SANTA CRUZ BIOTECHNOLOGY, INC.

Cdk7 (C-5): sc-365075

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Progression through the cell cycle requires activation of a series of enzymes designated cyclin dependent kinases (Cdks). The monomeric catalytic subunit Cdk2, a critical enzyme for initiation of cell cycle progression, is completely inactive. Partial activation is achieved by the binding of regulatory cyclins such as cyclin D1, while full activation requires additional phosphorylation at Thr 160. The enzyme responsible for the phosphorylation of Cdk2 on Thr 160 and also of Cdc2 p34 on Thr 161, designated Cdk-activating kinase (CAK), has been partially purified and shown to be comprised of a catalytic subunit and a regulatory subunit. The catalytic subunit, designated Cdk7, has been identified as the mammalian homolog of MO15, a protein kinase demonstrated in starfish and *Xenopus*. The regulatory subunit is a novel cyclin (cyclin H) and is required for activation of Cdk7. Like other Cdks, Cdk7 contains a conserved threonine residue required for full activity; mutation of this residue severely reduces CAK activity.

REFERENCES

1. Hunter, T., et al. 1994. Cyclins and cancer II: cyclin D and CDK inhibitors come of age. Cell 79: 573-582.
2. Kato, J.Y., et al. 1994. Regulation of cyclin D-dependent kinase 4 (Cdk4) by Cdk4-activating kinase. Mol. Cell. Biol. 14: 2713-2721.

CHROMOSOMAL LOCATION

Genetic locus: CDK7 (human) mapping to 5q13.2; Cdk7 (mouse) mapping to 13 D1.

SOURCE

Cdk7 (C-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 317-346 at the C-terminus of Cdk7 of human origin.

PRODUCT

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

Cdk7 (C-5) is available conjugated to agarose (sc-365075 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365075 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365075 PE), fluorescein (sc-365075 FITC), Alexa Fluor® 488 (sc-365075 AF488), Alexa Fluor® 546 (sc-365075 AF546), Alexa Fluor® 594 (sc-365075 AF594) or Alexa Fluor® 647 (sc-365075 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365075 AF680) or Alexa Fluor® 790 (sc-365075 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365075 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

Cdk7 (C-5) is recommended for detection of Cdk7 of mouse, rat, human and monkey 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).

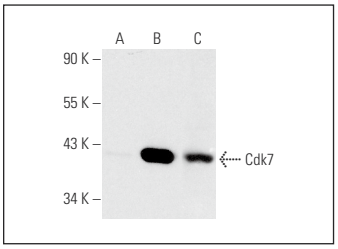
Cdk7 (C-5) is also recommended for detection of Cdk7 in additional species, including equine, bovine and porcine.

Suitable for use as control antibody for Cdk7 siRNA (h): sc-29266, Cdk7 siRNA (m): sc-29265, Cdk7 shRNA Plasmid (h): sc-29266-SH, Cdk7 shRNA Plasmid (m): sc-29265-SH, Cdk7 shRNA (h) Lentiviral Particles: sc-29266-V and Cdk7 shRNA (m) Lentiviral Particles: sc-29265-V.

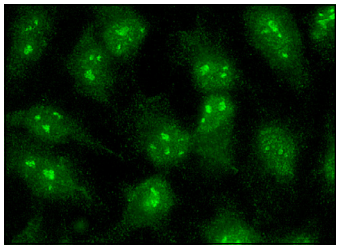
Molecular Weight of Cdk7 isoforms: 42/37 kDa.

Positive Controls: Cdk7 (h): 293 Lysate: sc-110468, Jurkat whole cell lysate: sc-2204 or Caki-1 cell lysate: sc-2224.

DATA



Cdk7 (C-5): sc-365075. Western blot analysis of Cdk7 expression in non-transfected 293: sc-110760 (**A**), human Cdk7 transfected 293: sc-110468 (**B**) and Jurkat (**C**) whole cell lysates.



Cdk7 (C-5): sc-365075. Immunofluorescence staining of methanol-fixed HeLa cells showing nucleolar and nuclear localization.

SELECT PRODUCT CITATIONS

1. Chipumuro, E., et al. 2014. Cdk7 inhibition suppresses super-enhancer-linked oncogenic transcription in MYCN-driven cancer. Cell 159: 1126-1139.
2. Huang, H.T., et al. 2018. A chemoproteomic approach to query the degradable kinome using a multi-kinase degrader. Cell Chem. Biol. 25: 88-99.e6.
3. Seoane, M., et al. 2019. Lineage-specific control of TFIIH by MITF determines transcriptional homeostasis and DNA repair. Oncogene 38: 3616-3635.
4. Kim, J., et al. 2020. Cdk7 is a reliable prognostic factor and novel therapeutic target in epithelial ovarian cancer. Gynecol. Oncol. 156: 211-221.
5. Gao, Y., et al. 2021. Synergistic anti-tumor effect of combining selective Cdk7 and BRD4 inhibition in neuroblastoma. Front. Oncol. 11: 773186.

RESEARCH USE

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