SANTA CRUZ BIOTECHNOLOGY, INC.

Integrin αV siRNA (h): sc-29373

BACKGROUND

Integrins are heterodimers composed of noncovalently associated transmembrane α and β subunits. The 16 α and 8 β 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. Horton, M.A., et al. 1985. Monoclonal antibodies to osteoclastomas (giant cell bone tumors): definition of osteoclast-specific cellular antigens. Cancer Res. 45: 5663-5669.
2. Hynes, R.O. 1992. Integrins: versatility, modulation and signaling in cell adhesion. Cell 69: 11-25.
3. Miyamoto, S., et al. 1995. Synergistic roles for receptor occupancy and aggregation in integrin transmembrane function. Science 267: 883-885.

CHROMOSOMAL LOCATION

Genetic locus: ITGAV (human) mapping to 2q32.1.

PRODUCT

Integrin αV 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 Integrin αV shRNA Plasmid (h): sc-29373-SH and Integrin αV shRNA (h) Lentiviral Particles: sc-29373-V as alternate gene silencing products.

For independent verification of Integrin αV (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-29373A, sc-29373B and sc-29373C.

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

Integrin αV siRNA (h) is recommended for the inhibition of Integrin αV 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.

GENE EXPRESSION MONITORING

Integrin αV (P2W7): sc-9969 is recommended as a control antibody for monitoring of Integrin αV 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 αV gene expression knockdown using RT-PCR Primer: Integrin αV (h)-PR: sc-29373-PR (20 µl, 557 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Schiller, H.B., et al. 2009. Mannose 6-phosphate/Insulin-like growth factor 2 receptor limits cell invasion by controlling $\alpha_V\beta_3$ integrin expression and proteolytic processing of urokinase-type plasminogen activator receptor. Mol. Biol. Cell 20: 745-756.
2. Ishikawa, K., et al. 2014. Periostin promotes the generation of fibrous membranes in proliferative vitreoretinopathy. FASEB J. 28: 131-142.
3. Jonsson-Schmunk, K., et al. 2016. Integrin receptors play a key role in the regulation of hepatic cytochrome P450 3A. Drug Metab. Dispos. 44: 758-770.
4. Chen, S., et al. 2017. Simulated physiological stretch increases expression of extracellular matrix proteins in human bladder smooth muscle cells via integrin α4/αv-FAK-ERK1/2 signaling pathway. World J. Urol. 35: 1247-1254.
5. Luo, J., et al. 2018. 14, 15-EET induces breast cancer cell EMT and cisplatin resistance by up-regulating Integrin $\alpha_V\beta_3$ and activating FAK/PI3K/AKT signaling. J. Exp. Clin. Cancer Res. 37: 23.
6. Lee, Y.S., et al. 2019. IL-32γ suppresses lung cancer stem cell growth via inhibition of ITGAV-mediated Stat5 pathway. Cell Death Dis. 10: 506.
7. Lamprou, M., et al. 2020. Pleiotrophin selectively binds to vascular endothelial growth factor receptor 2 and inhibits or stimulates cell migration depending on $\alpha_V\beta_3$ integrin expression. Angiogenesis 23: 621-636.

RESEARCH USE

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