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# TRAP shRNA (h) Lentiviral Particles: sc-44164-V

## BACKGROUND

Tartrate-resistant acid phosphatase (TRAP, ACP5) is an iron containing glycoprotein that catalyzes the conversion of orthophosphoric monoester to alcohol and orthophosphate. TRAP is the most basic of the acid phosphatases and is the only form not inhibited by L<sup>+</sup>-tartrate. TRAP is a relatively minor lysosomal enzyme which may be activated in certain pathologies such as Hodgkin's disease and B- and T-cell leukemias. Receptor activator of NFκB ligand (RANKL) plays an essential role in osteoclast differentiation and activation by increasing the expression of protease osteoclast markers such as TRAP. TRAP has collagenolytic activity and plays a major role in ligament degradation.

## REFERENCES

1. Fleckenstein, E., et al. 1996. Cloning and characterization of the human tartrate-resistant acid phosphatase (TRAP) gene. *Leukemia* 10: 637-643.
2. Fleckenstein, E.C., et al. 2000. The human tartrate-resistant acid phosphatase (TRAP): involvement of the hemin responsive elements (HRE) in transcriptional regulation. *Leuk. Lymphoma* 36: 603-612.
3. Capeller, B., et al. 2003. Evaluation of tartrate-resistant acid phosphatase (TRAP) 5b as serum marker of bone metastases in human breast cancer. *Anticancer Res.* 23: 1011-1015.
4. Wittrant Y., et al. 2003. Regulation of osteoclast protease expression by RANKL. *Biochem. Biophys. Res. Commun.* 310: 774-778.
5. Dwyer, K.W., et al. 2004. Blockade of the sympathetic nervous system degrades ligament in a rat MCL model. *J. Appl. Physiol.* 96: 711-718.
6. Nakano, Y., et al. 2004. Eccentric localization of osteocytes expressing enzymatic activities, protein, and mRNA signals for type 5 tartrate-resistant acid phosphatase (TRAP). *J. Histochem. Cytochem.* 52: 1475-1482.

## CHROMOSOMAL LOCATION

Genetic locus: ACP5 (human) mapping to 19p13.2.

## PRODUCT

TRAP 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 x 10<sup>9</sup> 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 TRAP siRNA (h): sc-44164 and TRAP shRNA Plasmid (h): sc-44164-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

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

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μl frozen viral stock containing 1.0 x 10<sup>6</sup> 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

TRAP (D-3): sc-376875 is recommended as a control antibody for monitoring of TRAP 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 TRAP gene expression knockdown using RT-PCR Primer: TRAP (h)-PR: sc-44164-PR (20 μl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° 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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