SANTA CRUZ BIOTECHNOLOGY, INC.

ILK siRNA (m): sc-35667

BACKGROUND

Integrins are heterodimers composed of non-covalently 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 to ligands that are components of the extracellular matrix. 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. 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. ILK (integrin-linked kinase) was identified as a serine/threonine kinase that phosphorylates β1 and β3 Integrins. ILK expression has been shown to be reduced in response to Fibronectin, a known integrin ligand. Overexpression of ILK was shown to upregulate the Fibronectin matrix assembly in epithelial cells, indicating a potential role for ILK in cell growth, cell survival and tumorigenesis.

REFERENCES

1. Hynes, R.O. 1992. Integrins: versatility, modulation, and signaling in cell adhesion. Cell 69: 11-25.
2. Clark, E.A., et al. 1995. Integrins and signal transduction pathways: the road taken. Science 268: 233-239.
3. Sheppard, D. 1996. Epithelial integrins. Bioessays 18: 655-660.

CHROMOSOMAL LOCATION

Genetic locus: Ilk (mouse) mapping to 7 E3.

PRODUCT

ILK 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 ILK shRNA Plasmid (m): sc-35667-SH and ILK shRNA (m) Lentiviral Particles: sc-35667-V as alternate gene silencing products.

For independent verification of ILK (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-35667A, sc-35667B and sc-35667C.

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

ILK siRNA (m) is recommended for the inhibition of ILK expression in mouse 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

ILK (65.1): sc-20019 is recommended as a control antibody for monitoring of ILK 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 ILK gene expression knockdown using RT-PCR Primer: ILK (m)-PR: sc-35667-PR (20 µl, 539 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mi, Z., et al. 2006. Integrin-linked kinase regulates osteopontin-dependent MMP-2 and uPA expression to convey metastatic function in murine mammary epithelial cancer cells. Carcinogenesis 27: 1134-1145.
2. Huang, C.Y., et al. 2011. Nephroblastoma overexpressed gene (NOV) enhances cell motility and COX-2 upregulation of human osteosarcoma involves $\alpha_v\beta_5$ Integrin, ILK and AP-1-dependent pathways. Biochem. Pharmacol. 81: 577-585.
3. Zheng, G., et al. 2016. α3 Integrin of cell-cell contact mediates kidney fibrosis by integrin-linked kinase in proximal tubular E-cadherin deficient mice. Am. J. Pathol. 186: 1847-1860.
4. Lu, H., et al. 2017. Salidroside reduces high-glucose-induced podocyte apoptosis and oxidative stress via upregulating Heme Oxygenase-1 (HO-1) expression. Med. Sci. Monit. 23: 4067-4076.
5. Izawa, Y., et al. 2018. β1-Integrin-matrix interactions modulate cerebral microvessel endothelial cell tight junction expression and permeability. J. Cereb. Blood Flow Metab. 38: 641-658.
6. Alcalde-Estévez, E., et al. 2020. Endothelin-1 induces cellular senescence and fibrosis in cultured myoblasts. A potential mechanism of aging-related sarcopenia. Aging 12: 11200-11223.
7. de Frutos, S., et al. 2022. The Integrin β1 modulator Tirofiban prevents adipogenesis and obesity by the overexpression of integrin-linked kinase: a pre-clinical approach *in vitro* and *in vivo*. Cell Biosci. 12: 10.

RESEARCH USE

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