



**LD Biopharma, Inc.**  
7384 Trade Street, Suite B  
San Diego, CA 92121  
Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human CD54 Protein  
**Catalog Number:** hRP-2394  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human intercellular adhesion molecule-1 (ICAM-1, also named as CD54) proteins are ligands for the leukocyte adhesion protein LFA-1 (integrin alpha-L/beta-2). During leukocyte trans-endothelial migration, CD54 engagement promotes the assembly of endothelial apical cups through ARHGEF26 / SGEF and RHOG activation. CD54 acts as a receptor for major receptor group rhinovirus A-B capsid proteins. It also acts as a receptor for Coxsackievirus A21 capsid proteins. Upon Kaposi's sarcoma-associated herpesvirus/HHV-8 infection, it is degraded by viral E3 ubiquitin ligase MIR2, presumably to prevent lysis of infected cells by cytotoxic T-lymphocytes and NK cell.

Full-length secreted form of human CD54 cDNA (28 – 480aa, derived from BC015969) was constructed with codon optimization gene synthesis and expressed with a human alpha Fetal Protein N-terminal (AFPn) -His-TEV cleavage site Tag (217aa) fusion at its N-terminal. This protein was expressed in *E. coli* as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** CD54 (ICAM1; BB2)  
**Accession Number:** NP\_000192  
**Species:** Human  
**Size:** 20 µg / Vial  
**Composition:** 0.20 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

### Key References



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Yan M, et al., *Endothelial cell SHP-2 negatively regulates neutrophil adhesion and promotes transmigration by enhancing ICAM-1-VE-cadherin interaction*. FASEB J. 31 (11), 4759-4769 (2017)

Raffray L, et al., *Increased levels of soluble forms of E-selectin and ICAM-1 adhesion molecules during human leptospirosis*. PLoS ONE 12 (7), e0180474 (2017)

Schaefer A, et al., *Endothelial CD2AP Binds the Receptor ICAM-1 To Control Mechanosignaling, Leukocyte Adhesion, and the Route of Leukocyte Diapedesis In Vitro*. J. Immunol. 198 (12), 4823-4836 (2017)

Viac J, et al., *Epidermotropism of T cells correlates with intercellular adhesion molecule (ICAM1) expression in human papillomavirus (HPV)-induced lesions*. J. Pathol. 168 (3), 301-306 (1992)

## **Applications**

1. May be used for in vitro CD54 mediated endothelial/cardiomyocyte interaction, differentiation regulation study with this protein either as soluble factor or as coating matrix protein.
2. May be used for protein-protein interaction assay.
3. Potential therapeutic/diagnostic protein, which may be used as matrix (recombinant CD54 or anti-CD54 antibody) for endothelial - cardio-repair/regeneration treatment.
4. As immunogen for specific antibody production.

## **Quality Control**

Purity: > 90% by SDS-PAGE.

## **Recombinant Protein Sequence**

MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ  
SSGCLLENQLPAFLLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT  
SCEAYEEDRETFMKNFIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT  
KELRESSGGSHHHHHHGHSENLYFQGQTSVSPSKVILPRGGSVLVTCSTSCDQPKLLGIETPLPK  
KELLLPGNRRKVYELSNVQEDSQPMCYSNCPDGQSTAKTFLTIVYWTPEVELAPLPSWQPVGKN  
LTLRCQVEGGAPRANLTVVLLRGEKELKREPAVGEPAEVTTTTVLVRRDHHGANFSCRTELDLRP  
QGLELFENTSAPYQLQTFVLPATPPQLVSPRVLEVDTQGTVVCSLDGLFPVSEAQVHLALGDQR  
LNPTVITYGNSFSKASVSVTAEDEGTQRLTCAVILGNQSQETLQTVTIYSFPAPNVILTKEPV  
SEGTEVTVKCEAHPRAKVTLNGVPAQPLGPRAQLLLKATPEDNGRSFSCSATLEVAGQLIHKNQ



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TRELRVLYGPRLDERDCPGNWTWPENSQQTPMCQAWGNPLPELKCLKDGTFFPLPIGESVTVTRD  
LEGTYLCRARSTQGEVTRKVTVNVLSPRYE