

PRODUCT INFORMATION



Calreticulin (human, recombinant; Fc-tagged)

Item No. 42566

Overview and Properties

Synonyms: CAB-63, CaBP3, Calcium-binding Reticuloplasmin, CALR, CALR1, Calregulin, Calsequestrin-like Protein, cC1qR, CRP55, CRT, CRTC, Endoplasmic Reticulum Resident Protein 60, ERp60, FLJ26680, grp60, HACBP, HEL-S-99n, High-affinity Calcium-binding Protein, RO, SSA

Source: Recombinant human C-terminal human IgG1 Fc-tagged calreticulin expressed in HEK293 cells

Amino Acids: 18-413

Uniprot No.: P27797

Molecular Weight: 73 kDa

Storage: -80°C (as supplied)

Stability: ≥1 year

Purity: ≥95% estimated by SDS-PAGE

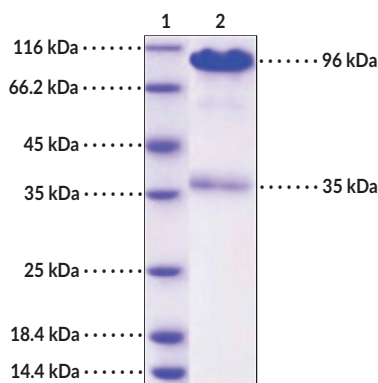
Supplied in: Lyophilized from sterile PBS, pH 7.4

Endotoxin Testing: <1.0 EU/μg, determined by the LAL endotoxin assay

Protein

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: Calreticulin

SDS-PAGE Analysis of Calreticulin (human, recombinant; Fc-tagged). This protein has a calculated molecular weight of 73 kDa. It has an apparent molecular weight of approximately 96 and 35 kDa by SDS-PAGE under reducing conditions due to glycosylation and acidity of the calreticulin c-terminal region.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Calreticulin is a calcium-binding protein involved in intracellular calcium storage and glycoprotein folding, among other processes.^{1,2} It is composed of an N-terminal globular N domain, a proline-rich P domain containing a high-affinity, low-capacity calcium-binding site, an acidic C domain containing a low-affinity, high-capacity calcium-binding site, and a C-terminal endoplasmic reticulum retention sequence.³ Calreticulin is widely expressed and localizes primarily to the lumen of the endoplasmic or sarcoplasmic reticulum in non-muscle or muscle cells, respectively, but is also found at the cell surface, in the extracellular matrix, and in the cytoplasm.^{1,3,4} It has a high calcium-binding capacity and is involved in the regulation of intracellular calcium homeostasis, which makes it an integral factor in many calcium-related processes, such as muscle contraction and the cellular stress response.^{3,4} Calreticulin also acts as a chaperone for newly synthesized glycoproteins in conjunction with protein disulfide-isomerase A3, also known as ERp57, and calnexin in the calreticulin/calnexin cycle to ensure proper glycoprotein folding.¹ Insertion or deletion mutations in exon 9 of CALR, the gene encoding calreticulin, are found in a subset of patients with essential thrombocythemia or primary myelofibrosis and are associated with increased overall survival and a lower risk of thrombosis.⁵ Cayman's Calreticulin (human, recombinant; Fc-tagged) protein is a disulfide-linked homodimer. The reduced monomer, composed of calreticulin (amino acids 18-413) fused to human IgG1 Fc at its C-terminus, consists of 637 amino acids, has a calculated molecular weight of 73 kDa, and a predicted N-terminus of Glu18 after signal peptide cleavage. As a result of glycosylation and acidity of the calreticulin C-terminal region, the reduced protein migrates at approximately 96 and 38 kDa by SDS-PAGE.

References

1. Wang, Q., Groenendyk, J., and Michalak, M. Glycoprotein quality control and endoplasmic reticulum stress. *Molecules* **20**(8), 13689-13704 (2015).
2. Gold, L.I., Eggleton, P., Sweetwyne, M.T., *et al.* Calreticulin: Non-endoplasmic reticulum functions in physiology and disease. *FASEB J.* **24**(3), 665-683 (2010).
3. Michalak, M., Milner, R.E., Burns, K., *et al.* Calreticulin. *Biochem J.* **285**(Pt 3), 681-692 (1992).
4. Wang, W.-A., Groenendyk, J., and Michalak, M. Calreticulin signaling in health and disease. *Int. J. Biochem. Cell Biol.* **44**(6), 842-846 (2012).
5. Klampfl, T., Gisslinger, H., Harutyunyan, A.S., *et al.* Somatic mutations of calreticulin in myeloproliferative neoplasms. *N. Engl. J. Med.* **369**(25), 2379-2390 (2013).

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