Anterior Pituitary

The anterior pituitary is an endocrine gland that releases a variety of hormones in response to stimulus from the hypothalamus and other sources. ACTH, adrenocorticotropic hormone, stimulates the adrenal glands into releasing cortisol. FSH and LH both stimulate the gonads (ovaries and testes). FSH (follicle-stimulating hormone) regulates reproductive processes, sexual maturation, development, and growth. LH stimulates the ovaries and testes into producing estrogen and progesterone, and testosterone respectively. Thyroid-stimulating hormone (TSH) stimulates the thyroid gland into producing thyroxine (T4) and triiodothyronine (T3), both of which stimulate metabolism in most tissues. Prolactin is a peptide hormone that stimulates milk production from the mammary glands and can affect levels of sex hormones. The other hormones released, but not shown here, are endorphins, which are released in response to exercise, pain, and excitement and cause a feeling of analgesia (well-being). Finally, growth-hormone stimulates cell reproduction, development, and growth.



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Characteristics

Hypothalamic Control
Hippo-Thor
The hypothalamus controls the function of the anterior pituitary, as it sends signals to the pituitary to release or inhibit pituitary hormone production.

FLAT PeG Mnemonic
Flat Peg
The mnemonic “FLAT PeG” can be used to recall all of the hormones released by the anterior pituitary. These are follicle stimulating hormone (FSH), luteinizing hormone (LH), adrenocorticotropic hormone (ACTH), thyroid-stimulating hormone (TSH), prolactin, endorphins, and growth hormone (GH).

Tropic Hormones

Follicle-Stimulating Hormone (FSH)
Fish
Follicle-stimulating hormone stimulates the gonads, and is essential to the function of women’s ovaries and the menstrual cycle, along with male development.

Lutenizing Hormone (LH)
Luge
LH, or luteinizing hormone, triggers ovulation and development of the corpus luteum in females, and functions in testosterone development in males.

Adrenocorticotropic Hormone (ACTH)
Air-Conditioning
ACTH (Adrenocorticotropic hormone) is released in response to simulation of the anterior pituitary by CRF (Corticotropin-releasing factor), and stimulates the adrenal glands to produce corticosteroids.

Thyroid-Stimulating Hormone (TSH)
Tissue-box
TSH is released by the anterior pituitary and targets the thyroid gland. Thyroid-stimulating hormone (TSH) stimulates the thyroid gland into producing thyroxine (T4) and triiodothyronine (T3), both of which stimulate metabolism in most tissues.

Direct Hormones

Prolactin (PRL)
Pro-milk
Prolactin targets the mammary glands and triggers milk production. It promotes lactation in response to the suckling stimulus. Remember that this is a direct hormone, which goes to target cells. The anterior pituitary also releases endorphins, which similarly work in this direct manner.

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Growth Hormone (GH)

Giant

Growth-hormone-releasing hormone is secreted by the hypothalamus and triggers the release of growth hormone from the anterior pituitary. Growth Hormone (GH) is a peptide hormone which stimulates cell reproduction, cell regeneration, and growth.

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