Product Data Sheet

Product Name: Calmodulin-Dependent Protein Kinase II 290-309
Cat. No.: GC31170

Chemical Properties

Cas. No.	115044-69-4		
SMILES	Leu-Lys-Lys-Phe-Asn-Ala-Arg-Arg-Lys-Leu-Lys-Gly-Ala-Ile-Leu-Thr-Thr-Met-Leu-Ala		
Formula	$C_{103}H_{185}N_{31}O_{24}S$	M.Wt	2273.83
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			

Protocol

Kinase experiment:

Ca2+/CaM-dependent phosphodiesterase is assayed at 30°C. The reaction mixture contains 40 mM Tris-HCl, pH 8.0, 5 mM magnesium acetate, 1 mM calcium chloride, 30 μM cGMP, 0.15 pCi of [3H]cGMP, 1 mM dithiothreitol, 20% glycerol, 0.64 mg/mL bovine serum albumin, 2.38 nM CaM, 50 pM CaM-deficient phosphodiesterase, and various concentrations of Calmodulin-Dependent Protein Kinase II (290-309). Following preincubation of the reaction mixture at 30°C, the reaction is initiated by the addition of substrate. After 50 min the reaction is terminated by boiling. Conditions are selected in which the reactions are linear with respect to time[1].

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References:

[1]. Payne ME, et al. Calcium/calmodulin-dependent protein kinase II. Characterization of distinct calmodulin binding and inhibitory domains. J Biol Chem. 1988 May 25;263(15):7190-5.

Background

Calmodulin-dependent protein kinase II (290-309) is a synthetic peptide derived from the rat brain protein sequence that contains the calmodulin binding domain.[1,2] It inhibits calcium/calmodulin-dependent protein kinase II (CaMKII) with an IC_{50} value of 52 nM and CaMKII-dependent phosphodiesterase activity (IC_{50} = 1.1 nM). Calmodulin-dependent protein kinase II (290-309) has been used in the study of CaM binding, autophosphorylation, and dynamics.[3,4]

1.Payne, E.M., Fong, Y.-L., Ono, T., et al.Calcium/Calmodulin-dependent Protein Kinase IIJ. Biol. Chem.263(15)7190-7195(1988) 2.Lin, C.R., Kapiloff, M.S., Durgerian, S., et al.Molecular cloning of a brain-specific calcium/calmodulin-dependent protein kinaseProc. Natl. Acad. Sci. USA84(16)5962-5966(1987) 3.Wyttenbach, T., Grabenauer, M., Thalassinos, K., et al.The effect of calcium ions and peptide ligands on the relative stabilities of the calmodulin dumbbell and compact structuresJ. Phys. Chem. B.114(1)437-447(2010) 4.Colbran, R.J., and Soderling, T.R.Calcium/calmodulin-independent autophosphorylation sites of calcium/calmodulin-dependent protein kinase II. Studies on the effect of phosphorylation of threonine 305/306 and serine 314 on calmodulin binding using synthetic peptidesJ. Biol. Chem.265(19)11213-11219(1990)