

il 18 Human

Interleukin-18 Human Recombinant

CYK0274

Product Overview

Name	il 18 Human
Accession(Primary)	Q14116
Description	Interleukin-18 Human Recombinant

Target information (Q14116)

Gene Name

About Gene Symbol

Background

Also known as IFN-gamma inducing factor, Interleukin-18 or IL18 is a protein. In humans this protein is encoded by the IL18 gene. The protein is a proinflammatory cytokine. Mechanism The levels of IL-18 in the human body are increased at sites of inflammation. This includes cases of rheumatoid arthritis as well as other similar conditions. Osteoblastic cells express the protein and it is capable of inhibiting osteoclast formation. It is able to do this through a variety of mechanisms. For instance, it is able to stimulate GM-CSF. This is created by T cells and is a response to treatment using IL-18. As well as this, the cytokine does stimulate INF- γ production through vivo in bone. Furthermore, the impact on bone resorption and osteoclastogenesis is increased when used in conjunction with IL-12 treatment. Studies have shown that IL-18 provides an indirect stimulus on osteoclastogenesis due to the effect it has on T lymphocytes. Furthermore, evidence has shown that IL-18 does increase the production of OPG. This was studied in research on transgenic mice that overexpressed IL-18. In these cases osteoclasts decreased as did bone mass. This suggested that IL-18 also has an impact on bone growth. Interactions Research has also explored the different interactions of IL-18 on other proteins. This includes the interaction between IL-18 and IL-18R. This has been shown to decrease the power of protective

immunity and increase pathogenic responses during an infection involving intracellular bacteria. This interaction suggests that the presence or absence of IL-18R signal does impact the pathogenic compared to protective immunity. Another interaction between interleukin 19 and Astrocyte has shown that it can improve neuropathic pain processing following nerve injury. It is proposed this is due to the fact that the nociceptive signals in the spinal cord are augmented due to this reaction. Function Belonging to the IL-1 superfamily, this cytokine is produced by macrophages as well as various other cells. It operates after binding with the interleukin-18 receptor. Working with IL-12, the protein is then able to induce-cell mediated immunity after an infection from lipopolysaccharide and other microbial products. Once stimulated by IL-18 other cells including natural killer and T cells then release IFN- γ . This type II IFN plays a crucial part in activating the macrophages of various other cells. Together IL12 and IL-18 are able to successfully inhibit IgE and IgG1 production that is dependent on IL-4. As well as this, the protein is also able to increase IgG2a production through B cells. IL-18 will interact specifically with this type of cytokine and has a negative impact on regulation of biological activity. Structure Many researchers have suggested that the structure of IL-18 is a key way to understand its receptor activation mechanism. The structure of IL-18 closely resembles of IL-1 and has various similarities. It is folded into a beta-trefoil structure and three sites have been shown to be important for receptor activation. These were revealed through extensive mutagenesis. Two of the sites provide binding sites for the IL-18 receptor and are located in positions similar to IL-1. The third structure seems to be used for IL-18 receptor beta binding.

References for protein:

1. Title :Discovery of IL-18 As a Novel Secreted Protein Contributing to Resistance by Comparative Secretome Analysis of MCF-7 and MCF-7/Dox. Publication :Yao L, Zhang Y, Chen K, Hu X, Xu LX (2011) Discovery of IL-18 As a Novel Secreted Protein Contributing to Resistance by Comparative Secretome Analysis of MCF-7 and MCF-7/Dox. PLoS ONE 6(9): e24684. doi:10.1371/journal.pone.0024684 Link : [il 18 prospec publication](#)
2. Title: Influence of Interleukin IL-2 and IL-12 + IL-18 on Surface Expression of Immunoglobulin-Like Receptors KIR2DL1, KIR2DL2, and KIR3DL2 in Natural Killer Cells Publications: Mediators of inflammation 2006 (2006). Link: [Interleukin-18 prospec publication](#)