

# connexin 31.1 siRNA (h): sc-88186

## 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  $\alpha$ -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 31.1, Cx31.1 or gap junction  $\beta$ -5 protein, is a 271 amino acid protein that is predominantly expressed in skin with lower expression in testis. Expression of connexin 31.1 is required for normal placental development in mice. Down-regulation of the connexin 31.1 gene correlates with head and neck squamous cell carcinomas (HNSCC) and therefore it may be a potential therapeutic target.

## REFERENCES

1. Manjunath, C.K., et al. 1987. Human cardiac gap junctions: isolation, ultrastructure, and protein composition. *J. Mol. Cell. Cardiol.* 19: 131-134.
2. Hennemann, H., et al. 1992. Two gap junction genes, connexin 31.1 and 30.3, are closely linked on mouse chromosome 4 and preferentially expressed in skin. *J. Biol. Chem.* 267: 17225-17233.
3. Budunova, I.V., et al. 1995. The expression of gap junctional proteins during different stages of mouse skin carcinogenesis. *Carcinogenesis* 16: 2717-2724.
4. Davies, T.C., et al. 1996. Multiple members of the connexin gene family participate in preimplantation development of the mouse. *Dev. Genet.* 18: 234-243.
5. Harris, A.L. 2001. Emerging issues of connexin channels: biophysics fills the gap. *Q. Rev. Biophys.* 34: 325-472.
6. Al Moustafa, A.E., et al. 2002. Identification of genes associated with head and neck carcinogenesis by cDNA microarray comparison between matched primary normal epithelial and squamous carcinoma cells. *Oncogene* 21: 2634-2640.
7. Zheng-Fischhöfer, Q., et al. 2007. Characterization of connexin 31.1-deficient mice reveals impaired placental development. *Dev. Biol.* 312: 258-271.

## CHROMOSOMAL LOCATION

Genetic locus: GJB5 (human) mapping to 1p34.3.

## PRODUCT

connexin 31.1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see connexin 31.1 shRNA Plasmid (h): sc-88186-SH and connexin 31.1 shRNA (h) Lentiviral Particles: sc-88186-V as alternate gene silencing products.

For independent verification of connexin 31.1 (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-88186A, sc-88186B and sc-88186C.

## 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

connexin 31.1 siRNA (h) is recommended for the inhibition of connexin 31.1 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor connexin 31.1 gene expression knockdown using RT-PCR Primer: connexin 31.1 (h)-PR: sc-88186-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Scatolini, M., et al. 2022. GJB5 association with BRAF mutation and survival in cutaneous malignant melanoma. *Br. J. Dermatol.* 186: 117-128.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.