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# StAR shRNA (h) Lentiviral Particles: sc-44121-V

## BACKGROUND

Steroidogenic acute regulatory (StAR) protein appears to mediate the rapid increase in pregnenolone synthesis stimulated by tropic hormones. StAR increases pregnenolone synthesis more than 4-fold and a major StAR transcript of 1.6 kb is found in ovary and testis. During ongoing growth and differentiation of the follicle of the ovary, the immunoreactivity of StAR tends to shift from the granulosa cells of early antral follicles to the theca cell layers in the adult. The first and rate-limiting step of steroidogenesis is the transfer of cholesterol from the outer mitochondrial membrane to the inner membrane where it is converted to pregnenolone by cytochrome P450 side-chain cleavage. This reaction is modulated in the gonads and adrenals by StAR, however, the mechanism used by StAR is not understood. This protein was isolated from a human adrenal cortex library and nonsense mutations in the StAR gene can cause lipid congenital adrenal hyperplasia. The gene which encodes StAR maps to human chromosome 8p11.23.

## REFERENCES

1. Sugawara, T., et al. 1995. Human steroidogenic acute regulatory protein: functional activity in COS-1 cells, tissue-specific expression, and mapping of the structural gene to 8p11.2 and a pseudogene to chromosome 13. *Proc. Natl. Acad. Sci. USA* 92: 4778-4782.
2. Lin, D., et al. 1995. Role of steroidogenic acute regulatory protein in adrenal and gonadal steroidogenesis. *Science* 267: 1828-1831.
3. Thompson, W.E., et al. 1999. Immunolocalization and expression of the steroidogenic acute regulatory protein during the transitional stages of rat follicular differentiation. *J. Histochem. Cytochem.* 47: 769-776.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 600617. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: STAR (human) mapping to 8p11.23.

## PRODUCT

StAR 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 µl frozen stock containing  $1.0 \times 10^6$  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 StAR siRNA (h): sc-44121 and StAR shRNA Plasmid (h): sc-44121-SH as alternate gene silencing products.

## STORAGE

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

## APPLICATIONS

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

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 µl frozen viral stock containing  $1.0 \times 10^6$  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

StAR (D-2): sc-166821 is recommended as a control antibody for monitoring of StAR 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 StAR gene expression knockdown using RT-PCR Primer: StAR (h)-PR: sc-44121-PR (20 µl, 452 bp). Annealing temperature for the primers should be  $55-60^\circ\text{C}$  and the extension temperature should be  $68-72^\circ\text{C}$ .

## 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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