

## CD55/DAF Protein, Rat, Recombinant (hFc)

### General Information

Synonyms:	CD55 molecule, decay accelerating factor for complement (Cromer blood group)
Protein Construction:	A DNA sequence encoding the rat CD55 (Q9Z0M0) (Met1-Ser371) was expressed, fused with the Fc region of human IgG1 at the C-terminus. Predicted N terminal: Asp 35
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	Q9Z0M0
Molecular Weight:	64.5 kDa (predicted); 91 and 54 kDa (reducing conditions)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 82 % 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.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

CD55, also well known as decay-accelerating factor (DAF), is a member of the RCA (regulators of complement activation) family characterized by four to 30 SCRs (short consensus repeats) in their plasma-exposed regions. It is a major regulator of the alternative and classical pathways of complement activation and is expressed on all serum-exposed cells. CD55 is physiologically acting as an inhibitor of the complement system, but is also broadly expressed in malignant tumours. DAF seems to exert different functions beyond its immunological role such as

promotion of tumorigenesis, decrease of complement mediated tumor cell lysis, autocrine loops for cell rescue and evasion of apoptosis, neoangiogenesis, invasiveness, cell motility. It is commonly hijacked by invading pathogens, including many enteroviruses and uropathogenic *Escherichia coli*, to promote cellular attachment prior to infection. This 70-75 kDa glycoprotein CD55 containing four SCR modules is involved in the regulation of the complement cascade. It inhibits complement activation by suppressing the function of C3/C5 convertases, thereby limiting local generation or deposition of C3a/C5a and membrane attack complex (MAC or C5b-9) production. DAF has been identified as a ligand for an activation-associated, seven-transmembrane lymphocyte receptor, CD97, which is a receptor mediating attachment and infection of several viruses and bacteria. In addition, it has been shown that DAF regulates the interplay between complement and T cell immunity in vivo, and thus may be implicated in immune and tumor biology.

### Reference

- Lea S. (2002) Interactions of CD55 with non-complement ligands. *Biochem Soc Trans.* 30(Pt 6): 1014-9.
- Mikesch JH, et al. (2006) The expression and action of decay-accelerating factor (CD55) in human malignancies and cancer therapy. *Cell Oncol.* 28(5-6): 223-32.
- Wang Y, et al. (2010) Decay accelerating factor (CD55) protects neuronal cells from chemical hypoxia-induced injury. *J Neuroinflammation.* 7:24.

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