SANTA CRUZ BIOTECHNOLOGY, INC.

PICOT siRNA (m): sc-76133

BACKGROUND

PICOT, also known as GLRX3 (glutaredoxin 3), GRX3, GRX4, GLRX4, HUSSY-22, TXNL2 or TXNL3, is a 335 amino acid protein that contains one thioredoxin domain and two glutaredoxin domains. Localized to the cytoplasm and the cell cortex, PICOT is thought to play a role in regulating the thioredoxin system and may weakly interact with PKC θ (protein kinase C θ). Through its ability to regulate the thioredoxin pathway, PICOT inhibits cardiac hypertrophy (a thickening of the heart muscle usually caused by high blood pressure) by negatively regulating NFAT (Nuclear factor of activated T-cells) signaling. Although PICOT contains one thioredoxin domain, it lacks the two redox-reactive cysteines that are required for catalytic activity, suggesting that PICOT lacks thioredoxin function. PICOT is expressed in testis, heart and spleen with lower levels detected in thymus, lung, colon, placenta and small intestine.

REFERENCES

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2. Isakov, N., Witte, S. and Altman, A. 2000. PICOT-HD: a highly conserved protein domain that is often associated with thioredoxin and glutaredoxin modules. Trends Biochem. Sci. 25: 537-539.
3. Babichev, Y. and Isakov, N. 2001. Tyrosine phosphorylation of PICOT and its translocation to the nucleus in response of human T cells to oxidative stress. Adv. Exp. Med. Biol. 495: 41-45.
4. Rahlfs, S., Fischer, M. and Becker, K. 2001. *Plasmodium falciparum* possesses a classical glutaredoxin and a second, glutaredoxin-like protein with a PICOT homology domain. J. Biol. Chem. 276: 37133-37140.
5. Dorn, G.W. 2006. Containing hypertrophy with a PICOT fence. Circ. Res. 99: 228-230.
6. Jeong, D., Cha, H., Kim, E., Kang, M., Yang, D.K., Kim, J.M., Yoon, P.O., Oh, J.G., Bernecker, O.Y., Sakata, S., Le, T.T., Cui, L., Lee, Y.H., Kim, D.H., Woo, S.H., Liao, R., Hajjar, R.J. and Park, W.J. 2006. PICOT inhibits cardiac hypertrophy and enhances ventricular function and cardiomyocyte contractility. Circ. Res. 99: 307-314.

CHROMOSOMAL LOCATION

Genetic locus: Glrx3 (mouse) mapping to 7 F4.

PRODUCT

PICOT 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 PICOT shRNA Plasmid (m): sc-76133-SH and PICOT shRNA (m) Lentiviral Particles: sc-76133-V as alternate gene silencing products.

For independent verification of PICOT (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-76133A, sc-76133B and sc-76133C.

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

PICOT siRNA (m) is recommended for the inhibition of PICOT 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.

GENE EXPRESSION MONITORING

PICOT (D-10): sc-390068 is recommended as a control antibody for monitoring of PICOT 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 reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PICOT gene expression knockdown using RT-PCR Primer: PICOT (m)-PR: sc-76133-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.