

## Pituitary Hormones and Their Hypothalamic Releasing Hormones: Introduction

The peptide hormones of the anterior pituitary are essential for the regulation of growth and development, reproduction, responses to stress, and intermediary metabolism. Their synthesis and secretion are controlled by hypothalamic hormones and by hormones from the peripheral endocrine organs. A large number of disease states, as well as a diverse group of drugs, also affect their secretion. The complex interactions among the hypothalamus, pituitary, and peripheral endocrine glands provide elegant examples of integrated feedback regulation. Clinically, an improved understanding of the mechanisms that underlie these interactions provides the rationale for diagnosing and treating endocrine disorders and for predicting certain side effects of drugs that affect the endocrine system. Moreover, the elucidation of the structures of the anterior pituitary hormones and hypothalamic-releasing hormones makes it possible to produce synthetic peptide agonists and antagonists that have important diagnostic and therapeutic applications.

The anterior pituitary hormones

*Growth hormone (GH)*

*prolactin (PRL)*

*thyroid-stimulating hormone (TSH)*

*luteinizing hormone (LH)*

*follicle-stimulating hormone (FSH)*

adrenocorticotrophic hormone( ACTH)

*melanocyte-stimulating hormone (MSH)*

The posterior pituitary hormones:

Vasopressin( plays an important role in water homeostasis ).

Oxytocin( plays important roles in labor and parturition and in milk let-down).

Regulation of Growth Hormone Secretion

## Prolactin

### ***Prolactin secretion and actions.***

Prolactin is the only anterior pituitary hormone for which a unique stimulatory releasing factor has not been identified. Thyrotropin-releasing hormone (TRH), however, can stimulate prolactin release and dopamine can inhibit it. Prolactin affects lactation and reproductive functions but it also has varied effects on many other tissues. Prolactin is not under feedback control by peripheral hormones, but its secretion is induced by suckling (*see* text for further details).

Unlike human GH and placental lactogen, which bind to the prolactin receptor and are lactogenic, prolactin binds specifically to the prolactin receptor and has no somatotropic (GH-like) activity.