

CAMKK2 Assay Kit

Product Information

Cat.No.

Kit-0147

Product Overview

CAMKK2 Assay Kit is used for the measurement of the activities of purified or recombinant CAMKK2. Additionally, any cultured primary cell, cell line, or tissue can be assayed for CAMKK2 activity with the CAMKK2 Assay Kit if the appropriate dose of CAMKK2 specific inhibitor e.g. STO-609 is used.

Description

The AMP-activated protein kinase (AMPK) is a critical regulator of energy homeostasis, and is a potential target for treatment of metabolic diseases as well as cancer. Activation of AMPK requires phosphorylation of threonine 172 within the T loop region of the catalytic $\alpha 2$ subunit by the tumor suppressor LKB1 or the Ca^{2+} /calmodulin-dependent protein kinase kinase beta (CaMKK β). CaMKK β can form a complex with and activate AMPK, but CaMKK α cannot. In addition, it was shown that CaMKK β and AMPK associate through their kinase domains, and CaMKK β must be in an active conformation in order to bind AMPK but not to associate with an alternative substrate, Ca^{2+} /calmodulin-dependent protein kinase IV. In contrast to LKB1, the activation of AMPK by CaMKK β does not require an alteration of the ATP:AMP ratio, but rather occurs in response to an increase in intracellular Ca^{2+} . The expression pattern of CaMKK β in cells and tissues is more limited than that of LKB1 and is highest in multiple regions of the brain.

Applications

1. Screening activators or inhibitors of CaMKK β ; 2. Evaluating the effects of pharmacological agents on CaMKK β activity in vitro. 3. Monitoring the purification of CaMKK β activity.

Target Species

Human

Usage

For research use only (RUO)

CAMKK2 Assay Kit

Storage

Store the kit at 4°C. Do not expose reagents to excessive light.

Kit Components

Non-coated Microplate: Ready to use for kinase reaction, in a clear, zip-lock bag. 96 (12 x 8) wells
Antibody-coated Microplate: Ready to use, in a foil, zip-lock bag with a desiccant pack. Wells are coated with anti-phospho-AMPK α 1 T183/AMPK α 2 T172 monoclonal antibody as a capture antibody. 96 (12 x 8) wells
10X Wash Buffer: Containing 10X buffer with 2% Tween-20 100 mL
Kinase Buffer: Containing 1X buffer, used for Reaction Buffer and sample dilution 20 mL
20X ATP: Lyophilized ATP Na₂ salt. 1 vial
20X DTT: Lyophilized BSA. 1 vial
20X BSA: Lyophilized BSA. 1 vial
100X Calmodulin: Lyophilized calmodulin, used for Reaction Buffer (Ca²⁺/CaM plus). 1 vial
50X CaCl₂: Containing 125 mM EGTA, used for Reaction Buffer (Ca²⁺/CaM minus) 0.4 mL
10X AMPK α 1 Substrate: Lyophilized recombinant GST-AMPK α 1 (1-394). 37.5 ng
EDTA Solution: Containing 0.5 M EDTA, pH 8.0. Ready to use. 2 mL
HRP conjugated Detection Antibody: Containing HRP (horseradish peroxidase) conjugated anti-AMPK α 1 antibody. Ready to use. 12 mL
Substrate Reagent: Containing the chromogenic substrate, tetra-methylbenzidine (TMB). Ready to use. 20 mL
Stop Solution: 1 N H₂SO₄. Ready to use. 20 mL
