

DGUOK (H-3): sc-376267

BACKGROUND

DGUOK (deoxyguanosine kinase), also known as DGK, is a 277 amino acid protein that localizes to mitochondria and exists as multiple alternatively spliced isoforms. Functioning as a homodimer and highly expressed in a variety of tissues, including liver, muscle and brain, DGUOK uses ATP to catalyze the conversion of deoxyguanosine to dGMP. Via its catalytic activity, DGUOK is essential for the phosphorylation of purine deoxyribonucleosides in the mitochondrial matrix and is an important antiviral and chemotherapeutic tool. Defects in the gene encoding DGUOK are the cause of hepatocerebral mitochondrial DNA depletion syndrome (MDS), a group of disorders that result in reduced mtDNA (mitochondrial DNA) copy number and are characterized by liver failure and neurologic abnormalities.

REFERENCES

1. Johansson, M. and Karlsson, A. 1996. Cloning and expression of human deoxyguanosine kinase cDNA. *Proc. Natl. Acad. Sci. USA* 93: 7258-7262.
2. Mandel, H., et al. 2001. The deoxyguanosine kinase gene is mutated in individuals with depleted hepatocerebral mitochondrial DNA. *Nat. Genet.* 29: 337-341.
3. Taanman, J.W., et al. 2002. A novel mutation in the deoxyguanosine kinase gene causing depletion of mitochondrial DNA. *Ann. Neurol.* 52: 237-239.
4. Salvati, L., et al. 2002. Mitochondrial DNA depletion and dGK gene mutations. *Ann. Neurol.* 52: 311-317.

CHROMOSOMAL LOCATION

Genetic locus: DGUOK (human) mapping to 2p13.1; Dguok (mouse) mapping to 6 C3.

SOURCE

DGUOK (H-3) is a mouse monoclonal antibody raised against amino acids 170-277 mapping at the C-terminus of DGUOK of mouse 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.

DGUOK (H-3) is available conjugated to agarose (sc-376267 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376267 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376267 PE), fluorescein (sc-376267 FITC), Alexa Fluor® 488 (sc-376267 AF488), Alexa Fluor® 546 (sc-376267 AF546), Alexa Fluor® 594 (sc-376267 AF594) or Alexa Fluor® 647 (sc-376267 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376267 AF680) or Alexa Fluor® 790 (sc-376267 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

DGUOK (H-3) is recommended for detection of DGUOK 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for DGUOK siRNA (h): sc-77139, DGUOK siRNA (m): sc-77140, DGUOK shRNA Plasmid (h): sc-77139-SH, DGUOK shRNA Plasmid (m): sc-77140-SH, DGUOK shRNA (h) Lentiviral Particles: sc-77139-V and DGUOK shRNA (m) Lentiviral Particles: sc-77140-V.

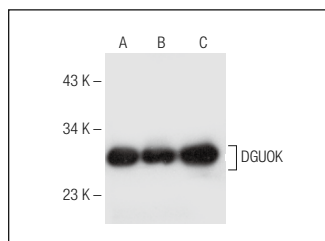
Molecular Weight of DGUOK: 28 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, mouse kidney extract: sc-2255 or mouse thymus extract: sc-2406.

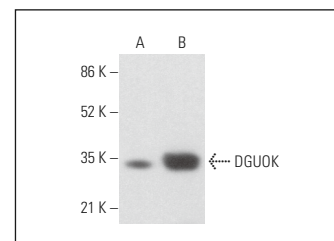
RECOMMENDED SUPPORT REAGENTS

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.

DATA



DGUOK (H-3): sc-376267. Western blot analysis of DGUOK expression in U-87 MG whole cell lysate (A) and mouse kidney (B) and mouse thymus (C) tissue extracts.



DGUOK (H-3): sc-376267. Western blot analysis of DGUOK expression in KNRK whole cell lysate (A) and rat kidney tissue extract (B).

SELECT PRODUCT CITATIONS

1. Lin, S., et al. 2019. The mitochondrial deoxyguanosine kinase is required for cancer cell stemness in lung adenocarcinoma. *EMBO Mol. Med.* 21: e10849.
2. Fazel-Najafabadi, M., et al. 2022. Discovery and functional characterization of two regulatory variants underlying lupus susceptibility at 2p13.1. *Genes* 13: 1016.

RESEARCH USE

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