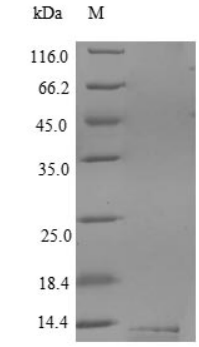
Recombinant Human CD59 glycoprotein (CD59)

Product Code	CSB-YP004947HU
Relevance	Potent inhibitor of the complent mbrane attack complex (MAC) action. Acts by binding to the C8 and/or C9 complents of the assbling MAC, thereby preventing incorporation of the multiple copies of C9 required for complete formation of the osmolytic pore. This inhibitor appears to be species-specific. Involved in signal transduction for T-cell activation complexed to a protein tyrosine kinase.The soluble form from urine retains its specific complent binding activity, but exhibits greatly reduced ability to inhibit MAC assbly on cell mbranes.
Abbreviation	Recombinant Human CD59 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P13987
Alias	1F5 antigen20 kDa homologous restriction factor ;HRF-20 ;HRF20MAC-inhibitory protein ;MAC-IPMEM43 antigen;Membrane attack complex inhibition factor ;MACIFMembrane inhibitor of reactive lysis ;MIRLProtectin; CD59
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	LQCYNCPNPTADCKTAVNCSSDFDACLITKAGLQVYNKCWKFEHCNFNDVTTRLRENELTYYCCKKDLCNFNEQLEN
Research Area	Cardiovascular
Source	Yeast
Target Names	CD59
Protein Names	Recommended name: CD59 glycoprotein Alternative name(s): 1F5 antigen 20 kDa homologous restriction factor Short name= HRF-20 Short name= HRF20 MAC-inhibitory protein Short name= MAC-IP MEM43 antigen Membrane at
Expression Region	26-102aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	11.0kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The mature human CD59 protein-encoding gene (26-102aa) is tagged with a 6xHis sequence at the N-terminus to create the target gene. PCR amplification is used to replicate this target gene, which is then inserted into an expression vector for recombinant plasmid construction. The plasmids are introduced into yeast cells, which are cultured to induce protein expression. After cultivation, the culture supernatant is collected and purified via affinity chromatography, yielding recombinant human CD59 protein with a purity level exceeding 90% as confirmed by SDS-PAGE.

Human CD59 is a crucial membrane complement regulatory protein (mCRP) that plays a significant role in the immune system by protecting host cells from complement-mediated lysis. It is a GPI-anchored protein widely expressed across various human cell types, including neurons and erythrocytes [1][2]. CD59 functions primarily by inhibiting the formation of the membrane attack complex (MAC), specifically blocking the assembly of the C5b-9 complex, which is responsible for cell lysis [2][3]. This protective mechanism is vital for maintaining cellular integrity, particularly in tissues exposed to high levels of complement activation, such as the blood and nervous system [4][5].

Studies have shown that CD59 is often overexpressed in several types of tumors, including breast and lung cancers, where it correlates with poor prognosis and tumor progression [1][3][6]. The overexpression of CD59 in these malignancies is thought to confer a survival advantage by protecting cancer cells from complement-dependent cytotoxicity, thereby facilitating tumor immune evasion [3][6]. Furthermore, CD59's interaction with immune cells, such as T lymphocytes and NK cells, suggests that it may also play a role in modulating immune responses beyond complement inhibition [7][8].

References:

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[8] J. Chen, P. Ding, L. Li, H. Gu, X. Zhang, L. Zhang, et al., Cd59 regulation by sox2 is required for epithelial cancer stem cells to evade complement surveillance, Stem Cell Reports, vol. 8, no. 1, p. 140-151, 2017. https://doi.org/10.1016/j.stemcr.2016.11.008

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.
Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.