

# Tyro3 siRNA (h): sc-36438

## BACKGROUND

Receptor tyrosine kinases (RTKs) represent an important class of transmembrane signaling molecules. Binding of the extracellular domain of an RTK to its cognate ligand leads to receptor dimerization and the activation of the intrinsic tyrosine kinase activity of its intracellular kinase domain. The Axl/UFO subfamily of receptor tyrosine kinases is comprised of members Tyro3 (also referred to as BYK, Brt, Dtk, RSE, Tif or Sky), Axl (also called Tyro7 or UFO) and Mer (also called Nyk, c-Eyk and Tyro12). Members of this family have a common molecular structure which contains an N-terminal extracellular domain comprised of two Ig domains, two FNIII domains and a membrane spanning single helix followed by the cytoplasmic tyrosine kinase domain. These RTKs are functionally significant in spermatogenesis, immunoregulation and phagocytosis. Tyro3, Axl and Mer are widely expressed in adult tissues with their expression most abundant in brain, testis, lymphatic and vascular tissue. Tyro3 has been shown to undergo posttranslational modifications including both tyrosine phosphorylation as well as glycosylation. Two proteins, Protein S and Gas6, have been proposed as ligands for the Axl/UFO family of receptors. Both function as anti-coagulants through an unknown mechanism. Gas6 was cloned as a growth arrest-specific gene, while Protein S is an abundant serum protein which is thought to act by indirectly inhibiting proteases involved in the coagulation response.

## REFERENCES

1. Janssen, J.W.G., et al. 1991. A novel putative tyrosine kinase receptor with oncogenic potential. *Oncogene* 6: 2113-2120.
2. Schlessinger, J., et al. 1992. Growth factor signaling by receptor tyrosine kinases. *Neuron* 9: 383-391.

## CHROMOSOMAL LOCATION

Genetic locus: TYRO3 (human) mapping to 15q15.1.

## PRODUCT

Tyro3 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Tyro3 shRNA Plasmid (h): sc-36438-SH and Tyro3 shRNA (h) Lentiviral Particles: sc-36438-V as alternate gene silencing products.

For independent verification of Tyro3 (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-36438A, sc-36438B and sc-36438C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Tyro3 siRNA (h) is recommended for the inhibition of Tyro3 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  $\mu$ M in 66  $\mu$ l. 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

Tyro3 (A-7): sc-166359 is recommended as a control antibody for monitoring of Tyro3 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 Tyro3 gene expression knockdown using RT-PCR Primer: Tyro3 (h)-PR: sc-36438-PR (20  $\mu$ l, 599 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Kim, N.Y., et al. 2015. Metformin targets Axl and Tyro3 receptor tyrosine kinases to inhibit cell proliferation and overcome chemoresistance in ovarian cancer cells. *Int. J. Oncol.* 47: 353-360.
2. Lee, C. 2015. Overexpression of Tyro3 receptor tyrosine kinase leads to the acquisition of taxol resistance in ovarian cancer cells. *Mol. Med. Rep.* 12: 1485-1492.
3. Morimoto, M., et al. 2020. Oncogenic role of Tyro3 receptor tyrosine kinase in the progression of pancreatic cancer. *Cancer Lett.* 470: 149-160.

## RESEARCH USE

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