9051 Mira Mesa Blvd, #910094
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ICAM1 Human, Sf9

Intercellular Adhesion Molecule-1 Human Recombinant, SF9
RCP1099

Product Overview

Name	ICAM1 Human, Sf9

Description

Intercellular Adhesion Molecule-1 Human Recombinant, SF9

Accession (Primary)	P05362

Synonyms

Intercellular Adhesion Molecule 1, Major Group Rhinovirus Receptor, ICAM-1, Intercellular Adhesion Molecule 1 (CD54), Human Rhinovirus Receptor, Cell Surface Glycoprotein P3.58, Human Rhinovirus Receptor, CD54 Antigen, P3.58, CD54, BB2, Intercellular adhesion molecule 1.

Introduction

ICAM-1 also called CD54 is a single chain membrane glycoprotein expressed on the surface of a variety of non-haematopoietic and haematopoietic cell types and has roles in signal transduction, cell signaling and lymphocyte adhesion. ICAM1 binds to integrins such as CD11a / CD18, or CD11b / CD18. ICAM1 is also used by Rhinovirus as a receptor. ICAM-1 is an intercellular adhesion molecule constantly present in low concentrations in the membranes of leukocytes and endothelial cells. When stimulated by cytokine the concentrations significantly increase. ICAM-1 can be stimulated by interleukin-1 (IL-1) and tumor necrosis factor alpha (TNFA) and is expressed by the vascular endothelium, macrophages and lymphocytes. ICAM-1 is a ligand for LFA-1 which is a receptor found on leukocytes. Upon activation, leukocytes bind to endothelial cells via ICAM-1/LFA-1 and then transmigrate into tissues. ICAM-1 is implicated in subarachnoid hemorrhage (SAH). Levels of ICAM-1 are shown to be notably elevated in patients with SAH. Soluble ICAM-1 is detectable in the plasma and is elevated in patients with various inflammatory conditions.

Source

Sf9, Baculovirus cells.

Physical Appearance

Sterile Filtered colorless solution.

Formulation

ICAM1 protein solution (0.25mg/ml) contains phosphate buffered saline (pH7.4) and 10% glycerol.

Stability

Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Avoid multiple freeze-thaw cycles.

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Purity

Greater than 90.0% as determined by SDS-PAGE.

Amino acid sequence

QTSVSPSKVI LPRGGSVLVT CSTSCDQPKL LGIETPLPKK ELLLPGNNRK VYELSNVQED SQPMCYSNCP DGQSTAKTFL TVYWTPERVE LAPLPSWQPV GKNLTLRCQV EGGAPRANLT VVLLRGEKEL KREPAVGEPA EVTTTVLVRR DHHGANFSCR TELDLRPQGL ELFENTSAPY QLQTFVLPAT PPQLVSPRVL EVDTQGTVVC SLDGLFPVSE AQVHLALGDQ RLNPTVTYGN DSFSAKASVS VTAEDEGTQR LTCAVILGNQ SQETLQTVTI YSFPAPNVIL TKPEVSEGTE VTVKCEAHPR AKVTLNGVPA QPLGPRAQLL LKATPEDNGR SFSCSATLEV AGQLIHKNQT RELRVLYGPR LDERDCPGNW TWPENSQQTP MCQAWGNPLP ELKCLKDGTF PLPIGESVTV TRDLEGTYLC RARSTQGEVT REVTVNVLSP RYE VEPKSCD KTHTCPPCPA PELLGGPSVF LFPPKPKDTL MISRTPEVTC VVVDVSHEDP EVKFNWYVDG VEVHNAKTKP REEQYNSTYR VVSVLTVLHQ DWLNGKEYKC KVSNKALPAP IEKTISKAKG QPREPQVYTL PPSRDELTKN QVSLTCLVKG FYPSDIAVEW ESNGQPENNY KTTPPVLDSD GSFFLYSKLT VDKSRWQQGN VFSCSVMHEA LHNHYRQKSL SLSPGKHHHH HH.

Biological Activity

The ED50 range ≤ 2 ug/ml is measured by the ability of the immobilized protein to support the adhesion of HL-60 human promyelocytic cells. When cells are added to Human ICAM-1/CD54 coated plates.

Background

Intercellular adhesion molecule-1 (ICAM-1) is a cell surface glycoprotein that plays a pivotal role in immune responses and inflammatory processes. This research aims to investigate the function and significance of ICAM-1 protein in various physiological and pathological conditions. Understanding the molecular mechanisms and regulatory roles of ICAM-1 can provide valuable insights into its potential as a therapeutic target for immune-related disorders. Structure and Expression of ICAM-1 Protein: ICAM-1 belongs to the immunoglobulin superfamily and is composed of five immunoglobulin-like domains. It is primarily expressed on the surfaces of endothelial cells, leukocytes, and other immune cells. ICAM-1 expression can be induced by pro-inflammatory cytokines, such as tumor necrosis factor-alpha (TNF-α) and interleukin-1 (IL-1), during immune responses and inflammatory conditions. ICAM-1 and Leukocyte Adhesion: One of the critical functions of ICAM-1 is its involvement in leukocyte adhesion and migration. ICAM-1 interacts with its primary receptor, lymphocyte function-associated antigen-1 (LFA-1), expressed on leukocytes. This interaction facilitates the firm adhesion of leukocytes to endothelial cells, leading to their transmigration into inflamed tissues. The ICAM-1/LFA-1 axis plays a crucial role in immune surveillance, inflammation, and host defense against pathogens. Implications of ICAM-1 in Inflammatory Disorders: ICAM-1 has been implicated in various inflammatory diseases, including rheumatoid arthritis, inflammatory bowel disease, and multiple sclerosis. Enhanced expression of ICAM-1 on endothelial cells promotes leukocyte recruitment and contributes to the perpetuation of chronic inflammation. Therefore, targeting ICAM-1-mediated leukocyte adhesion has emerged as a potential therapeutic strategy to alleviate inflammation and attenuate disease progression. ICAM-1 in Viral Infections: ICAM-1 also plays a role in viral infections, as several viruses exploit ICAM-1 to facilitate their entry into host cells. For instance, rhinoviruses, which cause the common cold, utilize ICAM-1 as a receptor for attachment and entry into respiratory

epithelial cells. The interaction between ICAM-1 and viral proteins promotes viral internalization and subsequent infection. Understanding the mechanisms of ICAM-1-mediated viral entry can aid in the development of antiviral strategies. Therapeutic Targeting of ICAM-1: Given its crucial involvement in immune responses and disease pathogenesis, ICAM-1 has emerged as a potential therapeutic target. Strategies aimed at blocking ICAM-1/LFA-1 interactions have shown promise in preclinical and clinical studies. Monoclonal antibodies targeting ICAM-1 or LFA-1 have been developed to prevent leukocyte adhesion and reduce inflammation. Additionally, small molecule inhibitors and gene therapies targeting ICAM-1 expression are being explored as potential therapeutic interventions. Challenges and Future Directions: Although therapeutic targeting of ICAM-1 shows promise, several challenges need to be addressed. Specific targeting of ICAM-1 without affecting its physiological functions and potential off-target effects are important considerations. Additionally, the complex and dynamic nature of ICAM-1 expression and regulation require further investigation to optimize therapeutic strategies. Conclusion: The investigation of ICAM-1 protein provides insights into its pivotal role in immune responses, leukocyte adhesion, and inflammatory processes. Understanding the molecular mechanisms and functional implications of ICAM-1 opens avenues for the development of targeted therapies for inflammatory disorders and viral infections. Further research on ICAM-1 protein

Precautions

ICAM1 Human, Sf9 is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P05362)

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