SANTA CRUZ BIOTECHNOLOGY, INC.

KGA (IJ-2): sc-100533

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Glutamine is an important molecule involved in several cellular functions, including nitrogen and carbon transport, hepatic urea synthesis, renal ammoniagenesis, and gluconeogenesis. Glutamine is catabolized by either the liver-type (LGA) or kidney-type (KGA) glutaminase. KGA is mitochondrial specific protein whose expression in kidney is increased during metabolic acidosis. This process is mediated by an 8-base AU-sequence in KGA that functions as a pH-response element. The human KGA gene maps to chromosome 2q32.2, and produces three isoforms, designated KGA, GAC, and GAM, by alternative splicing. KGA is synthesized as a cytosolic protein that is transported to the mitochondria as an intermediate protein, and is further cleaved into the KGA isoform and the GAC isoform. The processing of the GAM isoform is unclear. The KGA isoform is abundant in brain and kidney, while the GAC isoform is principally expressed in cardiac muscle and pancreas. The GAM isoform is solely expressed in cardiac and skeletal muscle.

REFERENCES

1. Curthoys, N.P. and Watford, M. 1995. Regulation of glutaminase activity and glutamine metabolism. Annu. Rev. Nutr. 15: 133-159.
2. Srinivasan, M., et al. 1995. *In vitro* characterization of the mitochondrial processing and the potential function of the 68-kDa subunit of renal glutaminase. J. Biol. Chem. 270: 1185-1190.
3. Srinivasan, M., et al. 1995. Role of the N-terminal 118 amino acids in the processing of the rat renal mitochondrial glutaminase precursor. J. Biol. Chem. 270: 1191-1197.
4. Elgadi, K.M., et al. 1999. Cloning and analysis of unique human glutaminase isoforms generated by tissue-specific alternative splicing. Physiol. Genomics 1: 51-62.
5. Aledo, J.C., et al. 2000. Identifi-cation of two human glutaminase loci and tissue-specific expression of the two related genes. Mamm. Genome 11: 1107-1110.
6. Curthoys, N.P. and Gstraunthaler, G. 2001. Mechanism of increased renal gene expression during metabolic acidosis. Am. J. Physiol. Renal Physiol. 281: F381-F390.

CHROMOSOMAL LOCATION

Genetic locus: GLS (human) mapping to 2q32.2.

SOURCE

KGA (IJ-2) is a mouse monoclonal antibody raised against a partial recombinant protein mapping within amino acids 580-669 of KGA of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

KGA (IJ-2) is recommended for detection of KGA of human origin by Western Blotting (starting dilution 1:200, 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 KGA siRNA (h): sc-105592, KGA shRNA Plasmid (h): sc-105592-SH and KGA shRNA (h) Lentiviral Particles: sc-105592-V.

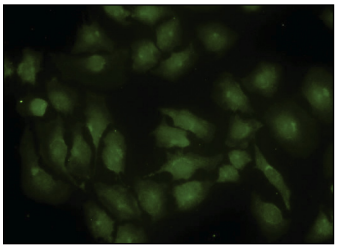
Molecular Weight of KGA: 73 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

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



KGA (IJ-2): sc-100533. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Wynn, M.L., et al. 2016. RhoC GTPase is a potent regulator of glutamine metabolism and N-acetylaspartate production in inflammatory breast cancer cells. J. Biol. Chem. 291: 13715-13729.
2. Schcolnik-Cabrera, A., et al. 2019. A combination of inhibitors of glycolysis, glutaminolysis and *de novo* fatty acid synthesis decrease the expression of chemokines in human colon cancer cells. Oncol. Lett. 18: 6909-6916.
3. Chen, Y., et al. 2020. A facile and sensitive method of quantifying glutaminase binding to its inhibitor CB-839 in tissues. J. Genet. Genomics 47: 389-395.

STORAGE

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