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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 



catalase shRNA (h) Lentiviral Particles: sc-45330-V

BACKGROUND

Catalase is a peroxisome specific marker protein belonging to the catalase family. Defects in the gene encoding for the catalase protein can cause acatalasia, a disease characterized by the absence of catalase activity in red cells and associated with ulcerating oral lesions. Catalase is also an important regulator of oxidative stress and inflammation, and may contribute to the development of rheumatoid arthritis. Catalase, which can form a homotetramer, is found in nearly all aerobically respiring organisms and functions in protecting cells from the toxic effects of hydrogen peroxide.

REFERENCES

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2. Rodriguez-Esparragon, F.J., et al. 2003. Peroxisome proliferator-activated receptor- γ 2-Pro12Ala and endothelial nitric oxide synthase-4a/b gene polymorphisms are associated with essential hypertension. *J. Hypertens.* 21: 1649-1655.
3. Rosmond, R., et al. 2003. The Pro12Ala PPAR γ 2 gene missense mutation is associated with obesity and Insulin resistance in Swedish middle-aged men. *Diabetes Metab. Res. Rev.* 19: 159-163.
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CHROMOSOMAL LOCATION

Genetic locus: CAT (human) mapping to 11p13.

PRODUCT

catalase shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μ l frozen stock containing 1.0×10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see catalase siRNA (h): sc-45330 and catalase shRNA Plasmid (h): sc-45330-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

catalase shRNA (h) Lentiviral Particles is recommended for the inhibition of catalase expression in human cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μ l frozen viral stock containing 1.0×10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

GENE EXPRESSION MONITORING

catalase (E-7): sc-365738 is recommended as a control antibody for monitoring of catalase 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor catalase gene expression knockdown using RT-PCR Primer: catalase (h)-PR: sc-45330-PR (20 μ l, 429 bp). Annealing temperature for the primers should be $55-60^\circ$ C and the extension temperature should be $68-72^\circ$ C.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

PROTOCOLS

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