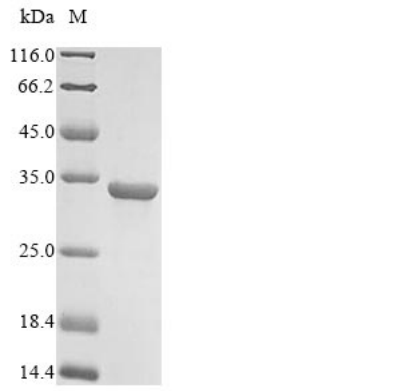
Recombinant Human Pro-glucagon (GCG), partial

Product Code	CSB-EP009315HUc0
Relevance	Glucagon plays a key role in glucose metabolism and homeostasis. Regulates blood glucose by increasing gluconeogenesis and decreasing glycolysis. A counterregulatory hormone of insulin, raises plasma glucose levels in response to insulin-induced hypoglycemia. Plays an important role in initiating and maintaining hyperglycemic conditions in diabetes. GLP-1 is a potent stimulator of glucose-dependent insulin release. Play important roles on gastric motility and the suppression of plasma glucagon levels. May be involved in the suppression of satiety and stimulation of glucose disposal in peripheral tissues, independent of the actions of insulin. Have growth-promoting activities on intestinal epithelium. May also regulate the hypothalamic pituitary axis (HPA) via effects on LH, TSH, CRH, oxytocin, and vasopressin secretion. Increases islet mass through stimulation of islet neogenesis and pancreatic beta cell proliferation. Inhibits beta cell apoptosis. GLP-2 stimulates intestinal growth and up-regulates villus height in the small intestine, concomitant with increased crypt cell proliferation and decreased enterocyte apoptosis. The gastrointestinal tract, from the stomach to the colon is the principal target for GLP-2 action. Plays a key role in nutrient homeostasis, enhancing nutrient assimilation through enhanced gastrointestinal function, as well as increasing nutrient disposal. Stimulates intestinal glucose transport and decreases mucosal permeability. Oxyntomodulin significantly reduces food intake. Inhibits gastric emptying in humans. Suppression of gastric emptying may lead to increased gastric distension, which may contribute to satiety by causing a sensation of fullness. Glicentin may modulate gastric acid secretion and the gastro-pyloro-duodenal activity. May play an important role in intestinal mucosal growth in the early period of life.
Abbreviation	Recombinant Human GCG 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.	P01275
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	HSQGTFTSDYSKYLDSRRAQDFVQWLMNTKRNRNNIA
Research Area	Cancer
Source	E.coli
Target Names	GCG
Protein Names	Incretin hormone

Expression Region	53-89aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-GST-tagged
Mol. Weight	34.4 kDa
Protein Length	Partial

Image



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

Description

Recombinant Human Pro-glucagon (GCG) is produced in E. coli and comes with an N-terminal 6xHis-GST tag. This partial protein covers amino acids 53-89 and appears to be purified to greater than 85% purity based on SDS-PAGE analysis. The product is intended for research use only, though it seems to perform consistently across different experimental setups.

Pro-glucagon acts as a precursor to several key peptides, including glucagon and GLP-1. These peptides play important roles in glucose metabolism and insulin regulation. The derivatives from pro-glucagon are involved in pathways related to energy balance and have become a central focus in metabolic research and diabetes studies.

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. Antibody Development and Validation Studies

This recombinant human pro-glucagon fragment (amino acids 53-89) may work well as an immunogen or screening antigen when developing antibodies that target this particular region of the pro-glucagon precursor protein. The N-terminal 6xHis-GST tag makes purification and immobilization straightforward for ELISA-based antibody screening. Scientists can likely use this protein to create monoclonal or polyclonal antibodies that recognize this specific portion of

pro-glucagon. Such antibodies might prove valuable for detecting processing intermediates or investigating pro-glucagon biology more broadly. The high purity (>85%) should help maintain consistent results during immunization and screening work.

2. Protein-Protein Interaction Studies

The GST tag allows for pull-down assays that could identify potential binding partners interacting with this particular region of human pro-glucagon. Scientists can attach the GST-tagged protein to glutathione-sepharose beads and mix it with cell lysates or purified protein libraries to capture any interacting molecules. This method might uncover previously unknown regulatory proteins, processing enzymes, or chaperones that specifically bind to amino acids 53-89 of pro-glucagon. The 6xHis tag offers another purification and detection route for these interaction experiments.

3. Biochemical Characterization and Structural Studies

This well-defined pro-glucagon fragment appears suitable for detailed biochemical analysis. Techniques like circular dichroism spectroscopy and dynamic light scattering could help characterize its structural properties. The purified protein lets researchers examine folding behavior, stability, and conformational shifts within this specific region under different buffer conditions and temperatures. These studies may provide clues about how this portion of pro-glucagon influences the overall structure and processing of the complete precursor protein.

4. Enzyme Substrate Studies

The recombinant pro-glucagon fragment can likely function as a substrate for studying prohormone convertases and other proteolytic enzymes that break down glucagon. Scientists might use this protein in laboratory cleavage assays to map specific cutting sites within the 53-89 amino acid region and calculate kinetic parameters for different processing enzymes. The tags make detection and measurement of cleavage products relatively simple through Western blotting or other tag-specific detection approaches.

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.