-aspartyl-L-phenylalaninamide
Synonyms: AY 6608, NSC 367746
MF: $C_{37}H_{49}N_7O_9S$
FW: 767.9
Purity: ≥98%
UV/Vis.: λ_{max}: 220, 283 nm
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Pentagastrin is supplied as a solid. A stock solution may be made by dissolving the pentagastrin in the solvent of choice, which should be purged with an inert gas. Pentagastrin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of pentagastrin in these solvents is approximately 0.3, 20, and 25 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of pentagastrin can be prepared by directly dissolving the solid in aqueous buffers. The solubility of pentagastrin in PBS, pH 7.2, is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Pentagastrin is a synthetic polypeptide and cholecystokinin-2 (CCK_2) receptor agonist.[1] It binds selectively to CCK_2 receptors in guinea pig brain over CCK_1 receptors in rat pancreas (IC_{50}s = 11 and 1,100 nM, respectively). Pentagastrin increases calcium influx and polyphosphoinositide turnover in rat GH_3 pituitary cells (EC_{50}s = 23 and 3.9 nM, respectively). It also increases histidine decarboxylase activity in mucous- and endocrine cell-enriched isolated rabbit fundic mucosal cells (EC_{50} = 2.9 nM).[2] Pentagastrin induces contraction of isolated pig ileum smooth muscle cells *in vitro* (EC_{50} = 30 pM).[3] It increases gastric acid and pepsin secretion in conscious cats *in vivo* (ED_{50}s = 1.29 and 57.3 nmol/kg[2] per hour, respectively).[4] Formulations containing pentagastrin have previously been used as a diagnostic aid to evaluate gastric acid secretory function.

References

1. Smith, A.J. and Freedman, S.B. CCK-B receptor-mediated stimulation of polyphosphoinositide turnover in GH_3 pituitary cells in response to cholecystokinin and pentagastrin. *Life Sci.* **58(11),** 883-895 (1996).
2. Hollande, F., Bali, J.P., and Magous, R. Neurohormonal regulation of histamine synthesis in isolated rabbit fundic mucosal cells. *Am. J. Physiol.* **266(3 Pt. 1),** G395-G405 (1994).
3. Botella, A., Delvaux, M., Berry, P., *et al.* Cholecystokinin and gastrin induce cell contraction in pig ileum by interacting with different receptor subtypes. *Gastroenterology* **102(3),** 779-786 (1992).
4. Vagne, M., Collinet, M., Cuber, J.C., *et al.* Effect of porcine gastrin releasing peptide on gastric secretion and motility and the release of hormonal peptides in conscious cats. *Peptides* **8(3)**, 423-430 (1987).

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