

GAK (h): 293 Lysate: sc-111171

BACKGROUND

Cyclins are the regulatory subunits of Cdc2 p34 and related cyclin-dependent kinases (Cdks) which play critical roles in the control of cell cycle progression. The catalytic subunit for cyclin A and B is Cdc2 p34 kinase. The Cdc2-cyclin B complex controls the G₂ to M transition whereas Cdc2-cyclin A regulates S phase progression. The G₁ to S transition, however, appears to be controlled by the G₁ cyclins. Cyclin D1 accumulates during G₁ and associates with Cdk2, Cdk4 and Cdk5. Cyclin E and Cdk2 interact during the G₁ to S transition. Cyclin G contains a typical N terminal cyclin box and a carboxy-terminal domain sequence homologous to the tyrosine phosphorylation site of the epidermal growth factor receptor. Cyclin G expression is induced within 3 hours after growth stimulation and remains elevated with no apparent cell cycle dependency. A serine/threonine kinase, designated GAK (for cyclin G associated kinase), has been identified. GAK has been shown to bind directly to cyclin G and to co-immunoprecipitate with Cdk5, which also associates with cyclin G.

REFERENCES

1. Pines, J. and Hunter, T. 1990. Human cyclin A is adenovirus E1A-associated protein p60 and behaves differently from cyclin B. *Nature* 346: 760-763.
2. Fang, F. and Newport, J.W. 1991. Evidence that the G₁-S and G₂-M transitions are controlled by different Cdc2 proteins in higher eukaryotes. *Cell* 66: 731-742.
3. Koff, A., Cross, F., Fisher, A., Schumacher, J., Leguellec, K., Phillippe, M. and Roberts, J.M. 1991. Human cyclin E, a new cyclin that interacts with two members of the CDC2 gene family. *Cell* 66: 1217-1228.
4. Girard, F., Strausfeld, U., Fernandez, A. and Lamb, N.J.C. 1991. Cyclin A is required for the onset of DNA replication in mammalian fibroblasts. *Cell* 67: 1169-1179.
5. Matsushime, H., Ewen, M.E., Strom, D.K., Kato, J., Hanks, S.K., Roussel, M.F. and Sherr, C.J. 1992. Identification and properties of an atypical catalytic subunit (p34PSK-J3/Cdk4) for mammalian D type G₁ cyclins. *Cell* 71: 323-334.
6. Xiong, Y., Zhang, H. and Beach, D. 1992. D type cyclins associate with multiple protein kinases and the DNA replication and repair factor PCNA. *Cell* 71: 505-514.
7. Tamura, K., Kanaoka, Y., Jinno, S., Nagata, A., Ogiso, Y., Shimizu, K., Hayakawa, T., Nojima, H. and Okayama, H. 1993. Cyclin G: a new mammalian cyclin with homology to fission yeast Cig1. *Oncogene* 8: 2113-2118.
8. Kanaoka, Y., Kimura, S.H., Okazaki, I., Ikeda, M. and Nojima, H. 1997. GAK: a cyclin G associated kinase contains a tensin/auxilin-like domain. *FEBS Lett.* 402: 73-80.

CHROMOSOMAL LOCATION

Genetic locus: GAK (human) mapping to 4p16.3.

PRODUCT

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

APPLICATIONS

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

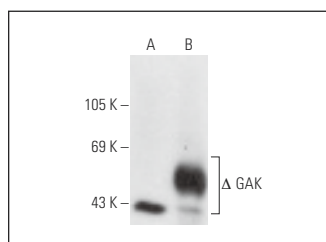
Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

GAK (D-2): sc-137053 is recommended as a positive control antibody for Western Blot analysis of enhanced human GAK expression in GAK transfected 293 cells (starting dilution 1:100, dilution range 1:100-1:1,000).

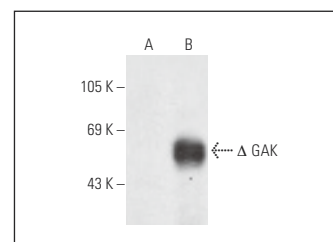
RECOMMENDED SUPPORT REAGENTS

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



GAK (D-2): sc-137053. Western blot analysis of GAK expression in non-transfected: sc-117752 (A) and truncated human GAK transfected: sc-111171 (B) 293T whole cell lysates.



GAK (G-10): sc-137066. Western blot analysis of GAK expression in non-transfected: sc-117752 (A) and truncated human GAK transfected: sc-111171 (B) 293T 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.