SANTA CRUZ BIOTECHNOLOGY, INC.

Integrin β4 siRNA (m): sc-35679

BACKGROUND

Integrins are heterodimers composed of noncovalently associated transmembrane a and b 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. Integrin β4 (ITGB4), also known as CD104, is a 1,822 amino acid single-pass type I membrane protein belonging to the Integrin β chain family. Known to associate with Integrin α6, Integrin β4 functions as a receptor for Laminin and is predominantly expressed by epithelia. Integrin β4 exists as five alternatively spliced isoforms that are encoded by a gene located on human chromosome 17q25.1.

REFERENCES

1. Hynes, R.O. 1992. Integrins: versatility, modulation and signaling in cell adhesion. Cell 69: 11-25.
2. Miyamoto, S., et al. 1995. Synergistic roles for receptor occupancy and aggregation in integrin transmembrane function. Science 267: 883-885.
3. Clark, E.A., et al. 1995. Integrins and signal transduction pathways: the road taken. Science 268: 233-239.
4. Sheppard, D. 1996. Epithelial integrins. Bioessays 18: 655-660.
5. Juliano, R. 1996. Cooperation between soluble factors and integrin-mediated cell anchorage in the control of cell growth and differentiation. Bioessays 18: 911-917.

CHROMOSOMAL LOCATION

Genetic locus: Itgb4 (mouse) mapping to 11 E2.

PRODUCT

Integrin β4 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 Integrin β4 shRNA Plasmid (m): sc-35679-SH and Integrin β4 shRNA (m) Lentiviral Particles: sc-35679-V as alternate gene silencing products.

For independent verification of Integrin β4 (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-35679A, sc-35679B and sc-35679C.

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 β4 siRNA (m) is recommended for the inhibition of Integrin β4 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 β4 (B-7): sc-514426 is recommended as a control antibody for monitoring of Integrin β4 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 Integrin β4 gene expression knockdown using RT-PCR Primer: Integrin β4 (m)-PR: sc-35679-PR (20 µl, 425 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lv, X., et al. 2008. Knockdown of Integrin β4 in primary cultured mouse neurons blocks survival and induces apoptosis by elevating NADPH oxidase activity and reactive oxygen species level. Int. J. Biochem. Cell Biol. 40: 689-699.
2. Su, L., et al. 2009. Neural stem cell differentiation is mediated by Integrin β4 *in vitro*. Int. J. Biochem. Cell Biol. 41: 916-924.
3. Jeon, J.H., et al. 2013. Glucosamine-induced reduction of Integrin β4 and plectin complex stimulates migration and proliferation in mouse embryonic stem cells. Stem Cells Dev. 22: 2975-2989.
4. Walker, M.R., et al. 2020. Alveolar progenitor cells in the mammary gland are dependent on the β4 integrin. Dev. Biol. 457: 13-19.

RESEARCH USE

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