SANTA CRUZ BIOTECHNOLOGY, INC.

casein kinase Iε (D-7): sc-365259

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The Power to Question

BACKGROUND

Casein kinase I (also designated CKI) and casein kinase II (CKII) compose a family of serine/threonine protein kinases which are present in all eukaryotes examined to date. Casein kinase I family members, which include casein kinase Iα, Iγ, Iδ and Iε, have been implicated in the control of cytoplasmic and nuclear processes, including DNA replication and repair. CKII is usually expressed as a tetrameric complex consisting of either an $\alpha 2\beta 2$ or an $\alpha\alpha'\beta 2$ structure. The a catalytic subunit is stimulated by the β regulatory subunit, which undergoes autophosphorylation. Casein kinase II activity is high in the cytosol and nucleus of proliferating and differentiating cells. Casein kinase II is known to phosphorylate more than 100 different substrates including nuclear oncoproteins, transcription factors and enzymes involved in DNA metabolism.

REFERENCES

1. Lozeman, F.J., et al. 1990. Isolation and characterization of human cDNA clones encoding the α and the α' subunits of casein kinase II. Biochemistry 29: 8436-8447.
2. Tuazon, P.T., et al. 1991. Casein kinase I and II—multipotential serine protein kinases: structure, function, and regulation. Adv. Second Messenger Phosphoprotein Res. 23: 123-164.
3. Litchfield, D.W., et al. 1993. Casein kinase II in signal transduction and cell cycle regulation. Mol. Cell. Biochem. 127-128: 187-199.
4. Graves, P.R., et al. 1993. Molecular cloning, expresion, and characterization of a 49 kDa casein kinase I isoform from rat testis. J. Biol. Chem. 268: 6394-6401.
5. Allende, J.E., et al. 1995. Protein kinases. 4. Protein kinase CK2: an enzyme with multiple substrates and a puzzling regulation. FASEB J. 9: 313-323.
6. Zhai, L., et al. 1995. Casein kinase Iγ subfamily. Molecular cloning, expression, and characterization of three mammalian isoforms and complementation of defects in the *Saccharomyces cerevisiae* YCK genes. J. Biol. Chem. 270: 12717-12724.

CHROMOSOMAL LOCATION

Genetic locus: CSNK1E (human) mapping to 22q13.1.

SOURCE

casein kinase Iε (D-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 393-415 at the C-terminus of casein kinase Iε of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365259 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

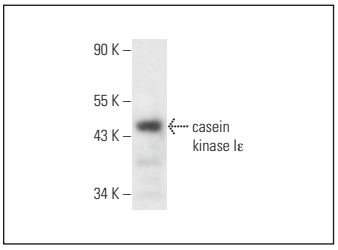
casein kinase Iε (D-7) is recommended for detection of casein kinase Iε of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for casein kinase Iε siRNA (h): sc-29914, casein kinase Iε shRNA Plasmid (h): sc-29914-SH and casein kinase Iε shRNA (h) Lentiviral Particles: sc-29914-V.

Molecular Weight of casein kinase Iε: 48 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or BJAB whole cell lysate: sc-2207.

DATA



casein kinase Iε (D-7): sc-365259. Western blot analysis of casein kinase Iε expression in K-562 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Hutchinson, J.A., et al. 2011. Regulation of ribosomal protein S6 phosphorylation by casein kinase 1 and protein phosphatase 1. J. Biol. Chem. 286: 8688-8696.
2. Shanware, N.P., et al. 2011. Casein kinase 1-dependent phosphorylation of familial advanced sleep phase syndrome-associated residues controls PERIOD 2 stability. J. Biol. Chem. 286: 12766-12774.
3. Wang, L., et al. 2014. Regulation of the phosphorylation and nuclear import and export of β-catenin by APC and its cancer-related truncated form. J. Cell Sci. 127: 1647-1659.
4. Wu, R., et al. 2021. Phosphorylation of *trans*-active response DNA-binding protein-of 43 kDa promotes its cytoplasmic aggregation and modulates its function in Tau mRNA stability and exon 10 alternative splicing. J. Neurochem. 158: 766-778.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.