

# Integrin $\beta$ 1 siRNA (h): sc-35674

## BACKGROUND

Integrins are heterodimers composed of noncovalently associated transmembrane  $\alpha$  and  $\beta$  subunits. The 16  $\alpha$  and 8  $\beta$  subunits heterodimerize to produce more than 20 different receptors. Most Integrin receptors bind ligands that are components of the extracellular matrix, including Fibronectin, Collagen and Vitronectin. Certain integrins can also bind to soluble ligands such as Fibrinogen, or to counterreceptors on adjacent cells such as the intracellular adhesion molecules (ICAMs), leading to aggregation of cells. Ligands serve to cross-link or cluster integrins by binding to adjacent integrin receptors; both receptor clustering and ligand occupancy are necessary for the activation of integrin-mediated responses. In addition to mediating cell adhesion and cytoskeletal organization, integrins function as signaling receptors. Signals transduced by integrins play a role in many biological processes, including cell growth, differentiation, migration and apoptosis.

## REFERENCES

1. Hynes, R.O. 1992. Integrins: versatility, modulation and signaling in cell adhesion. *Cell* 69: 11-25.
2. Balzac, F., et al. 1993. Expression and functional analysis of a cytoplasmic domain variant of the  $\beta$ 1 Integrin subunit. *J. Cell Biol.* 121: 171-178.

## CHROMOSOMAL LOCATION

Genetic locus: ITGB1 (human) mapping to 10p11.22.

## PRODUCT

Integrin  $\beta$ 1 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 Integrin  $\beta$ 1 shRNA Plasmid (h): sc-35674-SH and Integrin  $\beta$ 1 shRNA (h) Lentiviral Particles: sc-35674-V as alternate gene silencing products.

For independent verification of Integrin  $\beta$ 1 (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-35674A, sc-35674B and sc-35674C.

## 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

Integrin  $\beta$ 1 siRNA (h) is recommended for the inhibition of Integrin  $\beta$ 1 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

Integrin  $\beta$ 1 (A-4): sc-374429 is recommended as a control antibody for monitoring of Integrin  $\beta$ 1 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).

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Integrin  $\beta$ 1 gene expression knockdown using RT-PCR Primer: Integrin  $\beta$ 1 (h)-PR: sc-35674-PR (20  $\mu$ l, 413 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Wang, R., et al. 2005. Role for  $\beta$ 1 Integrin and its associated  $\alpha$ 3,  $\alpha$ 5, and  $\alpha$ 6 subunits in development of the human fetal pancreas. *Diabetes* 54: 2080-2089.
2. Shen, Z., et al. 2013. Novel focal adhesion protein kindlin-2 promotes the invasion of gastric cancer cells through phosphorylation of Integrin  $\beta$ 1 and  $\beta$ 3. *J. Surg. Oncol.* 108: 106-112.
3. He, X.J., et al. 2014. Expression of galectin-1 in carcinoma-associated fibroblasts promotes gastric cancer cell invasion through upregulation of Integrin  $\beta$ 1. *Cancer Sci.* 105: 1402-1410.
4. Mai, J., et al. 2015. Dyssynchronous pacing triggers endothelial-mesenchymal transition through heterogeneity of mechanical stretch in a canine model. *Circ. J.* 79: 201-209.
5. Saby, C., et al. 2016. Type I collagen aging impairs discoidin domain receptor 2-mediated tumor cell growth suppression. *Oncotarget* 7: 24908-24927.
6. Wang, K., et al. 2018. Caveolin-1 contributes to anoikis resistance in human gastric cancer SGC-7901 cells via regulating Src-dependent EGFR-ITGB1 signaling. *J. Biochem. Mol. Toxicol.* 32: e22202.
7. Ou, Y.C., et al. 2019. Fibronectin promotes cell growth and migration in human renal cell carcinoma cells. *Int. J. Mol. Sci.* 20: 2792.
8. Huaman, J. and Ogunwobi, O.O. 2020. Circulating tumor cell migration requires fibronectin acting through Integrin B1 or SLUG. *Cells* 9: 1594.

## RESEARCH USE

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