

# IL-12 (JJ07): sc-74147

## BACKGROUND

The interleukins (ILs) are a broad family of well characterized cytokines, primarily of hematopoietic cell origin. As new cytokines are molecularly characterized, they are assigned an IL number to maintain a standard nomenclature. ILs are secreted by immune cells (mainly macrophages, B cells or T cells) that regulate a wide range of immune system functions. The functions of different ILs vary from regulating inflammatory and immune responses, functioning as autocrine factor and regulating and/or inhibiting other ILs. IL-12 is secreted by macrophages and human B-lymphoblastoid cells in response to antigenic stimulation. It is responsible for the differentiation of naive CD4<sup>+</sup> T cells into type 1 helper T cells that produce interferon- $\gamma$  (IFN- $\gamma$ ). It also activates production of tumor necrosis factor  $\alpha$  (TNF $\alpha$ ) from T and natural killer (NK) cells, and it inhibits IL-4 mediated suppression of IFN- $\gamma$ . IL-12 also has anti-angiogenic activity, since the production of IFN- $\gamma$  increases the production of inducible protein-10 (IP-10).

## REFERENCES

1. Yao, L., et al. 2000. Effective targeting of tumor vasculature by the angiogenesis inhibitors vasostatin and interleukin-12. *Blood* 96: 1900-1905.
2. Muller-Suur, C., et al. 2002. Organic dust-induced interleukin-12 production activates T and natural killer cells. *Eur. Respir. J.* 20: 686-690.
3. Noble, A., et al. 2003. CD8<sup>+</sup> immunoregulatory cells in the graft-versus-host reaction: CD8 T cells activate dendritic cells to secrete interleukin-12/interleukin-18 and induce T helper 1 autoantibody. *Immunology* 109: 476-486.
4. Yamamoto, N., et al. 2004. Essential role for the p40 subunit of interleukin-12 in neutrophil-mediated early host defense against pulmonary infection with *Streptococcus pneumoniae*: involvement of interferon- $\gamma$ . *Microbes Infect.* 6: 1241-1249.
5. Puertollano, M.A., et al. 2005. Assessment of interleukin-12,  $\gamma$  interferon and tumor necrosis factor  $\alpha$  secretion in sera from mice fed with dietary lipids during different stages of *Listeria monocytogenes* infection. *Clin. Diagn. Lab. Immunol.* 12: 1098-1103.
6. Entleutner, M., et al. 2005. Impact of interleukin-12, oxidative burst and iNOS on the survival of murine fecal peritonitis. *Int. J. Colorectal Dis.* 21: 64-70.
7. Saito, S., et al. 2006. Regulation of lipopolysaccharide-induced interleukin-12 production by activation of repressor element GA-12 through hyperactivation of the ERK pathway. *Clin. Vaccine Immunol.* 13: 876-883.
8. Gafa, V., et al. 2006. Human dendritic cells following *Aspergillus fumigatus* infection express the CCR7 receptor and a differential pattern of interleukin-12 (IL-12), IL-23 and IL-27 cytokines, which lead to a Th1 response. *Infect. Immun.* 74: 1480-1489.
9. Rentzos, M., et al. 2006. Interleukin-12 is reduced in cerebrospinal fluid of patients with Alzheimer's disease and frontotemporal dementia. *J. Neurol. Sci.* 249: 110-114.

## RESEARCH USE

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

## CHROMOSOMAL LOCATION

Genetic locus: IL12A (human) mapping to 3q25.33, IL12B (human) mapping to 5q33.3.

## SOURCE

IL-12 (JJ07) is a mouse monoclonal antibody raised against full length recombinant IL-12 of human origin.

## PRODUCT

Each vial contains 50  $\mu$ g IgG<sub>1</sub> in 0.5 ml of PBS with < 0.1% sodium azide and protein stabilizer.

## APPLICATIONS

IL-12 (JJ07) is recommended for detection of IL-12 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with IL-23 or IL-12 p40.

Molecular Weight of IL-12: 70 kDa.

## SELECT PRODUCT CITATIONS

1. Shamji, M.F., et al. 2010. Proinflammatory cytokine expression profile in degenerated and herniated human intervertebral disc tissues. *Arthritis Rheum.* 62: 1974-1982.
2. Zhou, Q., et al. 2010. The density of macrophages in the invasive front is inversely correlated to liver metastasis in colon cancer. *J. Transl. Med.* 8: 13.
3. Yang, S., et al. 2015. Experimental study of the protective effects of SYVN1 against diabetic retinopathy. *Sci. Rep.* 5: 14036.
4. Jimenez, T., et al. 2020. Nicotine synergizes with high-fat diet to induce an anti-inflammatory microenvironment to promote breast tumor growth. *Mediators Inflamm.* 2020: 5239419.
5. Kim, J., et al. 2021. Intense pulsed light attenuates UV-induced hyperimmune response and pigmentation in human skin cells. *Int. J. Mol. Sci.* 22: 3173.

## STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

## PROTOCOLS

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