SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin H (h): 293 Lysate: sc-159947

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.
5. Hunter, T., et al. 1994. Cyclins and cancer II: cyclin D and Cdk inhibitors come of age. Cell 79: 573-582.
6. Kato, J.Y., et al. 1994. Regulation of cyclin D-dependent kinase 4 (Cdk4) by Cdk4-activating kinase. Mol. Cell. Biol. 14: 2713-2721.
7. Levedakou, E.N., et al. 1994. Two novel human serine/threonine kinases with homologies to the cell cycle regulating *Xenopus* MO15, and NIMA kinases: cloning and characterization of their expression pattern. Oncogene 9: 1977-1988.
8. Wu, L., et al. 1994. Molecular cloning of the human CAK1 gene encoding a cyclin-dependent kinase-activating kinase. Oncogene 9: 2089-2096.

CHROMOSOMAL LOCATION

Genetic locus: CCNH (human) mapping to 5q14.3.

PRODUCT

cyclin H (h): 293 Lysate represents a lysate of human cyclin H transfected 293 cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

cyclin H (h): 293 Lysate is suitable as a Western Blotting positive control for human reactive cyclin H antibodies. Recommended use: 10-20 µl per lane.

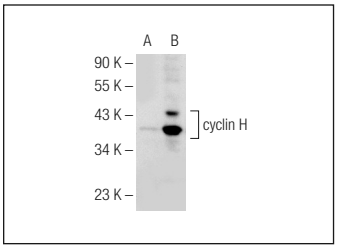
Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

cyclin H (D-10): sc-1662 is recommended as a positive control antibody for Western Blot analysis of enhanced human cyclin H expression in cyclin H transfected 293 cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



cyclin H (D-10): sc-1662. Western blot analysis of cyclin H expression in non-transfected: sc-110760 (**A**) and human cyclin H transfected: sc-159947 (**B**) 293 whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

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