

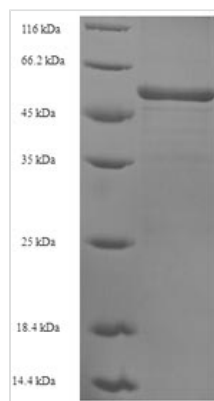


Recombinant Human Sarcoplasmic/endoplasmic reticulum calcium ATPase 2 (ATP2A2), partial

Product Code	CSB-EP002333HU
Relevance	This magnesium-dependent enzyme catalyzes the hydrolysis of ATP coupled with the translocation of calcium from the cytosol to the sarcoplasmic reticulum lumen. Isoform 2 is involved in the regulation of the contraction/relaxation cycle.
Abbreviation	Recombinant Human ATP2A2 protein, partial
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.	P16615
Product Type	Recombinant Proteins
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	VITTCLALGTRRMAKKNAIVRSLPSVETLGCTSVICSDKTGTLTTNQMSVCRMFI LDRVEGDTCSLNEFTITGSTYAPIGEVHKDDKPVNCHQYDGLVELATICALCND SALDYNEAKGVYEKVGATETALTCLVEKMNVFDTLKGSLKIERANACNSVIK QLMKKEFTLEFSRDRKSMSVYCTPNKPSRTSMSKMFVKGAPEGVIDRCTHIRV GSTKVPMTSGVKQKIMSVIREWGSGSDTLRCLALATHDNPLRREEMHLEDSA NFIKYETNLTFVGCVGMLDPPRIEVASSVKLCRQAGIRVIMITGDNKGTAVAICR RIGIFGQDEDTVSKAFTGREFDELNPSAQRDACLNARCFARVEPSHKSKIVEFL QSFDEITAMTGDGVNDAPALKKAEIGIAMGSGTAVAKTASEMVLADDNFSTIVA AVEEGRAIYNNM
Research Area	Cardiovascular
Source	E.coli
Target Names	ATP2A2
Protein Names	Recommended name: Sarcoplasmic/endoplasmic reticulum calcium ATPase 2 Short name= SERCA2 Short name= SR Ca(2+)-ATPase 2 EC= 3.6.3.8Alternative name(s): Calcium pump 2 Calcium-transporting ATPase sarcoplasmic reticulum type, slow
Expression Region	314-756aa
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	52.3kDa
Protein Length	Partial



Image



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

Description

Producing recombinant human sarcoplasmic/endoplasmic reticulum calcium ATPase 2 (ATP2A2) involves isolating the target gene, which corresponds to the 314-756aa of the human ATP2A2. This gene is cloned into an appropriate expression vector along with an N-terminal 6xHis-tag gene and transfected into *E. coli* cells. The positive *E. coli* cells are cultured under appropriate conditions to express the recombinant protein. These cells undergo lysis to harvest the recombinant ATP2A2 protein, which is subjected to affinity chromatography. The final step involves measuring the protein's purity through SDS-PAGE. Its purity is greater than 90%.

SERCA2, a crucial enzyme encoded by the ATP2A2 gene, is highly expressed in keratinocytes [1]. It maintains calcium homeostasis within cells by pumping calcium ions from the cytosol into the lumen of the sarcoplasmic reticulum (SR) and endoplasmic reticulum (ER) [2], which is essential for regulating intracellular calcium levels and preventing cytotoxic effects associated with high calcium concentrations [3]. Mutations in the ATP2A2 gene have been linked to conditions such as Darier disease, where dysfunctional SERCA2 leads to impaired calcium transport and subsequent ER stress and apoptosis in affected cells [4].

Dysregulation of SERCA2 activity can have significant implications, as seen in conditions like colorectal cancer, where targeting SERCA2 with specific molecules has shown promise in cancer treatment [5]. In cardiac function, SERCA2 plays a role in the force-frequency relationship and frequency-dependent acceleration of relaxation, crucial for maintaining proper ventricular filling at high heart rates [6].

References:

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Shelf Life

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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.