

GAK (D-2): sc-137053

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/M transition whereas Cdc2-cyclin A regulates S phase progression. The G₁/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/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 three 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., et al. 1990. Human cyclin A is Adenovirus E1A-associated protein p60 and behaves differently from cyclin B. *Nature* 346: 760-763.
2. Fang, F., et al. 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., et al. 1991. Human cyclin E, a new cyclin that interacts with two members of the Cdc2 gene family. *Cell* 66: 1217-1228.

CHROMOSOMAL LOCATION

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

SOURCE

GAK (D-2) is a mouse monoclonal antibody raised against amino acids 1-360 of GAK of rat origin.

PRODUCT

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

GAK (D-2) is available conjugated to agarose (sc-137053 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137053 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137053 PE), fluorescein (sc-137053 FITC), Alexa Fluor® 488 (sc-137053 AF488), Alexa Fluor® 546 (sc-137053 AF546), Alexa Fluor® 594 (sc-137053 AF594) or Alexa Fluor® 647 (sc-137053 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137053 AF680) or Alexa Fluor® 790 (sc-137053 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

GAK (D-2) 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.

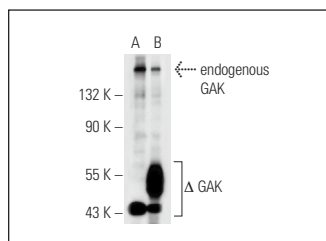
Molecular Weight of GAK: 144 kDa.

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

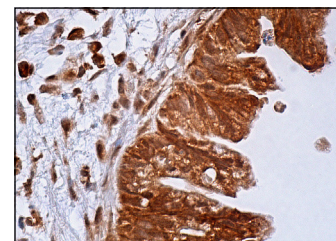
RECOMMENDED SUPPORT REAGENTS

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 (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 (D-2): sc-137053. Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing cytoplasmic and nuclear staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Wang, C., et al. 2019. The serine/threonine kinase AP2-associated kinase 1 plays an important role in rabies virus entry. *Viruses* 12: 45.
2. Mattenberger, F., et al. 2021. Globally defining the effects of mutations in a picornavirus capsid. *Elife* 10: e64256.

RESEARCH USE

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