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TET2 siRNA (m): sc-154205

BACKGROUND

TET2 (Tet oncogene family member 2), also known as KIAA1546, is a 2,002 amino acid protein that is expressed in a variety of tissues, including brain, kidney, heart, lung, muscle and stomach, and exists as three alternatively spliced isoforms. Murine TET2 is also known as protein Ayu17-449 and is thought to play a role in proper kidney development and overall kidney function, as well as in hormone secretion throughout the body. The gene encoding human TET2 maps to chromosome 4 and the gene encoding mouse TET2 maps to chromosome 3. Chromosome 4 encodes nearly 6% of the human genome and has the largest gene deserts (regions of the genome with no protein encoding genes) of all of the human chromosomes. Defects in some of the genes located on chromosome 4 are associated with Huntington's disease, Ellis-van Creveld syndrome, methylmalonic acidemia and polycystic kidney disease. Murine chromosome 3 houses over 1,300 genes, some of which express alcohol dehydrogenases (ADHs), sodium channel modifiers (SCNMs), interleukins (ILs) and Insulin receptor-related (IRR) proteins. Defects in chromosome 3-localized genes are associated with hereditary congenital facial paresis (HCFP), increased susceptibility to spontaneous colitis, HIV-1-associated nephropathy, decreased renal vascular health and malignant sporadic pancreatic endocrine tumors.

REFERENCES

1. Nagase, T., et al. 2000. Prediction of the coding sequences of unidentified human genes. XVIII. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 7: 273-281.
2. Guo, S.S., et al. 2002. Frequent deletion of chromosome 3 in malignant sporadic pancreatic endocrine tumors. Mol. Cell. Endocrinol. 190: 109-114.

CHROMOSOMAL LOCATION

Genetic locus: Tet2 (mouse) mapping to 3 G3.

PRODUCT

TET2 siRNA (m) 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 TET2 shRNA Plasmid (m): sc-154205-SH and TET2 shRNA (m) Lentiviral Particles: sc-154205-V as alternate gene silencing products.

For independent verification of TET2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-154205A, sc-154205B and sc-154205C.

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

TET2 siRNA (m) is recommended for the inhibition of TET2 expression in mouse 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.

GENE EXPRESSION MONITORING

TET2 (C-7): sc-398535 is recommended as a control antibody for monitoring of TET2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TET2 gene expression knockdown using RT-PCR Primer: TET2 (m)-PR: sc-154205-PR (20 μ l, 583 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ameny, H.Z., et al. 2016. Dioxin induces Ahr-dependent robust DNA demethylation of the Cyp1a1 promoter via Tdg in the mouse liver. Sci. Rep. 6: 34989.
2. Yang, R., et al. 2018. TET1 and TET2 maintain mesenchymal stem cell homeostasis via demethylation of the P2rx7 promoter. Nat. Commun. 9: 2143.
3. Pensold, D., et al. 2020. DNA methylation-mediated modulation of endocytosis as potential mechanism for synaptic function regulation in murine inhibitory cortical interneurons. Cereb. Cortex 30: 3921-3937.

RESEARCH USE

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