

Role of Peptide Hormones and Protein Hormone Functions in Human Body

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INTRODUCTION

Role of Peptide hormones For more than a century, peptide hormones have been recognised as significant signalling molecules in animals due to their critical roles in the brain and endocrine systems. Peptide hormones' role in plants, on the other hand, has only been recognised for about 30 years. One of the reasons is that these peptides are difficult to identify since they are often small in size and low in quantity, with nano- to picomolar concentrations in plants. The size of peptide hormones varies from a basic tripeptide (thyrotropin-releasing hormone (TRH)) to a 198-amino-acid protein (prolactin) to a glycosylated multisubunit oligomer (human chorionic gonadotropin) (HCG). The prohormones are then packaged into membrane-bound secretory vesicles, which can be secreted from the cell by exocytosis in response to specific stimuli (e.g., an increase in Ca^{2+} and cAMP concentration in cytoplasm) ^[1]. These agents are kept in secretory vesicles near to the plasma membrane and are ready for prompt release because they mediate rapid reactions to the environment. Peptide hormones are synthesised and released by a controlled exocytotic route. The same environmental signals that cause peptide hormone release also cause peptide hormone synthesis, ensuring that the hormone released is replaced. Released hormones are only in the bloodstream for a few seconds.

Peptide hormones include one of the major bunches of chemical signals by which intercellular communications work inside the living being. The low concentrations at which hormones circulate are commensurate with the high affinities of their cell-surface receptor destinations, and the stamped specificities of such receptors allow acknowledgment of the circulating hormone in the midst of a tremendous abundance of other protein atoms. These well-defined authoritative properties of peptide receptors are comparable to those of antigen antibody responses, and a few other analogies between the two frameworks are worth noticing. Hence, in B lymphocytes the immunoglobulin particle serves as a surface receptor comparable to the peptide hormone receptor. Physiological forms, which incorporate development, improvement, digestion system, and reproduction. A notable exception to this are brassinosteroids in plants, which despite being lipid soluble, still bind to their receptor at the cell surface ^[2].

Protein Hormones Functions

Proteins are basic for the most physiological forms of life and perform capacities in each framework of the human body. A protein's shape decides its function. Proteins are composed of amino corrosive subunits that shape polypeptide chains. Enzymes catalyze biochemical responses by speeding up chemical responses, and can either break down their substrate or construct bigger particles from their substrate. Berthold determined that the location or genetic factors of the testes do not matter in relation to sexual organs and behaviors, but that some chemical in the testes being secreted is causing this phenomenon. It was later identified that this factor was the hormone testosterone ^[3]. Proteins are macromolecules composed of amino corrosive subunits. These amino acids are covalently attached to one another to create long direct chains called polypeptides, which at that point crease into a particular three-dimensional shape. In some cases these collapsed polypeptide chains are useful by themselves.

Proteins perform essential functions throughout the systems of the human body.

In the respiratory system, hemoglobin (composed of four protein subunits) transports oxygen for use in cellular metabolism. Additional proteins in the blood plasma and lymph carry nutrients and metabolic waste products throughout the body. The proteins actin and tubulin form cellular structures, while keratin forms the structural support for the dead cells that become fingernails and hair. Antibodies, also called immunoglobins, help recognize and destroy foreign pathogens in the immune system. Actin and myosin allow muscles to contract, while albumin nourishes the early development of an embryo or a seedling. Some proteins function as chemical-signaling molecules called hormones. The idea of a 'transmissible substance' was initially dismissed by other plant biologists, but their work later led to the discovery of the first plant hormone ^[4]. These proteins are secreted by endocrine cells that act to control or regulate specific physiological processes, which include growth, development, metabolism,

and reproduction. For example, insulin is a protein hormone that helps to regulate blood glucose levels. Other proteins act as receptors to detect the concentrations of chemicals and send signals to respond. Some types of hormones, such as estrogen and testosterone, are lipid steroids, not proteins. Hormonal effects are dependent on where they are released, as they can be released in different manners ^[5].

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