GLUCAGON ELISA.

HYPOGLYCEMIA DETECTION.

TECAN.

GLUCAGON: A MULTIFACETED HORMONE INFLUENCING METABOLISM AND PHYSIOLOGICAL FUNCTIONS.

Glucagon is a hormone produced by the alpha cells of the pancreas that plays a crucial role in regulating blood glucose levels by promoting the release of glucose from the liver into the bloodstream. It is interesting because it works in opposition to insulin, providing a balance in blood sugar management, which is essential for maintaining energy levels and preventing conditions like hypoglycemia. Additionally, glucagon's role in glucose metabolism makes it a target for research in diabetes treatment (Jiang & Zhang, 2003; Rix et al., 2015).[1, 2]

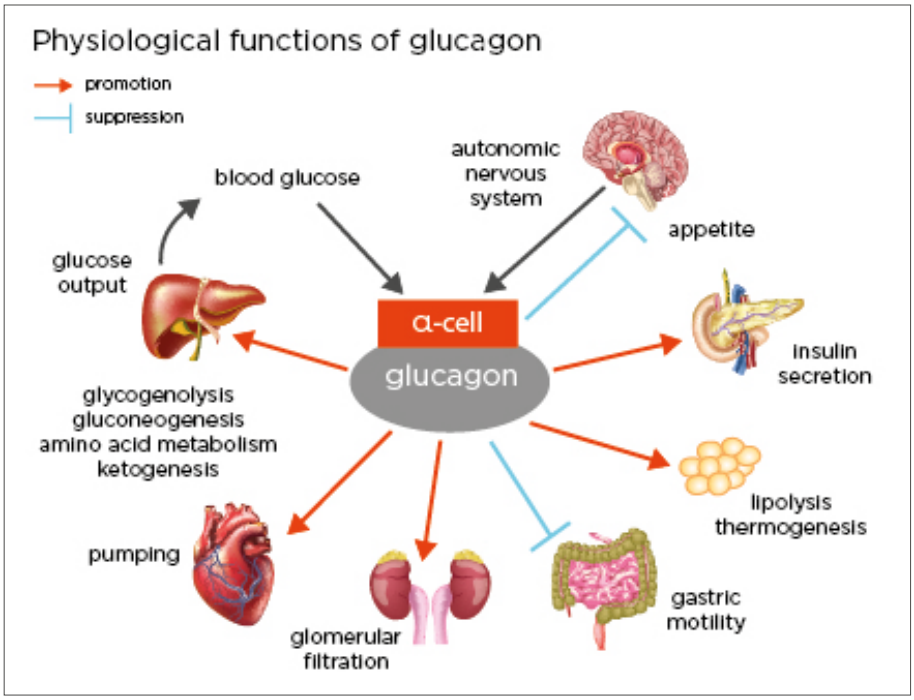

Figure 1: Glucagon's Diverse Roles in Metabolic Pathways and Physiological Processes (adapted from Kawamori & Shugo, 2023)[3]

Glucagon influences several metabolic processes, including glycogenolysis and gluconeogenesis, where it stimulates the liver to convert stored glycogen and non-carbohydrate substrates into glucose, respectively. It also affects amino acid metabolism, ketogenesis, and lipolysis, promoting the breakdown of fats and proteins for energy, while modulating insulin secretion and impacting the autonomic nervous system to regulate appetite, gastric motility, and heart function. Additionally, glucagon can enhance glomerular filtration in the kidneys, contributing to its diverse physiological roles.

Hypoglycemia detection with Glucagon ELISA.

- **Accurate Measurement:** Reliably detects low glucagon levels that other tests might miss. (0-352 pg/mL)
- **Precision:** Identifies patients with suspected hypoglycemia for improved clinical outcomes (Sensitivity: LoD 2.27 pg/mL)
- **Expanded Insights:** Enhances understanding of glucagon's involvement in the glucagon-centric theory, which posits that glucagon plays a crucial role in metabolic regulation by influencing glucose homeostasis and energy balance
- **Automatable:** Enables high throughput processing

Performance data.

- **Offers high sensitivity** and specificity for accurate glucagon measurement
  - **High sensitivity:** LoD 2.27 pg/mL; LoQ 5.33 pg/mL. CV < 20%
- **Sample Type:** Requires EDTA plasma
- **Assay Time 1.75 h:** Provides results in a relatively short time, suitable for clinical settings
- **Cross-reactivity:** No detectable cross-reactivity for 21 cross-reactants tested (including Oxyntomodulin and Glicentin)

Benefits.

- **Trust your results:** Provides reliable and reproducible results
  - **Repeatability:** n=80 samples, 20 testing days x 2 runs x 2 replicates, CV ≤ 5.6%
- **Ease-up your workflow:** Designed for ease of use with clear instructions, making it accessible for laboratory personnel

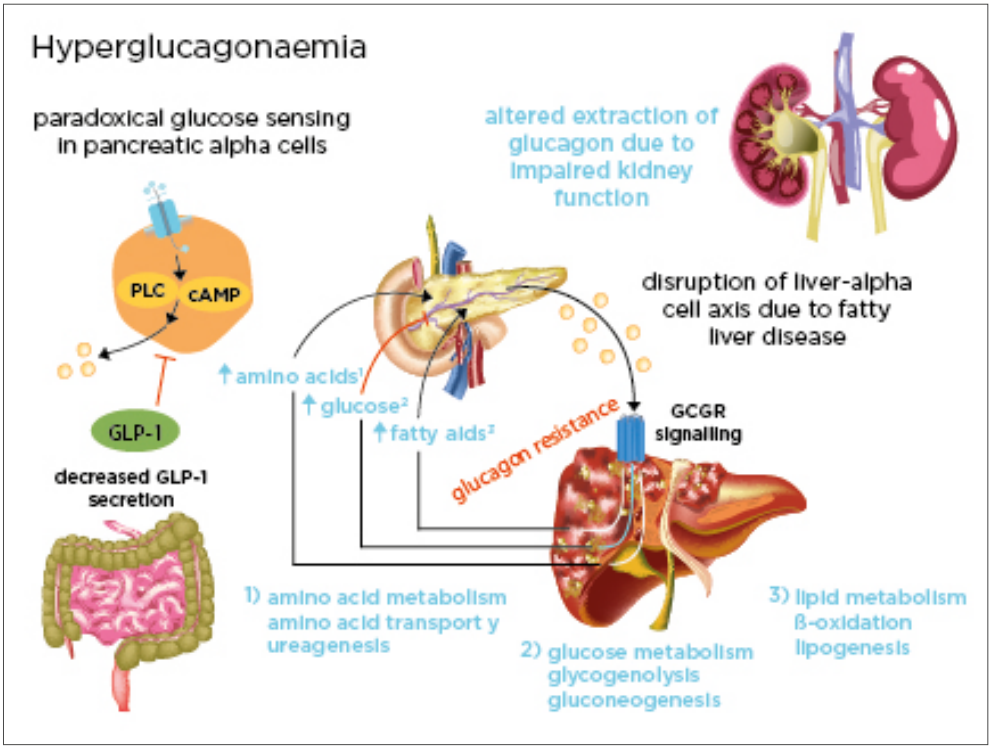

Figure 2: Hyperglucagonaemia: Exploring the multifaceted causes and consequences, including impaired glucagon sensitivity in fatty liver disease, paradoxical alpha cell responses, and potential organ extraction inefficiencies (Albrechtsen et al., 2023).[4]

Additional products for your research on metabolic syndrome.

Cat #	Product	Reg. Status
30216295	GLP-1 total ELISA	RUO
30106821	GLP-1 active forms HS ELISA	RUO
JP27788	GLP-1 (9-36/37) ELISA	RUO
30216294	GLP-1 (7-36), active ELISA	RUO
30106821	GLP-1 (7-36/37)	RUO
JP27201	GIP (active) ELISA	RUO
JP27203	GIP (total) ELISA	RUO

Cat #	Product	Reg. Status
JP27789	DPP4/CD26 ELISA	RUO
RE53171	Insulin ELISA	EU:CE
RE53011	C-Peptide ELISA	EU:CE
30227003	Glucagon ELISA	RUO
30106821	GLP-1 (7-36/37)	RUO
30221798	Active B12 ELISA	EU:CE
30126762	Adiponectin ELISA	EU:CE

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References.

1. Jiang, G., & Zhang, B. B. (2003). Glucagon and regulation of glucose metabolism. American journal of physiology-endocrinology and metabolism, 284(4), E671-E678.
2. Rix, I., Nexøe-Larsen, C., Bergmann, N. C., Lund, A., & Knop, F. K. (2015). Glucagon physiology.
3. Kawamori, Dan & Sasaki, Shugo. (2023). Newly discovered knowledge pertaining to glucagon and its clinical applications. Journal of diabetes investigation. 14. 10.1111/jdi.14009.
4. Wewer Albrechtsen, Nicolai & Holst, Jens & Cherrington, Alan & Finan, Brian & Gluud, Lise & Dean, Danielle & Campbell, Jonathan & Bloom, Stephen & Tan, Tricia & Knop, Filip & Müller, Timo. (2023). 100 years of glucagon and 100 more. Diabetologia. 66. 1-17. 10.1007/s00125-023-05947-y.

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IBL International GmbH
Flughafenstrasse 52a
22335 Hamburg
Germany

Phone: +49 (0)40-53 28 91-0
Fax: +49 (0)40-53 28 91-11
Email: IBL@Tecan.com
www.tecan.com/ibl

Australia +61 3 9647 4100 **Austria** +43 62 46 89 330 **Belgium** +32 15 42 13 19 **China** +86 21 220 63 206 **France** +33 4 72 76 04 80 **Germany** +49 79 51 94 170
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