SANTA CRUZ BIOTECHNOLOGY, INC.

Maltase-glucoamylase siRNA (m): sc-75741

BACKGROUND

Maltase-glucoamylase, also known as MGAM, MG or MGA, is a 1,857 amino acid multi-pass membrane protein that localizes to the apical cell membrane and contains two P-type domains. Expressed in kidney, small intestine and granulocytes, Maltase-glucoamylase exists as a monomer that is thought to participate in an alternate pathway of starch digestion, specifically when luminal α-amylase activity is reduced because of immaturity or malnutrition. Maltase-glucoamylase is subject to posttranslational N- and O-glycosylation, as well as sulfation. The gene encoding Maltase-glucoamylase maps to human chromosome 7q34, which houses over 1,000 genes and comprises nearly 5% of the human genome. Defects in some of the genes localized to chromosome 7 have been linked to osteogenesis imperfecta, Williams-Beuren syndrome, Pendred syndrome, lissencephaly, citrullinemia and Shwachman-Diamond syndrome.

REFERENCES

1. Danielsen, E.M. 1987. Tyrosine sulfation, a post-translational modification of microvillar enzymes in the small intestinal enterocyte. EMBO J. 6: 2891-2896.
2. Naim, H.Y., et al. 1988. Structure, biosynthesis, and glycosylation of human small intestinal Maltase-glucoamylase. J. Biol. Chem. 263: 19709-19717.

CHROMOSOMAL LOCATION

Genetic locus: Mgam (mouse) mapping to 6 B1.

PRODUCT

Maltase-glucoamylase 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Maltase-glucoamylase shRNA Plasmid (m): sc-75741-SH and Maltase-glucoamylase shRNA (m) Lentiviral Particles: sc-75741-V as alternate gene silencing products.

For independent verification of Maltase-glucoamylase (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-75741A, sc-75741B and sc-75741C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Maltase-glucoamylase siRNA (m) is recommended for the inhibition of Maltase-glucoamylase 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 µM in 66 µl. 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 Maltase-glucoamylase gene expression knockdown using RT-PCR Primer: Maltase-glucoamylase (m)-PR: sc-75741-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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7. Zhang, M., et al. 2021. Inhibition of the mTORC1/NFκB axis alters amino acid metabolism in human hepatocytes. Biomed Res. Int. 2021: 8621464.
8. Qian, Z., et al. 2022. Protein nanoparticle-induced osmotic pressure gradients modify pulmonary edema through hyperpermeability in acute respiratory distress syndrome. J. Nanobiotechnology 20: 314.
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10. Zhang, Y., et al. 2024. Glucocorticoids increase adiposity by stimulating Krüppel-like factor 9 expression in macrophages. Nat. Commun. 15: 1190.

RESEARCH USE

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