SANTA CRUZ BIOTECHNOLOGY, INC.

# MAO-A siRNA (h): sc-35847

## BACKGROUND

Monoamine oxidase (MAO) is an enzyme of the mitochondrial outer membrane and catalyzes the oxidative deamination of biogenic amines throughout the body. MAO is critical in the neuronal metabolism of catecholamine and indolamine transmitters. Cultured skin fibroblasts show both MAO-A and MAO-B and both MAOs differ in molecular structure. MAO-A, the primary type in fibroblasts, preferentially degrades serotonin and norepinephrine. Only MAO-B is present in platelets and only MAO-A is present in trophoblasts. MAO-B, the primary type found not only in platelets but also in the brain of man and other primates, preferentially degrades phenylethylamine and benzylamine. MAO has been of particular interest to psychiatry and genetics because of the suggestion that low activity is a "genetic marker" for schizophrenia. The genes which encode MAO-A and MAO-B map to human chromosome Xp11.3.

## REFERENCES


1. Wyatt, R.J., et al. 1973. Reduced monoamine oxidase activity in platelets: a possible genetic marker for vulnerability to schizophrenia. Science 179: 916-918.
2. Castro Costa, M.R., et al. 1980. Properties of monoamine oxidase in control and Lesch-Nyhan fibroblasts. Biochem. Genet. 18: 577-590.


## CHROMOSOMAL LOCATION

Genetic locus: MAOA (human) mapping to Xp11.3.

## PRODUCT

MAO-A 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MAO-A shRNA Plasmid (h): sc-35847-SH and MAO-A shRNA (h) Lentiviral Particles: sc-35847-V as alternate gene silencing products.

For independent verification of MAO-A (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-35847A, sc-35847B and sc-35847C.

## 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

MAO-A siRNA (h) is recommended for the inhibition of MAO-A 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 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.

## GENE EXPRESSION MONITORING

MAO-A (G-10): sc-271123 is recommended as a control antibody for monitoring of MAO-A 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).

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MAO-A gene expression knockdown using RT-PCR Primer: MAO-A (h)-PR: sc-35847-PR (20 µl, 449 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Inaba-Hasegawa, K., et al. 2012. Type A monoamine oxidase is associated with induction of neuroprotective Bcl-2 by rasagiline, an inhibitor of type B monoamine oxidase. J. Neural Transm. 119: 405-414.
2. Inaba-Hasegawa, K., et al. 2013. Rasagiline and selegiline, inhibitors of type B monoamine oxidase, induce type A monoamine oxidase in human SH-SY5Y cells. J. Neural Transm. 120: 435-444.
3. Inaba-Hasegawa, K., et al. 2017. Type B and A monoamine oxidase and their inhibitors regulate the gene expression of Bcl-2 and neurotrophic factors in human glioblastoma U118MG cells: different signal pathways for neuroprotection by selegiline and rasagiline. J. Neural Transm. 124: 1055-1066.
4. Yang, G.J., et al. 2019. Structure-based discovery of a selective KDM5A inhibitor that exhibits anti-cancer activity via inducing cell cycle arrest and senescence in breast cancer cell lines. Cancers 11: 92.
5. Tabata, Y., et al. 2020. Hepatic monoamine oxidase B is involved in endogenous geranylgeranoic acid synthesis in mammalian liver cells. J. Lipid Res. 61: 778-789.
6. Li, Z., et al. 2021. Targeting mitochondria-inflammation circle by renal denervation reduces atheroprone endothelial phenotypes and atherosclerosis. Redox Biol. 47: 102156.


## RESEARCH USE

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