SANTA CRUZ BIOTECHNOLOGY, INC.

Cdk7 (MO-1): sc-56284

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.

CHROMOSOMAL LOCATION

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

SOURCE

Cdk7 (MO-1) is a mouse monoclonal antibody raised against the C-terminus of Cdk7 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cdk7 (MO-1) is available conjugated to either phycoerythrin (sc-56284 PE) or fluorescein (sc-56284 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

Cdk7 (MO-1) is recommended for detection of Cdk7 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 flow cytometry (1 µg per 1 x 10^6 cells).

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: ARPE-19 whole cell lysate: sc-364357, Jurkat whole cell lysate: sc-2204 or WI-38 whole cell lysate: sc-364260.

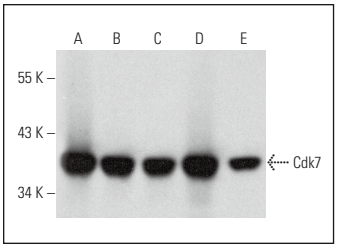
STORAGE

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

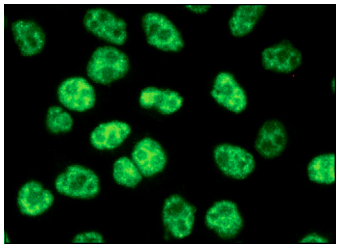
RESEARCH USE

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

DATA



Cdk7 (MO-1): sc-56284. Western blot analysis of Cdk7 expression in Jurkat (**A**), HUV-EC-C (**B**), WI-38 (**C**), ARPE-19 (**D**) and RPE-J (**E**) whole cell lysates.



Cdk7 (MO-1): sc-56284. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Wu, W., et al. 2009. Antibody array analysis with label-based detection and resolution of protein size. Mol. Cell. Proteomics 8: 245-257.
2. Rechter, S., et al. 2009. Cyclin-dependent kinases phosphorylate the cytomegalovirus RNA export protein pUL69 and modulate its nuclear localization and activity. J. Biol. Chem. 118: 8605-8613.
3. Sorensen, R.B., et al. 2009. The immune system strikes back: cellular immune responses against indoleamine 2,3-dioxygenase. PLoS ONE 4: e6910.
4. Steingruber, M., et al. 2016. Proteomic interaction patterns between human cyclins, the cyclin-dependent kinase ortholog pUL97 and additional cytomegalovirus proteins. Viruses 8: 219.
5. Hui, Y., et al. 2017. Effects of an irinotecan derivative, ZBH-1208, on the immune system in a mouse model of brain tumor and its antitumor mechanism. Mol. Med. Rep. 16: 6340-6345.
6. Steingruber, M., et al. 2019. Cyclins B1, T1 and H differ in their molecular mode of interaction with cytomegalovirus protein kinase pUL97. J. Biol. Chem. 294: 6188-6203.
7. Baluapuri, A., et al. 2019. Myc recruits SPT5 to RNA polymerase II to promote processive transcription elongation. Mol. Cell 74: 674-687.e11.
8. Wild, M., et al. 2022. Cyclin-dependent kinases (CDKs) and the human cytomegalovirus-encoded CDK ortholog pUL97 represent highly attractive targets for synergistic drug combinations. Int. J. Mol. Sci. 23: 2493.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CONJUGATES

See **Cdk7 (C-4): sc-7344** for Cdk7 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.