SANTA CRUZ BIOTECHNOLOGY, INC.

IL-1ra (hBA-153): sc-4626

BACKGROUND

Two forms of interleukin-1, designated IL-1α and IL-1β, have been described. Although encoded by distinct genes and exhibiting roughly only 25% sequence identity, IL-1α and IL-1β bind to the same receptor and seem to elicit similar biological responses. IL-1 production is generally thought to be associated with inflammation, but it has also been shown to be expressed during kidney development, thymocyte differentiation and cartilage degradation. IL-1 plays a critical role in the regulation of immune response and inflammation acting as an activator of T and B lymphocytes and natural killer (NK) cells. IL-1 receptor antagonist (IL-1ra) is a cytokine that inhibits IL-1α and IL-1β binding to interleukin receptors. By neutralizing the activity of IL-1, IL-1ra contributes to the inhibition of the immune and inflammatory responses and has been targeted as a drug for the treatment of severely active rheumatoid arthritis. There are four isoforms of IL-1ra that are produced as a result of alternative splicing events.

REFERENCES

1. Auron, P.E., et al. 1984. Nucleotide sequence of human monocyte inteleukin 1 precursor cDNA. Proc. Natl. Acad. Sci. USA 81: 7907-7911.
2. March, C.J., et al. 1985. Cloning, sequence and expression of two distinct human interleukin-1 complementary DNAs. Nature 315: 641-647.
3. Carter, D.B., et al. 1990. Purification, cloning, expression and biological characterization of an interleukin-1 receptor antagonist protein. Nature 344: 633-638.
4. Sadouk, M.B., et al. 1995. Human synovial fibroblasts coexpress IL-1 receptor type I and type II mRNA. The increased level of the IL-1 receptor in osteoarthritic cells is related to an increased level of the type I receptor. Lab. Invest. 73: 347-355.
5. Lonnemann, G., et al. 1995. Cytokines in human renal interstitial fibrosis. I. Interleukin-1 is a paracrine growth factor for cultured fibrosis-derived kidney fibroblasts. Kidney Int. 47: 837-844.
6. Zuniga-Pflucker, J.C., et al. 1995. Requirement for TNF-α and IL-1α in fetal thymocyte commitment and differentiation. Science 268: 1906-1909.
7. Sandborg, C.I., et al. 1995. IL-4 expression in human T cells is selectively inhibited by IL-1α and IL-1β. J. Immunol. 155: 5206-5212.

CHROMOSOMAL LOCATION

Genetic locus: IL1RN (human) mapping to 2q13; Il1rn (mouse) mapping to 2 A3.

SOURCE

IL-1ra (hBA-153) is produced in *E. coli* as 39 kDa, biologically active protein corresponding to amino acids 26-135 of IL-1ra of human origin.

PRODUCT

IL-1ra (hBA-153) is purified from bacterial lysates (>98%); supplied as 50 µg purified protein.

APPLICATIONS

VEGF (mBA-165) is recommended for use as a Western blotting control for sc-8479, sc-8480, sc-25444, sc-52775, sc-101342, sc-101616, sc-374084 and sc-376094.

Molecular Weight of Epo: 17-25 kDa.

BIOLOGICAL ACTIVITY

IL-1ra (hBA-153) is biologically active as determined by the dose-dependent inhibition of IL-1 stimulation of D10S cells.

Expected ED_{50}: 0.5 ng/ml

SELECT PRODUCT CITATIONS

1. Milella, M., et al. 2004. Trastuzumab down-regulates Bcl-2 expression and potentiates apoptosis induction by Bcl-2/Bcl-X_L bispecific antisense oligonucleotides in HER-2 gene-amplified breast cancer cells. Clin. Cancer Res. 10: 7747-7756.
2. Jarry, A., et al. 2011. Loss of interleukin-10 or transforming growth factor β signaling in the human colon initiates a T-helper 1 response via distinct pathways. Gastroenterology 141: 1887-1896. e1-e2.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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

PROTOCOLS

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