

## il-31 siRNA (m): sc-146219

### BACKGROUND

The interleukins (ILs) are a broad family of well characterized cytokines, primarily of hematopoietic cell origin. Interleukins are secreted by immune cells (mainly macrophages, B-cells or T-cells) that regulate a wide range of immune system functions. The specific functions of different interleukins vary from the regulation of inflammatory and immune responses to the regulation of other interleukins. Interleukin 31 (il-31), also known as 1700013B14Rik, is a 163 amino acid secreted protein that is a member of the four helical-bundle gp130/IL-6 cytokine family and may function in skin immunity. It is suggested that il-31 is involved in promoting the dermatitis and epithelial responses that characterize allergic and non-allergic diseases. The gene encoding il-31 is located on mouse chromosome 5 F.

### REFERENCES

1. Dillon, S.R., Sprecher, C., Hammond, A., Bilsborough, J., Rosenfeld-Franklin, M., Presnell, S.R., Haugen, H.S., Maurer, M., Harder, B. and Johnston, J. 2004. Interleukin 31, a cytokine produced by activated T cells, induces dermatitis in mice. *Nat. Immunol.* 5: 752-760.
2. Sonkoly, E., Muller, A., Lauerma, A.I., Pivarcsi, A., Soto, H., Kemeny, L., Alenius, H., Dieu-Nosjean, M.C., Meller, S. and Rieker, J. 2006. IL-31: a new link between T cells and pruritus in atopic skin inflammation. *J. Allergy Clin. Immunol.* 117: 411-417.
3. Perrigoue, J.G., Li, J., Zaph, C., Goldschmidt, M., Scott, P., de Sauvage, F.J., Pearce, E.J., Ghilardi, N. and Artis, D. 2007. IL-31-IL-31R interactions negatively regulate type 2 inflammation in the lung. *J. Exp. Med.* 204: 481-487.
4. Grimstad, O., Sawanobori, Y., Vestergaard, C., Bilsborough, J., Olsen, U.B., Gronhoj-Larsen, C. and Matsushima, K. 2009. Anti-interleukin-31-antibodies ameliorate scratching behaviour in NC/Nga mice: a model of atopic dermatitis. *Exp. Dermatol.* 18: 35-43.
5. Perrigoue, J.G., Zaph, C., Guild, K., Du, Y. and Artis, D. 2009. IL-31-IL-31R interactions limit the magnitude of Th2 cytokine-dependent immunity and inflammation following intestinal helminth infection. *J. Immunol.* 182: 6088-6094.
6. Shen, M., Siu, S., Byrd, S., Edelmann, K.H., Patel, N., Ketchum, R.R., Mehlin, C., Arnett, H.A. and Hasegawa, H. 2011. Diverse functions of reactive cysteines facilitate unique biosynthetic processes of aggregate-prone interleukin-31. *Exp. Cell Res.* 317: 976-993.
7. Hwang, J.S., Kim, G.C., Park, E., Kim, J.E., Chae, C.S., Hwang, W., Lee, C., Hwang, S.M., Wang, H.S. and Jun, C.D. 2015. NFAT1 and JunB cooperatively regulate IL-31 gene expression in CD4<sup>+</sup> T cells in health and disease. *J. Immunol.* 194: 1963-1974.

### CHROMOSOMAL LOCATION

Genetic locus: Il31 (mouse) mapping to 5 F.

### PROTOCOLS

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

### PRODUCT

il-31 siRNA (m) 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 il-31 shRNA Plasmid (m): sc-146219-SH and il-31 shRNA (m) Lentiviral Particles: sc-146219-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

il-31 siRNA (m) is recommended for the inhibition of il-31 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  $\mu$ 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 il-31 gene expression knockdown using RT-PCR Primer: il-31 (m)-PR: sc-146219-PR (20  $\mu$ 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.