SANTA CRUZ BIOTECHNOLOGY, INC.

GAK (G-10): sc-137066

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 G_2/M transition whereas Cdc2-cyclin A regulates S phase progression. The G_1/S transition, however, appears to be controlled by the G_1 cyclins. Cyclin D1 accumulates during G_1 and associates with Cdk2, Cdk4 and Cdk5. Cyclin E and Cdk2 interact during the G_1/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 G_1/S and G_2/M transitions are controlled by different Cdc2 proteins in higher eukaryotes. Cell 66: 731-742.

CHROMOSOMAL LOCATION

Genetic locus: GAK (human) mapping to 4p16.3; Gak (mouse) mapping to 5 F.

SOURCE

GAK (G-10) is a mouse monoclonal antibody raised against amino acids 1-360 of GAK of rat 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.

APPLICATIONS

GAK (G-10) is recommended for detection of GAK of mouse, rat and human 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), 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).

Suitable for use as control antibody for GAK siRNA (h): sc-43791, GAK siRNA (m): sc-63301, GAK shRNA Plasmid (h): sc-43791-SH, GAK shRNA Plasmid (m): sc-63301-SH, GAK shRNA (h) Lentiviral Particles: sc-43791-V and GAK shRNA (m) Lentiviral Particles: sc-63301-V.

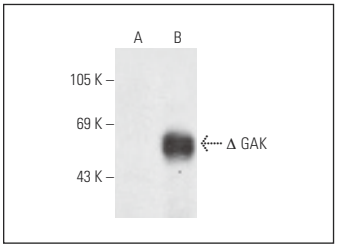
Molecular Weight of GAK: 144 kDa.

Positive Controls: GAK (h2): 293T Lysate: sc-111171.

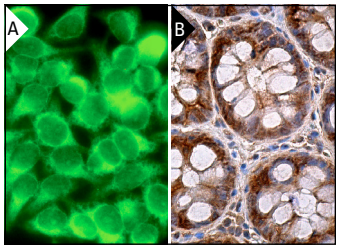
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



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.



GAK (G-10): sc-137066. Immunofluorescence staining of methanol-fixed HeLa cells showing showing cytoplasmic and perinuclear staining (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Yu, A., et al. 2014. Protein aggregation can inhibit clathrin-mediated endocytosis by chaperone competition. Proc. Natl. Acad. Sci. USA 111: E1481-E1490.
2. Tian, X., et al. 2020. Inhibiting Calpain 1 and 2 in cyclin G associated kinase-knockout mice mitigates podocyte injury. JCI Insight 5: e142740.

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.

PROTOCOLS

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