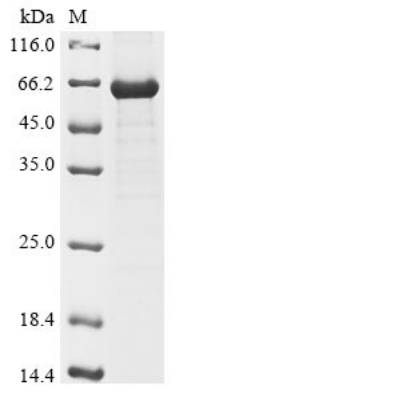
Recombinant Human Intestinal-type alkaline phosphatase (ALPI)

Product Code	CSB-EP001627HU
Abbreviation	Recombinant Human ALPI protein
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.	P09923
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	VIPAEEENPAFWNRQAAEALDAAKKLQPIQKVAKNLILFLGDGLGVPTVTATRIL KGQKNGKLGPETPLAMDRFPYLALSKTYNVDRQVPDSAATATAYLCGVKANF QTIGLSAAARFNQCNTTRGNEVISVMNRAKQAGKSVGVVTTTRVQHASPAGT YAHTVNRNWYSDADMPASARQEGCQDIATQLISNMDIDVILGGGRKYMFPMG TPDPEYPADASQNGIRLDGKNLVQEWLAKHQGAWYVWNRTELMQASLDQSV THLMGLFEPGDTKYEIHRDPTLDPSLMEMTEAALRLLSRNPRGFYLFVEGGRI DHGHHEGVAYQALTEAVMFDDAIERAGQLTSEEDTLTLVTADHSHVFSFGGYT LRGSSIFGLAPSKAQDSKAYTSILYGNGPGYVFNSGVRPDVNESESGSPDYQ QQAAVPLSSETHGGEDVAVFARGPQAHLVHGVQEQSFVAHVMAFAACLEPY TACDLAPPACTTD
Research Area	Signal Transduction
Source	E.coli
Target Names	ALPI
Expression Region	20-503aa
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	58.4 kDa
Protein Length	Full Length of Mature Protein
Image	



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

Description

Recombinant Human Intestinal-type alkaline phosphatase (ALPI) is produced in E.coli and includes the complete mature protein sequence from amino acids 20 to 503. The protein carries an N-terminal 6xHis-tag that makes purification and detection more straightforward. SDS-PAGE analysis confirms the purity exceeds 85%. This product is intended for research use only and maintains low endotoxin levels that appear suitable for various experimental work.

Intestinal-type alkaline phosphatase (ALPI) is an enzyme that primarily handles dephosphorylation processes in the gastrointestinal tract. It seems to play an important role in maintaining intestinal balance and acts as a key part of the body's defense against microbial invasion. ALPI is also being studied for its possible involvement in lipid absorption and detoxification pathways, which makes it an interesting target for gastrointestinal and enzyme research.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Biochemical Characterization and Enzyme Kinetics Studies

This recombinant ALPI protein allows researchers to examine the basic biochemical properties of human intestinal-type alkaline phosphatase. Scientists can investigate substrate specificity, optimal pH and temperature conditions, and kinetic parameters. The N-terminal 6xHis tag makes protein purification simpler and helps with immobilization for detailed enzymatic assays. Researchers may compare how this recombinant enzyme behaves compared to other alkaline phosphatase types to better understand differences between tissues. The full-length mature protein (20-503aa) likely provides a realistic model for studying the complete catalytic domain and any regulatory regions.

2. Antibody Development and Validation

The purified recombinant ALPI protein works well as an antigen for creating specific antibodies against human intestinal-type alkaline phosphatase. The high

purity (>85%) and His-tag help researchers develop both polyclonal and monoclonal antibodies with clear specificity. These antibodies can be tested using the same recombinant protein in Western blot, ELISA, and immunoprecipitation assays to check binding specificity and cross-reactivity patterns. The recombinant protein also serves as a positive control and standard in antibody-based detection methods.

3. Protein-Protein Interaction Studies

Researchers can use the His-tagged recombinant ALPI in pull-down assays to find potential binding partners and regulatory proteins that interact with intestinal alkaline phosphatase. The N-terminal His tag allows attachment to nickel-affinity matrices, which enables scientists to capture interacting proteins from cell lysates or tissue extracts. This approach may help reveal the molecular mechanisms behind ALPI regulation and its role in cellular signaling pathways. Co-immunoprecipitation experiments using anti-His antibodies can help confirm identified protein interactions.

4. Structural and Biophysical Analysis

This recombinant ALPI protein provides material for structural biology studies, including X-ray crystallography, NMR spectroscopy, and cryo-electron microscopy to understand the three-dimensional structure of human intestinal alkaline phosphatase. Scientists can use the purified protein in biophysical techniques like dynamic light scattering, differential scanning calorimetry, and circular dichroism spectroscopy to analyze protein folding, stability, and structural changes. These studies contribute to understanding how structure relates to function and can guide protein engineering efforts.

5. Inhibitor Screening and Drug Discovery Research

The recombinant ALPI protein can serve as a target for high-throughput screening of potential inhibitors or modulators in drug discovery research. The purified enzyme makes it possible to develop standardized in vitro assays for testing compound libraries and measuring inhibitory strength and selectivity. Researchers can use this protein to investigate how known alkaline phosphatase inhibitors work and to identify new chemical structures. The His tag makes protein handling easier and helps with assay development for automated screening systems.

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.