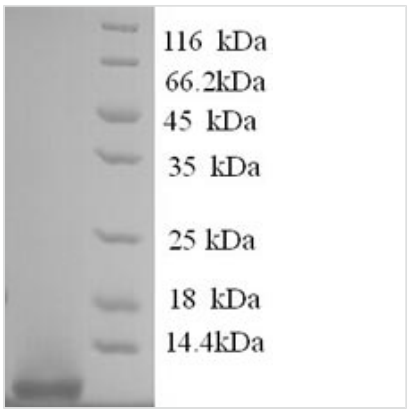
Recombinant Human Pro-glucagon (GCG), partial

Product Code	CSB-YP009315HU
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 hypoglycia. Plays an important role in initiating and maintaining hyperglycic 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 ptying in humans. Suppression of gastric ptying 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
Alias	Incretin hormoneGlucagon-like peptide 1(7-37) ;GLP-1(7-37)Glucagon-like peptide 1(7-36) ;GLP-1(7-36)Glucagon-like peptide 2 ;GLP-2
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	HSQGTFTSDYSKYLDSRRAQDFVQWLMNTKRNRNNIA
Source	Yeast
Target Names	GCG

Protein Names	Recommended name: GlucagonCleaved into the following 8 chains: 1. Glicentin 2. Glicentin-related polypeptide Short name= 3. GRPP 4. Oxyntomodulin Short name= 5. OXM Short name= 6. OXY 7. Glucagon 8. Glucagon-like peptid
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-tagged
Mol. Weight	6.4kDa
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 a yeast expression system and contains the amino acid region 53-89. This partial protein includes an N-terminal 6xHis tag, which helps with purification and detection. The product achieves a purity level greater than 90%, as confirmed by SDS-PAGE analysis. Intended for research use only, this recombinant protein offers a reliable tool for various scientific applications.

Pro-glucagon serves as a precursor protein in the production of several hormones, including glucagon and GLP-1, which play key roles in glucose metabolism and homeostasis. This protein appears vital in research focusing on energy balance, diabetes, and metabolic disorders, since it participates in pathways that regulate these physiological processes. Understanding pro-glucagon's role may be crucial for advancing studies in endocrinology and metabolic 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. Antibody Development and Validation Studies

This recombinant human pro-glucagon fragment (amino acids 53-89) can work as an immunogen or antigen for developing specific antibodies against this region of the pro-glucagon precursor protein. The high purity (>90%) and N-terminal 6xHis tag make it suitable for immunization protocols and subsequent antibody screening assays. Researchers can apply this protein in ELISA-based assays to validate antibody specificity and determine binding affinities. The defined amino acid sequence region allows for precise epitope mapping studies to identify specific binding sites within this pro-glucagon segment.

2. Protein-Protein Interaction Studies

The 6xHis-tagged pro-glucagon fragment can work in pull-down assays to identify potential binding partners or regulatory proteins that interact with this specific region of pro-glucagon. The histidine tag enables easy immobilization on nickel-based affinity matrices for capturing interacting proteins from cell lysates or purified protein preparations. This approach may help clarify the molecular mechanisms involved in pro-glucagon processing and regulation. Surface plasmon resonance or other biophysical techniques can also use this purified fragment to characterize binding kinetics with known or suspected interaction partners.

3. Structural and Biophysical Characterization

This purified pro-glucagon fragment provides material for detailed structural studies using techniques such as NMR spectroscopy, circular dichroism, or X-ray crystallography. High purity levels ensure reliable biophysical measurements for determining secondary structure content, thermal stability, and folding characteristics of this specific pro-glucagon region. Researchers can investigate how this segment adopts its native conformation and study the effects of various buffer conditions, pH, or ionic strength on protein stability. The defined amino acid boundaries (53-89) allow for comparative studies with other pro-glucagon fragments or related peptide hormones.

4. Enzyme Substrate Studies for Prohormone Convertases

This pro-glucagon fragment can function as a substrate for in vitro enzymatic studies with prohormone convertases and other proteolytic enzymes involved in peptide hormone processing. Researchers can investigate cleavage specificity, kinetic parameters, and optimal reaction conditions using this defined substrate. The 6xHis tag makes purification and quantification of both substrate and cleavage products straightforward using standard chromatographic methods. Such studies contribute to understanding the biochemical pathways involved in glucagon and GLP-1 maturation from the pro-glucagon precursor.

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.