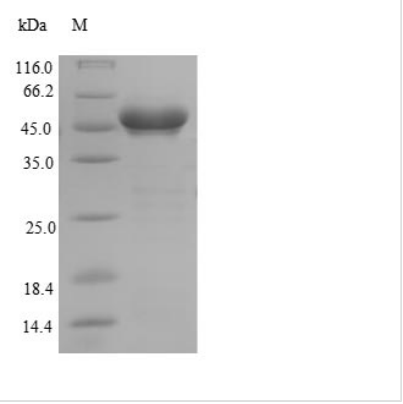
Recombinant Human Glutathione S-transferase kappa 1 (GSTK1), partial

Product Code	CSB-EP009978HU
Relevance	Significant glutathione conjugating activity is found only with the model substrate, 1-chloro-2,4-dinitrobenzene (CDNB).
Abbreviation	Recombinant Human GSTK1 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.	Q9Y2Q3
Storage Buffer	Tris-based buffer?50% glycerol
Product Type	Others
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	GPLPRTVELFYDVLSPYSWLGFEILCRYQNIWNINLQLRPSLITGIMKDSGNKPP GLLPRKGLYMANDLKLLRHHLQIPIHFPKDFLSVMLEKGSLSAMRFLTAVNLEH PEMLEKASRELWMRVWSRNEDITEPQSILAAAEKAGMSAEQAQGLLEKIATPK VKNQLKETTEAACRYGAFGLPITVAHVDGQTHMLFGSDRMELLAHLLGEKWM GPIPPAVNARL
Research Area	Tags & Cell Markers
Source	E.coli
Target Names	GSTK1
Expression Region	2-226aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged
Mol. Weight	52.4kDa
Protein Length	Partial
Image	



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

Description

Recombinant Human Glutathione S-transferase kappa 1 (GSTK1) is produced in E. coli and covers the 2-226 amino acid region, representing a partial protein sequence. The product includes an N-terminal GST tag, which helps with purification and detection during experiments. SDS-PAGE analysis shows the protein reaches purity levels above 90%, making it high-quality material for research work. This product is strictly for research use and cannot be applied in diagnostic or therapeutic settings.

Glutathione S-transferase kappa 1 (GSTK1) appears to be an enzyme that participates in cellular detoxification processes. It seems to help catalyze the conjugation of glutathione to different substrates, which may aid in breaking down toxins and carcinogens. GSTK1 belongs to the larger glutathione S-transferase family - enzymes that are likely critical for cellular defense and have drawn significant research attention for their roles in drug resistance and metabolic pathways.

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. Enzyme Activity and Kinetic Studies

This recombinant GSTK1 protein could help researchers characterize the enzymatic properties and substrate specificity of human glutathione S-transferase kappa 1 under controlled laboratory conditions. Scientists might perform kinetic assays with different glutathione conjugation substrates to calculate Km, Vmax, and catalytic efficiency parameters. The high purity (>90%) appears suitable for detailed biochemical studies. However, the N-terminal GST tag may need careful consideration during experimental design, since it could potentially affect enzymatic activity measurements.

2. Protein-Protein Interaction Studies

The recombinant GSTK1 could work as bait or target protein in pull-down

assays to find new protein interaction partners or confirm existing ones. Its N-terminal GST tag makes immobilization on glutathione-sepharose beads straightforward for affinity purification experiments. This strategy might help clarify cellular pathways that involve GSTK1 and broaden our understanding of its biological roles beyond glutathione conjugation. Scientists could also perform co-immunoprecipitation studies with cell lysates to examine endogenous protein complexes.

3. Antibody Development and Validation

This purified recombinant protein works well as an antigen for creating specific antibodies against human GSTK1 through standard immunization protocols. The high purity should minimize cross-reactivity with other proteins during antibody production. Researchers can then validate these antibodies using the same recombinant protein in ELISA, Western blot, and similar immunoassays. The defined protein sequence (amino acids 2-226) offers a well-characterized target for epitope mapping experiments.

4. Structural and Biophysical Analysis

Scientists might use the recombinant GSTK1 protein in structural biology studies - X-ray crystallography, NMR spectroscopy, or cryo-electron microscopy could reveal its three-dimensional structure. Biophysical techniques like dynamic light scattering, circular dichroism spectroscopy, and thermal stability assays may provide insights into protein folding and stability. The high purity level seems appropriate for these sensitive analytical methods that demand well-defined protein samples.

5. Inhibitor Screening and Drug Discovery Research

This recombinant protein could be valuable in high-throughput screening assays designed to identify small molecule inhibitors or modulators of GSTK1 activity. Researchers might test compound libraries through enzymatic assays to discover potential research tools or lead compounds. The purified protein allows for dose-response studies to determine IC50 values and structure-activity relationships of promising hits. Such screening work may contribute to understanding GSTK1 function and developing research reagents for additional biological studies.

Endotoxin	GSTK1
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.