

CD38 Protein, Rat, Recombinant (His)

General Information

Synonyms:	CD38 molecule
Protein Construction:	A DNA sequence encoding the rat CD38 (Q64244) (Trp45-Val303) was expressed, fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Trp 45
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	Q64244
Molecular Weight:	31.2 kDa (predicted); 42 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its ability to convert the substrate nicotinamide guanine dinucleotide (NGD+) to cyclic GDPribose. The specific activity is >100,000pmols/min/ug.
Purity:	> 95 % 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

The cluster of differentiation (CD) system is commonly used as cell markers in Immunophenotyping. Different kinds of cells in the immune system can be identified through the surface CD molecules associating with the immune function of the cell. There are more than 320 CD unique clusters and subclusters have been identified. Some of the CD molecules serve as receptors or ligands important to the cell through initiating a signal cascade which then alter the behavior of the cell. Some CD proteins do not take part in cell signal process but have other functions

such as cell adhesion. Cluster of differentiation 38 (CD38), also known as ADP-ribosyl cyclase, is a glycoprotein found on the surface of many immune cells (white blood cells), including CD4+, CD8+, B and natural killer cells. It shares several characteristics with ADP-ribosyl cyclase 2 CD157. CD38 is a multifunctional ectoenzyme that catalyzes the synthesis and hydrolysis of cyclic ADP-ribose (cADPR) from NAD⁺ to ADP-ribose. It also functions in cell adhesion, signal transduction and calcium signaling. CD38 has been used as a prognostic marker in leukemia. It can also be used to identify plasma cells.

Reference

- Zola H, et al. (2007) CD molecules 2006-human cell differentiation molecules. *J Immunol Methods*. 318 (1-2): 1-5.
- Ho IC, et al. (2009) GATA3 and the T-cell lineage: essential functions before and after T-helper-2-cell differentiation. *Nat Rev Immunol*. 9 (2): 125-35.
- Matesanz-Isabel J, et al. (2011) New B-cell CD molecules. *Immunology Letters*. 134 (2): 104-12.

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Tel: 781-999-4286 E_mail: info@targetmol.com Address: 34 Washington Street, Wellesley Hills, MA 02481