

## ILK siRNA (h): sc-35666

### BACKGROUND

Integrins are heterodimers composed of non-covalently 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 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  $\beta 1$  and  $\beta 3$  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.

### CHROMOSOMAL LOCATION

Genetic locus: ILK (human) mapping to 11p15.4.

### PRODUCT

ILK siRNA (h) is a target-specific 19-25 nt siRNA 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 ILK shRNA Plasmid (h): sc-35666-SH and ILK shRNA (h) Lentiviral Particles: sc-35666-V as alternate gene silencing products.

### 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

ILK siRNA (h) is recommended for the inhibition of ILK 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

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 (h)-PR: sc-35666-PR (20  $\mu$ l, 594 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. Huston, E., et al. 2008. EPAC and PKA allow cAMP dual control over DNA-PK nuclear translocation. *Proc. Natl. Acad. Sci. USA* 105: 12791-12796.
3. Hou, Y., et al. 2010. *Entamoeba histolytica* cysteine proteinase 5 binds integrin on colonic cells and stimulates NF $\kappa$ B-mediated pro-inflammatory responses. *J. Biol. Chem.* 285: 35497-35504.
4. Wesley, U.V., et al. 2013. Galectin-3 enhances angiogenic and migratory potential of microglial cells via modulation of integrin linked kinase signaling. *Brain Res.* 1496: 1-9.
5. Lin, Y.M., et al. 2013. IL-6 promotes ICAM-1 expression and cell motility in human osteosarcoma. *Cancer Lett.* 328: 135-143.
6. Raja, R., et al. 2014. Hypoxia-driven osteopontin contributes to breast tumor growth through modulation of HIF1 $\alpha$ -mediated VEGF-dependent angiogenesis. *Oncogene* 33: 2053-2064.
7. Ma, D.H., et al. 2016. Preservation of human limbal epithelial progenitor cells on carbodiimide cross-linked amniotic membrane via integrin-linked kinase-mediated Wnt activation. *Acta Biomater.* 31: 144-155.
8. Hsueh, Y.J., et al. 2016. Preservation of epithelial progenitor cells from collagenase-digested oral mucosa during *ex vivo* cultivation. *Sci. Rep.* 6: 36266.
9. Feige, M.H., et al. 2018. HopQ impacts the Integrin  $\alpha 5 \beta 1$ -independent NF $\kappa$ B activation by *Helicobacter pylori* in CEACAM expressing cells. *Int. J. Med. Microbiol.* 308: 527-533.
10. Louca, M., et al. 2020. ILK silencing inhibits migration and invasion of more invasive glioblastoma cells by downregulating ROCK1 and Fascin-1. *Mol. Cell. Biochem.* 471: 143-153.

### RESEARCH USE

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