

# Glucagon Overview

## Overview:

Glucagon is a 29-amino acid peptide hormone produced by the alpha cells of the pancreas. It plays a vital role in maintaining blood glucose homeostasis, especially during fasting or hypoglycemic states.

## Mechanism of Action:

### Receptor Binding:

- Glucagon binds to the glucagon receptor (a G-protein coupled receptor) on hepatocytes and some other cells.

### Signal Cascade:

- Activates adenylate cyclase, increasing cAMP levels.
- Activates protein kinase A (PKA), leading to glycogenolysis and gluconeogenesis.

### Outcome:

- Raises blood glucose levels by mobilizing glucose stores from the liver.

## Physiological Functions in the Body:

Glucose Regulation: Increases blood glucose during fasting and hypoglycemia.

Lipolysis: Promotes fat breakdown in adipose tissue.

Ketogenesis: Supports ketone body production during prolonged fasting.

Amino Acid Catabolism: Enhances amino acid uptake in the liver for gluconeogenesis.

## Clinical Use:

### FDA-Approved Indications:

Severe hypoglycemia treatment in diabetic patients.

Diagnostic aid for gastrointestinal radiology and certain endo

### Administration:

Subcutaneous, intramuscular, or intravenous injection.

### Dosing (FDA-Approved):

Hypoglycemia:

Adults/children over 25 kg: 1 mg IM/SC/IV.

Children under 25 kg: 0.5 mg IM/SC/IV.

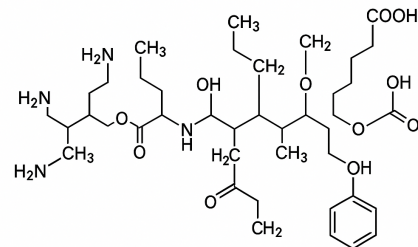
### Onset of action:

Within 10 minutes (hypoglycemia rescue).

Duration: 15–30 minutes.

## Conclusion:

Glucagon is a key metabolic hormone that rapidly increases blood glucose levels during hypoglycemia and plays a role in fat and protein metabolism during fasting. Its clinical utility as a rescue medication for severe hypoglycemia underscores its importance in diabetes care and emergency medicine.



**GLUCAGON**