

connexin 31 siRNA (h): sc-78791

BACKGROUND

The connexin family of proteins form hexameric complexes, called connexons, that facilitate movement of low molecular weight proteins between cells via gap junctions. Connexin proteins share a common topology of four transmembrane α -helical domains, two extracellular loops, a cytoplasmic loop and cytoplasmic N- and C-termini. Many of the key functional differences arise from specific amino acid substitutions in the most highly conserved domains; the transmembrane and extracellular regions. Connexin 31, also known as GJB3 (gap junction β -3 protein), CX31, DFNA2 or EKV, is expressed in skin, testis, placenta, cochlea and developing hindbrain and, in mice, it is also found in peripheral auditory nerves. Mutations in the gene encoding connexin 31 can result in non-syndromic sensorineural deafness autosomal dominant type 2 (DFNA2) and/or erythrokeratoderma variabilis (EKV), a condition characterized by localized or generalized hyperkeratosis and random, transient erythematous patches.

REFERENCES

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2. Harris, A.L. 2001. Emerging issues of connexin channels: biophysics fills the gap. *Q. Rev. Biophys.* 34: 325-472.
3. Plantard, L., et al. 2003. Molecular interaction of connexin 30.3 and connexin 31 suggests a dominant-negative mechanism associated with erythrokeratoderma variabilis. *Hum. Mol. Genet.* 12: 3287-3294.
4. Common, J.E., et al. 2005. Clinical and genetic heterogeneity of erythrokeratoderma variabilis. *J. Invest. Dermatol.* 125: 920-927.
5. He, L.Q., et al. 2005. Intracellular distribution, assembly and effect of disease-associated connexin 31 mutants in HeLa cells. *Acta Biochim. Biophys. Sin.* 37: 547-554.
6. Nemcova, L., et al. 2006. Gene expression in bovine embryos derived from oocytes with different developmental competence collected at the defined follicular developmental stage. *Theriogenology* 65: 1254-1264.

CHROMOSOMAL LOCATION

Genetic locus: GJB3 (human) mapping to 1p34.3.

PRODUCT

connexin 31 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see connexin 31 shRNA Plasmid (h): sc-78791-SH and connexin 31 shRNA (h) Lentiviral Particles: sc-78791-V as alternate gene silencing products.

For independent verification of connexin 31 (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-78791A, sc-78791B and sc-78791C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

connexin 31 siRNA (h) is recommended for the inhibition of connexin 31 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 μ M in 66 μ 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

connexin 31 (LL8): sc-81803 is recommended as a control antibody for monitoring of connexin 31 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 connexin 31 gene expression knockdown using RT-PCR Primer: connexin 31 (h)-PR: sc-78791-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.