SANTA CRUZ BIOTECHNOLOGY, INC.

TPPII siRNA (h): sc-106629

BACKGROUND

Tripeptidyl peptidase II (TPPII), is a large intracellular serine exopeptidase with a subtilisin active site. TPPII protein is larger than the 26S proteasome and has a rod-shaped, dynamic supramolecular structure. TPPII is highly conserved among species and it sequentially removes tripeptides from the free amino-terminus of short peptides. TPPII has enhanced activity in proteosome inhibitor-adapted cells and degrades polypeptides by exo- as well as predominantly trypsin-like endoproteolytic cleavage. TPPII participates in the apoptotic pathway triggered by Shigella and is also involved in apoptosis induced by ATP and the protein kinase inhibitor staurosporine. Overexpression of TPPII is sufficient to prevent accumulation of polyubiquitinated proteins and partially restores peptide loading of MHC molecules. TPPII is able to compromise proteosome activity and normalize the rate of intracellular protein breakdown, which is required for normal cellular function and viability.

REFERENCES

1. Tomkinson, B. and Zetterqvist, O. 1990. Immunological cross-reactivity between human tripeptidyl peptidase II and fibronectin. Biochem. J. 267: 149-154.
2. Tomkinson, B. and Jonsson, A.K. 1991. Characterization of cDNA for human tripeptidyl peptidase II: the N-terminal part of the enzyme is similar to subtilisin. Biochemistry 30: 168-174.
3. Geier, E., Pfeifer, G., Wilm, M., Lucchiari-Hartz, M., Baumeister, W., Eichmann, K. and Niedermann, G. 1999. A giant protease with potential to substitute for some functions of the proteosome. Science 283: 978-981.
4. Wang, E.W., Kessler, B.M., Borodovsky, A., Cravatt, B.F., Bogyo, M., Ploegh, H.L. and Glas, R. 2000. Integration of the ubiquitin-proteasome pathway with a cytosolic oligopeptidase activity. Proc. Natl. Acad. Sci. USA 97: 9990-9995.
5. Hilbi, H., Puro, R.J. and Zychlinsky, A. 2000. Tripeptidyl peptidase II promotes maturation of caspase-1 in Shigella flexneri-induced macrophage apoptosis. Infect. Immun. 68: 5502-5508.

CHROMOSOMAL LOCATION

Genetic locus: TPP2 (human) mapping to 13q33.1.

PRODUCT

TPPII 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 TPPII shRNA Plasmid (h): sc-106629-SH and TPPII shRNA (h) Lentiviral Particles: sc-106629-V as alternate gene silencing products.

For independent verification of TPPII (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-106629A, sc-106629B and sc-106629C.

PROTOCOLS

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

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

TPPII siRNA (h) is recommended for the inhibition of TPPII 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TPPII gene expression knockdown using RT-PCR Primer: TPPII (h)-PR: sc-106629-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.