SANTA CRUZ BIOTECHNOLOGY, INC.

α-KGD (H-61): sc-67238

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The Power to Question

BACKGROUND

The α-ketoglutarate dehydrogenase (α-KGD) complex is a multienzyme complex which localizes to the mitochondrial matrix and consists of three protein subunits: α-ketoglutarate dehydrogenase, also designated α-KGD, E1k or oxoglutarate dehydrogenase (OGDH); dihydrolipoyl succinyltransferase (E2k or DLST); and dihydrolipoyl dehydrogenase (E3). The α-KGD subunit of the α-KGD complex catalyzes the conversion of α-ketoglutarate to succinyl-CoA and CO_2, an essential reaction of the tricarboxylic acid cycle. A deficiency in α-KGD results in hypotonia, metabolic acidosis, hyperlactatemia immediately after birth, and neurologic deterioration resulting in death at about 30 months of age. Low molar ratios of ketone bodies in plasma of neonates with congenital lactic acidosis are proposed indicators of tricarboxylic acid cycle dysfunction.

REFERENCES

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2. Bunik, V.I., et al. 2005. Phosphonate analogues of α-ketoglutarate inhibit the activity of the α-KGD complex isolated from brain and in cultured cells. Biochemistry 44: 10552-10561.
3. Lino, M., et al. 2005. Tubulointerstitial nephritis and Fanconi syndrome in primary biliary cirrhosis. Am. J. Kidney Dis. 46: 41-46.
4. Tian, J., et al. 2005. *Mycobacterium tuberculosis* appears to lack α-KGD and encodes pyruvate dehydrogenase in widely separated genes. Mol. Microbiol. 57: 859-868.
5. Balaji Raghavendran, H.R., et al. 2005. Antioxidant effect of *Sargassum polycystum (Phaeophyceae)* against acetaminophen induced changes in hepatic mitochondrial enzymes during toxic hepatitis. Chemosphere 61: 276-281.
6. Strumilo, S., et al. 2005. Short-term regulation of the α-KGD complex by energy-linked and some other effectors. Biochemistry 70: 726-729.
7. Senthilnathan, P., et al. 2005. Modulation of TCA cycle enzymes and electron transport chain systems in experimental lung cancer. Life Sci. 78: 1010-1014.
8. Tian, J., et al. 2005. Variant tricarboxylic acid cycle in *Mycobacterium tuberculosis:* identification of α-KGD. Proc. Natl. Acad. Sci. USA 102: 10670-10675.
9. Waagepetersen, H.S., et al. 2006. Cellular mitochondrial heterogeneity in cultured astrocytes as demonstrated by immunogold labeling of α-KGD. Glia 53: 225-231.

CHROMOSOMAL LOCATION

Genetic locus: OGDH (human) mapping to 7p13; Ogdh (mouse) mapping to 11 A1.

SOURCE

α-KGD (H-61) is a rabbit polyclonal antibody raised against amino acids 1-61 mapping at the N-terminus of α-KGD of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

α-KGD (H-61) is recommended for detection of α-KGD of mouse, rat and 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).

α-KGD (H-61) is also recommended for detection of α-KGD in additional species, including equine, bovine, porcine and avian.

Suitable for use as control antibody for α-KGD siRNA (h): sc-60105, α-KGD siRNA (m): sc-60106, α-KGD shRNA Plasmid (h): sc-60105-SH, α-KGD shRNA Plasmid (m): sc-60106-SH, α-KGD shRNA (h) Lentiviral Particles: sc-60105-V and α-KGD shRNA (m) Lentiviral Particles: sc-60106-V.

Molecular Weight of α-KGD: 113 kDa.

Positive Controls: rat heart extract: sc-2393 or mouse heart extract: sc-2254.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Mehan, N.D. and Strauss, K.I. 2012. Combined age- and trauma-related proteomic changes in rat neocortex: a basis for brain vulnerability. Neurobiol. Aging 33: 1857-1873.

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 or our catalog for detailed protocols and support products.