

Peptide hormone

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[Peptide hormones](#) and [protein hormones](#) are hormones whose molecules are [peptides](#) or proteins, respectively. The latter have longer amino acid chain lengths than the former. These hormones have an effect on the endocrine system of animals, including humans.

Most hormones can be classified as either amino acid-based hormones (amine, peptide, or protein) or steroid hormones. The former are water-soluble and act on the surface of target cells via second messengers; the latter, being lipid-soluble, move through the plasma membranes of target cells (both cytoplasmic and nuclear) to act within their nuclei.

Classification

Peptide hormones are classified into several groups based on their structures and functions:

Glycoprotein Hormones: These hormones are composed of protein subunits and contain carbohydrates (glycans). Examples include:

Follicle-Stimulating Hormone (FSH): Regulates the development of ovarian follicles and sperm production in the testes. **Luteinizing Hormone (LH):** Triggers ovulation in females and stimulates testosterone production in males. **Thyroid-Stimulating Hormone (TSH):** Stimulates the thyroid gland to produce thyroid hormones. **Protein Hormones:** These hormones are composed of amino acids and include:

Insulin: Regulates blood glucose levels by facilitating the uptake of glucose by cells.

Growth Hormone (GH): Stimulates growth, cell reproduction, and regeneration.

[Prolactin:](#) Promotes breast development and milk production in females.

Peptide Hormones: These hormones are relatively small peptides and include:

Adrenocorticotrophic Hormone (ACTH): Stimulates the adrenal glands to produce cortisol.

Vasopressin (Antidiuretic Hormone, ADH): Regulates water reabsorption in the kidneys and constriction of blood vessels.

Oxytocin: Plays a role in uterine contractions during childbirth and milk ejection during breastfeeding.

Parathyroid Hormone (PTH): Regulates calcium and phosphate levels in the blood and bone.

Calcitonin: Regulates calcium levels by promoting calcium deposition in bone.

Melanocyte-Stimulating Hormones (MSH): Regulate skin pigmentation and appetite.

Glucagon: Increases blood glucose levels by promoting the release of stored glucose in the liver.

Corticotropin-Releasing Hormone (CRH): Stimulates the release of ACTH from the pituitary gland.

Ghrelin: Regulates appetite and energy balance.

Leptin: Regulates appetite and energy expenditure by signaling satiety.

These are just a few examples of peptide hormones, and there are many more in the body, each with specific roles in maintaining homeostasis and regulating various physiological processes. Peptide hormones bind to specific receptors on target cells, initiating intracellular signaling pathways that result in various physiological responses.

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