SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin H (D-10): sc-1662

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, in addition, phosphorylation at Thr 160. The enzyme responsible for phosphorylation of Thr 160 in Cdk2 and also Thr 161 in Cdc2 p34, 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 earlier 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 required for full activity; mutation of this residue severely reduces CAK activity.

REFERENCES

1. Nurse, P. 1994. Ordering S phase and M phase in the cell cycle. Cell 79: 547-550.
2. Sherr, C.J. 1994. G_1 phase progression: cycling on cue. Cell 79: 551-555.
3. Helchman, K.A., et al. 1994. Rules to replicate by. Cell 79: 557-562.
4. King, R.W., et al. 1994. Mitosis in transition. Cell 79: 563-571.

CHROMOSOMAL LOCATION

Genetic locus: CCNH (human) mapping to 5q14.3; Ccnh (mouse) mapping to 13 C3.

SOURCE

cyclin H (D-10) is a mouse monoclonal antibody raised against full length cyclin H 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.

cyclin H (D-10) is available conjugated to agarose (sc-1662 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-1662 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-1662 PE), fluorescein (sc-1662 FITC), Alexa Fluor® 488 (sc-1662 AF488), Alexa Fluor® 546 (sc-1662 AF546), Alexa Fluor® 594 (sc-1662 AF594) or Alexa Fluor® 647 (sc-1662 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-1662 AF680) or Alexa Fluor® 790 (sc-1662 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, cyclin H (D-10) is available conjugated to TRITC (sc-1662 TRITC, 200 µg/ml), for IF, IHC(P) and FCM.

STORAGE

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

APPLICATIONS

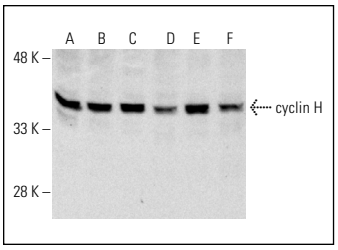
cyclin H (D-10) is recommended for detection of cyclin H p37 (CAK regulatory subunit) of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with catalytic subunit, Cdk7.

Suitable for use as control antibody for cyclin H siRNA (h): sc-29290, cyclin H siRNA (m): sc-29291, cyclin H shRNA Plasmid (h): sc-29290-SH, cyclin H shRNA Plasmid (m): sc-29291-SH, cyclin H shRNA (h) Lentiviral Particles: sc-29290-V and cyclin H shRNA (m) Lentiviral Particles: sc-29291-V.

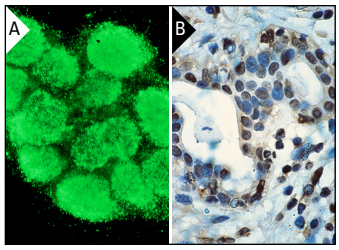
Molecular Weight of cyclin H: 37 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, K-562 nuclear extract: sc-2130 or A-431 nuclear extract: sc-2122.

DATA



cyclin H (D-10): sc-1662. Western blot analysis of cyclin H expression in Jurkat (**A**), A-431 (**B**), K-562 (**C**), C32 (**D**), MM-142 (**E**) and NIH/3T3 (**F**) nuclear extracts.



cyclin H (D-10): sc-1662. Immunofluorescence staining of methanol-fixed A-431 cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue at high magnification showing nuclear staining of epithelial and stromal cells (**B**).

SELECT PRODUCT CITATIONS

1. Bourgeois, C.F., et al. 2002. Spt5 cooperates with human immunodeficiency virus type 1 Tat by preventing premature RNA release at terminator sequences. Mol. Cell. Biol. 22: 1079-1093.
2. Sreeramaneni, R., et al. 2005. Ras-Raf-Arf signaling critically depends on the Dmp1 transcription factor. Mol. Cell. Biol. 25: 220-232.
3. Madan, R., et al. 2006. AIDS and non-AIDS diffuse large B-cell lymphomas express different antigen profiles. Mod. Pathol. 19: 438-446.
4. Liu, W., et al. 2008. Proteolysis of CDH1 enhances susceptibility to UV radiation-induced apoptosis. Carcinogenesis 29: 263-272.
5. Graf, L., et al. 2013. The cyclin-dependent kinase ortholog pUL97 of human cytomegalovirus interacts with cyclins. Viruses 5: 3213-3230.

RESEARCH USE

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