

Product Data Sheet

Product Name: Kemptide

Cat. No.: GC13640

Chemical Properties

Cas. No. 65189-71-1

Chemical Name (5S,8S,11S,14S,17S,20S)-20-amino-14,17-bis(3-guanidinopropyl)-8-(hydroxymethyl)-5-isobutyl-11,22-dimethyl-4,7,10,13,16,19-hexaoxo-3,6,9,12,15,18-hexaazatricosan-1-oic acid

SMILES OC(CNC([C@H](CC(C)C)NC([C@H](CO)NC([C@H](C)NC([C@@H](NC([C@@H](NC([C@@H](N)CC(C)C=O)CCCNC(N)=N=O)CCCNC(N)=N=O)=O)=O)=O)=O)=O

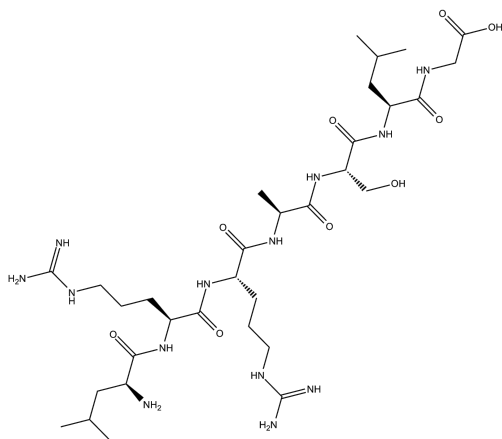
Formula $C_{32}H_{61}N_{13}O_9$ M.Wt 771.9

Solubility DMF: 30 mg/ml, DMSO: 25 mg/ml, PBS (pH 7.2): 10 mg/ml 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



Protocol

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

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Kinase experiment: PKA activity is measured in pools of 10 oocytes at various stages of maturation using the SignaTECT cAMP-Dependent Protein Kinase (PKA) Assay System. Measurements of basal PKA activity are performed in the absence of exogenous cAMP, whereas measurements of total (cAMP-stimulated) PKA activity are performed in reaction buffer containing 0.025 mM cAMP[2].

References:

- [1]. Kübler D, et al. Evidence for ecto-protein kinase activity that phosphorylates Kemptide in a cyclic AMP-dependent mode. J Biol Chem. 1989 Aug 25;264(24):14549-55.
[2]. Duncan FE, et al. Transducin-like enhancer of split-6 (TLE6) is a substrate of protein kinase A activity during mouse oocyte maturation. Biol Reprod. 2014 Mar 20;90(3):63.

Background

Kemptide is a synthetic heptapeptide that acts as a substrate for cAMP-dependent protein kinase (PK) [1].

Cyclic AMP-dependent protein kinase is the sole intracellular acceptor for cyclic AMP in all cell types. Protein phosphorylation by different types of protein kinase (PK) activities comprises a form of protein modification that plays an important role in the regulation of numerous biological processes [1][2].

Kemptide is a novel synthetic heptapeptide phosphate acceptor that acts as a substrate for cAMP-dependent protein kinase. Kemptide had all the properties of a cytophilic substrate and could preserving cell membrane intactness when added to cultured cells. In the presence of extracellular ATP and cAMP, different types of intact cells catalyzed the phosphorylation of Kemptide with Km values of 3-4 μ M. Kemptide phosphorylation was influenced by PKI, the inhibitory protein specific for cAMP-PK [1]. Kemptide was usually used as a substrate for detection of activities of soluble A-kinase isolated from guinea-pig lung parenchyma and from bovine tracheal smooth muscle [2][3].

References:

- [1]. Kübler D, Pyerin W, Bill O, et al. Evidence for ecto-protein kinase activity that phosphorylates Kemptide in a cyclic AMP-dependent mode. J Biol Chem. 1989 Aug 25;264(24):14549-55.

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- [2]. Giembycz MA, Diamond J. Evaluation of kemptide, a synthetic serine-containing heptapeptide, as a phosphate acceptor for the estimation of cyclic AMP-dependent protein kinase activity in respiratory tissues. *Biochem Pharmacol.* 1990 Jan 15;39(2):271-83.
- [3]. Langlands JM, Rodger IW. Determination of soluble cAMP-dependent protein kinase activity in guinea-pig tracheal smooth muscle. Preferential use of kemptide as a phosphorylating substrate. *Biochem Pharmacol.* 1990 Apr 15;39(8):1365-74.

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