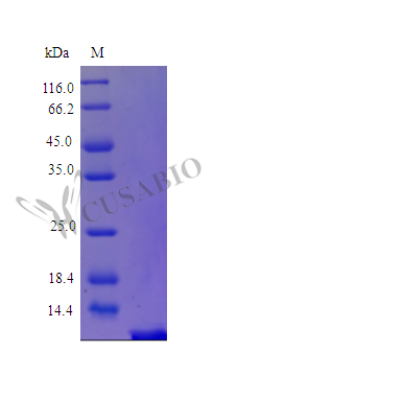
Recombinant Human Thymosin beta-4 (TMSB4X) (Active)

Product Code	CSB-AP000381HU
Abbreviation	Recombinant Human TMSB4X protein (Active)
Uniprot No.	P62328
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered concentrated solution in 20 mM PB, pH 7.4.
Product Type	Other
Immunogen Species	Homo sapiens (Human)
Biological Activity	Fully biologically active when compared to standard. The biological activity determined by its ability to produce a protective effect against hydrogen peroxide in primary lung fibroblasts is in a concentration range of 0.5 - 10 μg/ml.
Purity	>97% as determined by SDS-PAGE.
Sequence	SDKPDMAEIE KFDKSKLKKT ETQEKNPLPS KETIEQEKQA GES
Research Area	Signal Transduction
Source	E.coli
Target Names	TMSB4X
Expression Region	2-44aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag-Free
Mol. Weight	4.9 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	3500230; 16010977; 1999398; 6548414; 18669648; 19608861; 20068231; 21269460; 21406692; 22223895; 10848969; 23009842

Image



Description

The production of recombinant human Thymosin beta-4 (TMSB4X) begins with isolating the gene encoding the TMSB4X protein (2-44aa). This gene is cloned into an expression vector and introduced into E. coli cells. The E. coli cells are cultured in bioreactors to express the protein. After the cells have grown sufficiently, they are harvested and lysed to release the TMSB4X protein. The TMSB4X protein is purified using affinity chromatography. Finally, rigorous quality control tests are conducted to ensure the protein's purity and functionality, making it suitable for research use. Its activity has been confirmed by its ability to produce a protective effect against hydrogen peroxide in primary lung fibroblasts in a concentration range of 0.5 - 10 μg/ml. Its endotoxin content is less than 1.0 EU/μg as determined by the LAL method. Its purity is greater than 97% as determined by SDS-PAGE.

TMSB4X is an actin-sequestering protein involved in various cellular processes, including regulation of actin polymerization, cytoskeleton organization, cell proliferation, migration, differentiation, wound healing, apoptosis, and cell survival [1][2][3]. TMSB4X is crucial for adherens junction stability, epidermal planar cell polarity, and the morphogenesis and differentiation of coronary vessels during embryonic development [4]. TMSB4X has been associated with early preneoplastic cell transformation in pancreatic cancer and plays a role in EMT induction and metastasis through the TGF-ß/Tß4/MRTF signaling pathway [5][6].

References:

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[5] B. Grüner, H. Hahne, P. Mazur, M. Trajkovic?Arsic, S. Maier, I. Espósitoet al., Maldi imaging mass spectrometry for in situ proteomic analysis of preneoplastic lesions in pancreatic cancer, Plos One, vol. 7, no. 6, p. e39424, 2012. https://doi.org/10.1371/journal.pone.0039424
[6] R. Moradpoor, A. Gharebaghian, F. Shahi, A. Mousavi, S. Salari, M. Akbariet al., Identification and validation of stage-associated pbmc biomarkers in breast cancer using ms-based proteomics, Frontiers in Oncology, vol. 10, 2020. https://doi.org/10.3389/fonc.2020.01101

Endotoxin	Less than 1.0 EU/μg as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	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.