SANTA CRUZ BIOTECHNOLOGY, INC.

IL-31 (E-2): sc-515415

BACKGROUND

IL-31 is a T cell cytokine that is preferentially produced by T helper type 2 cells. IL-31 signals through a heterodimeric receptor composed of the IL-31 receptor (IL-31R) and the oncostatin M receptor (OSM). This receptor complex recruits JAK1, JAK2, Stat1, Stat3 and Stat5 signaling pathways, as well as the PI3 kinase/AKT cascade. SHP-2 and Shc adapter molecules are also recruited and contribute to an increased activation of the MAP kinase pathway in response to IL-31. Overexpression of IL-31 in mice results in pruritus and skin dermatitis resembling human atopic dermatitis (AD). Comparisons between skin from patients with AD and healthy skin showed IL-31R expression at higher levels on epidermal keratinocytes in AD samples. Infiltrating cells, more numerous in skin from patients with AD compared with that of healthy individuals, expressed IL-31 mRNA. IL-31 may participate in the cause of itch sensation and promote scratching behavior in NC/Nga mice with atopic dermatitis, and may represent a novel target for antipruritic drug development.

REFERENCES

1. Diveu, C., et al. 2004. Predominant expression of the long isoform of GP130-like (GPL) receptor is required for interleukin-31 signaling. Eur. Cytokine Netw. 15: 291-302.
2. Dreuw, A., et al. 2004. Characterization of the signaling capacities of the novel gp130-like cytokine receptor. J. Biol. Chem. 279: 36112-36120.
3. Dillon, S.R., et al. 2004. Interleukin 31, a cytokine produced by activated T cells, induces dermatitis in mice. Nat. Immunol. 5: 752-760.
4. Takaoka, A., et al. 2005. Expression of IL-31 gene transcripts in NC/Nga mice with atopic dermatitis. Eur. J. Pharmacol. 516: 180-181.
5. Takaoka, A., et al. 2006. Involvement of IL-31 on scratching behavior in NC/Nga mice with atopic-like dermatitis. Exp. Dermatol. 15: 161-167.
6. Bilsborough, J., et al. 2006. IL-31 is associated with cutaneous lymphocyte antigen-positive skin homing T cells in patients with atopic dermatitis. J. Allergy Clin. Immunol. 117: 418-425.

CHROMOSOMAL LOCATION

Genetic locus: IL31 (human) mapping to 12q24.31.

SOURCE

IL-31 (E-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 72-91 within an internal region of IL-31 of human origin.

PRODUCT

Each vial contains 200 µg IgA kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-515415 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

IL-31 (E-2) is recommended for detection of IL-31 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IL-31 siRNA (h): sc-60838, IL-31 shRNA Plasmid (h): sc-60838-SH and IL-31 shRNA (h) Lentiviral Particles: sc-60838-V.

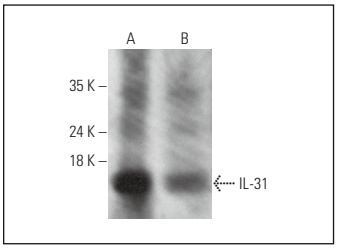
Molecular Weight of IL-31: 18 kDa.

Positive Controls: human spleen extract: sc-363779 or human lung extract: sc-363767.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



IL-31 (E-2): sc-515415. Western blot analysis of IL-31 expression in human spleen (**A**) and human lung (**B**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Chai, R., et al. 2017. The significance of the levels of IL-4, IL-31 and TLSP in patients with asthma and/or rhinitis. Immunotherapy 9: 331-337.
2. Shin, J.Y., et al. 2019. *Commiphora myrrha* inhibits itch-associated histamine and IL-31 production in stimulated mast cells. Exp. Ther. Med. 18: 1914-1920.
3. Wang, X., et al. 2020. A comprehensive risk assessment model for ovarian cancer patients with phospho-STAT3 and IL-31 as immune infiltration relevant genes. Onco Targets Ther. 13: 5617-5628.

RESEARCH USE

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