

α -KGD siRNA (h): sc-60105

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, E1 α or oxoglutarate dehydrogenase (OGDH); dihydrolipoyl succinyltransferase (E2 α 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 CO₂, 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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3. Lino, M., et al. 2005. Tubulointerstitial nephritis and Fanconi syndrome in primary biliary cirrhosis. *Am. J. Kidney Dis.* 46: 41-46.
4. Strumilo, S., et al. 2005. Short-term regulation of the α -KGD complex by energy-linked and some other effectors. *Biochemistry* 70: 726-729.
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6. Tian, J., et al. 2005. Variant tricarboxylic acid cycle in *Mycobacterium tuberculosis*: identification of α -KGD. *Proc. Natl. Acad. Sci. USA* 102: 10670-10675.
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CHROMOSOMAL LOCATION

Genetic locus: OGDH (human) mapping to 7p13.

PRODUCT

α -KGD siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see α -KGD shRNA Plasmid (h): sc-60105-SH and α -KGD shRNA (h) Lentiviral Particles: sc-60105-V as alternate gene silencing products.

For independent verification of α -KGD (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-60105A, sc-60105B and sc-60105C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

α -KGD siRNA (h) is recommended for the inhibition of α -KGD expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor α -KGD gene expression knockdown using RT-PCR Primer: α -KGD (h)-PR: sc-60105-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.