

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived human CD38 protein		
	Human CD38 (Val43-Ile300) Accession # P28907.2	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus
N-terminal Sequence Analysis	Val43		
Predicted Molecular Mass	57 kDa		

SPECIFICATIONS

SDS-PAGE	67-74 kDa, under reducing conditions
Activity	Measured by its ability to convert the substrate nicotinamide guanine dinucleotide (NGD ⁺) to cyclic GDP-ribose. Graeff, R.M. <i>et al.</i> (1994) J. Biol. Chem. 269 :30260. The specific activity is >900 pmol/min/μg, as measured under the described conditions.
Endotoxin Level	<0.10 EU per 1 μg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Supplied as a 0.2 μm filtered solution in MES and NaCl. See Certificate of Analysis for details.

Activity Assay Protocol

Materials	<ul style="list-style-type: none"> Assay Buffer: 50 mM MES, pH 6.5 Recombinant Human CD38 (rhCD38) (Catalog # 10920-AC) Substrate: Nicotinamide guanine dinucleotide sodium salt (NGD⁺) (Sigma, Catalog # N5131), 10 mM stock in deionized water F16 Black Maxisorp Plate (Nunc, Catalog # 475515) Fluorescent Plate Reader (Model: SpectraMax M5 by Molecular Devices) or equivalent
Assay	<ol style="list-style-type: none"> Dilute rhCD38 to 4 ng/μL in Assay Buffer. Dilute Substrate to 400 μM in Assay Buffer. Load in plate 50 μL of 4 ng/μL rhCD38, and start the reaction by adding 50 μL of 400 μM Substrate. Include a Substrate Blank containing 50 μL Assay Buffer and 50 μL of 400 μM Substrate. Read at excitation and emission wavelengths of 300 nm and 410 nm (top read), respectively in kinetic mode for 5 minutes. Calculate specific activity: $\text{Specific Activity (pmol/min/}\mu\text{g)} = \frac{\text{Adjusted } V_{\text{max}}^* \text{ (RFU/min)} \times \text{Conversion Factor}^{**} \text{ (pmol/RFU)}}{\text{amount of enzyme (}\mu\text{g)}}$ <p>*Adjusted for Substrate Blank **Derived using calibration standard cyclic GDP ribose (cGDPR).</p>

Final Assay Conditions	Per Well: <ul style="list-style-type: none"> rhCD38: 0.2 μg Substrate: 200 μM
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PREPARATION AND STORAGE

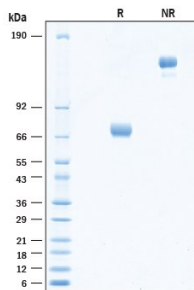
Shipping The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 6 months from date of receipt, -20 to -70 °C as supplied.
- 3 months, -20 to -70 °C under sterile conditions after opening.

DATA

SDS-PAGE



Recombinant Human CD38 Fc Chimera Protein SDS-PAGE. 2 µg/lane of Recombinant Human CD38 Fc Chimera Protein (Catalog # 10920-AC) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 67-74 kDa and 130-150 kDa, respectively.

BACKGROUND

CD38, also known as ADP-ribosyl cyclase, converts NAD(P)⁺ into three separate products with calcium mobilizing ability: cyclic ADP-ribose, NAADP⁺, and ADP-ribose (1). CD38 is a Type II transmembrane glycoprotein composed of an intracellular domain, a single transmembrane helix domain, and a large extracellular domain that contains the catalytic site (2). CD38 is expressed in B and T lymphocytes, osteoclasts, and in cardiac, pancreatic, liver and kidney cells (3,4). Through its production of cyclic ADP-ribose, CD38 modulates calcium-mediated signal transduction in many types of cells (5,6). CD38 is also reported to bind as a receptor to trigger signaling cascades (7,8). Through both mechanisms, CD38 influences proliferation and trafficking (8,9). CD38 is used as a marker for poor prognosis in chronic lymphocytic leukemia and multiple myeloma and is an attractive cancer immunotherapy drug target (8-11).

References:

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4. Sun, L. *et al.* (1999) *J. Cell Biol.* **146**:1161.
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