

ICAM-1/CD54 Protein, Rat, Recombinant (His)

General Information

Synonyms:	intercellular adhesion molecule 1
Protein Construction:	A DNA sequence encoding the rat ICAM1 (Q00238-1) extracellular domain (Met 1-Thr 493) was expressed, fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Gln 28
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	Q00238-1
Molecular Weight:	52.7 kDa (predicted); 70-75 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by the ability of the immobilized protein to support the adhesion of PMA-stimulated HSB2 human peripheral blood acute lymphoblastic leukemia cells. When cells are added to rat ICAM1 coated plates (12.5 µg/mL, 100 µL/well), approximately > 30% cells will adhere specifically.
Purity:	> 97 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Intercellular adhesion molecule-1 (ICAM-1, or CD54) is a 90 kDa member of the immunoglobulin (Ig) superfamily and is critical for the firm arrest and transmigration of leukocytes out of blood vessels and into tissues. ICAM-1 is constitutively present on endothelial cells, but its expression is increased by proinflammatory cytokines. The

endothelial expression of ICAM-1 is increased in atherosclerotic and transplant-associated atherosclerotic tissue and animal models of atherosclerosis. Additionally, ICAM-1 has been implicated in the progression of autoimmune diseases. ICAM-1 is a ligand for LFA-1(integrin). When activated, leukocytes bind to endothelial cells via ICAM-1/LFA-1 interaction and then transmigrate into tissues. Presence with heavy glycosylation and other structural characteristics, ICAM-1 possesses binding sites for some immune-associated ligands and serves as the binding site for entry of the major group of human Rhinovirus (HRV) into various cell types. ICAM-1 also becomes known for its affinity for Plasmodium falciparum-infected erythrocytes (PFIE), providing more of a role in infectious disease. Previous studies have shown that ICAM-1 is involved in inflammatory reactions and that a defect in ICAM-1 gene inhibits allergic contact hypersensitivity.

Reference

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Mendez MP,et al.(2006) Shedding of soluble ICAM-1 into the alveolar space in murine models of acute lung injury. Am J Physiol Lung Cell Mol Physiol. 290(5): L962-70.

Lawson C,et al.(2009) ICAM-1 signaling in endothelial cells. Pharmacol Rep. 61(1): 22-32.

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