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### Function of Endocrine System

- Homeostasis
  - Regulate:
    - metabolic processes, water balance, ions, BP
- Aid transporting of substance across membranes
- Stimulate reproduction, development, growth

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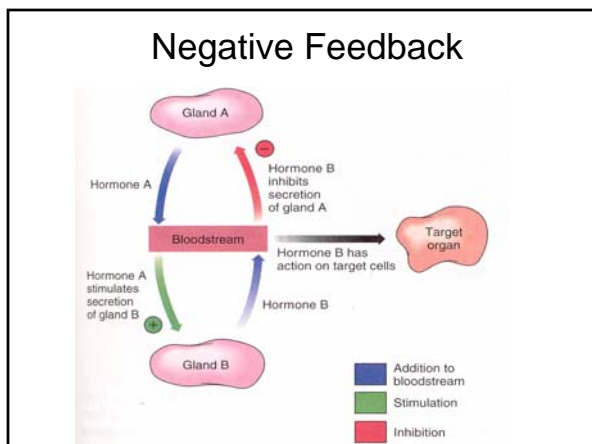
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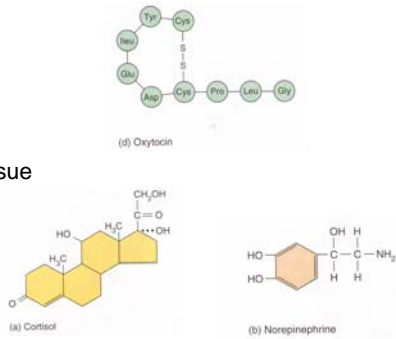
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## Types of Secretions

- Paracrine
- Autocrine
- Endocrine
  - Gland
  - Target tissue




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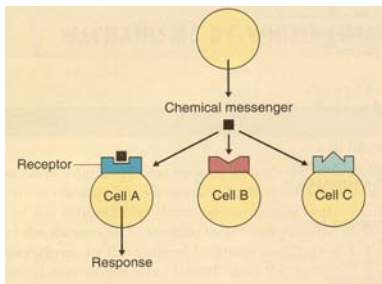
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## Hormone Target Specificity




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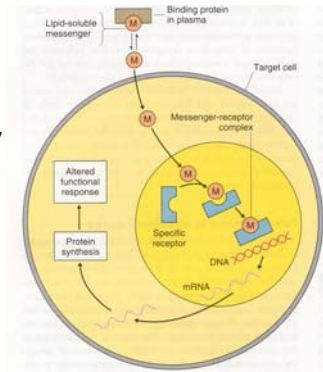
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## How Hormones Work

- Steroid
  - Enters cell
  - Binds to receptor
  - Alters DNA activity




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## Control of Hormone Secretions

- Tropic hormones from anterior pituitary
  - TSH
- Nervous stimulation
  - Adrenal gland
- Composition of internal environment
  - Insulin
- Negative feedback systems
  - TH

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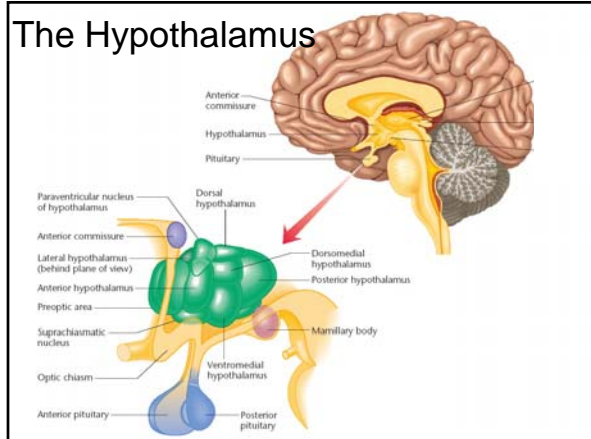
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## The Hypothalamus



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## Hormones of the Hypothalamus

- Peptides
- Regulated by brain
- Regulated by negative feedback
- All are Releasing or Inhibiting hormones

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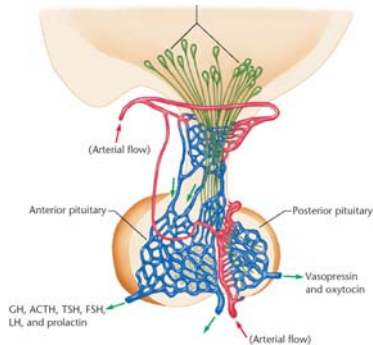
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## The Pituitary Gland



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## Pituitary Hormones

- Anterior
  - Prl
  - TSH
  - GH
  - ACTH
  - LH, FSH
- Posterior
  - ADH
  - Oxytocin

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## Posterior Pituitary Hormones

- Oxytocin
  - Contraction of smooth muscles of uterus, milk ducts
- **ADH (Vasopressin)**
  - Conserves water in body
  - Reduces urine volume
  - Dehydration of body stimulates osmoreceptors
  - High blood volume → less ADH and loss of water

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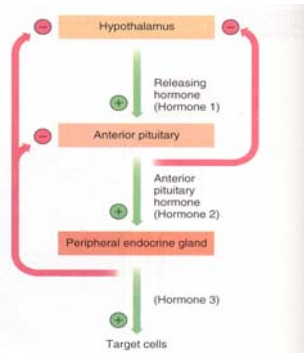
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## Hypothalamo-hypophyseal Axis




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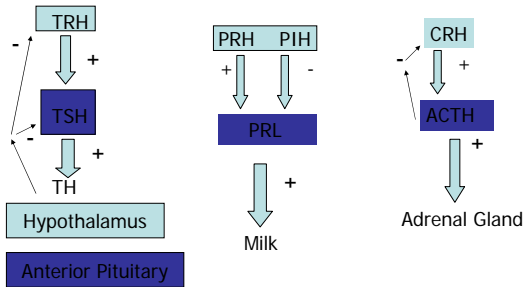
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## Regulating Anterior Pituitary




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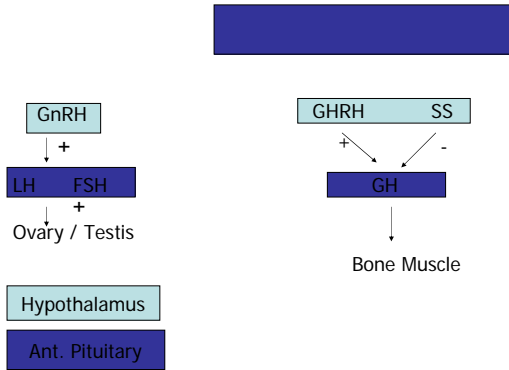
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## Regulating Anterior Pituitary




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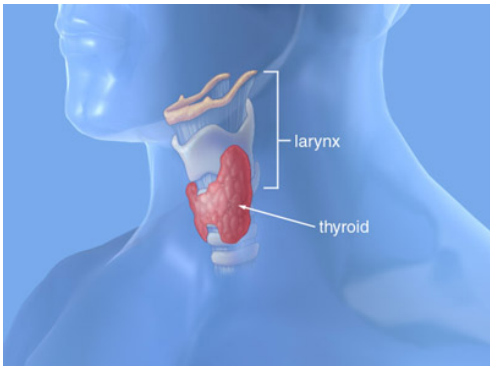
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## THYROID GLAND



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## THYROID GLAND

- Thyroid Hormones (T3/T4)
  - Produced by follicles
- Increase Metabolic Rate
- Healthy Developed Nervous System

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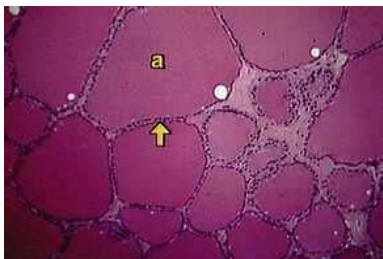
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## Follicles of Thyroid Gland



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## Thyroid C cells

- Produce Calcitonin
- Controls blood  $[Ca^{++}]$  and  $[OP^{--}]$  levels
- Inhibits osteoclasts
  - Reduces loss from bone
- Stimulates osteoblasts
  - Increases deposit of  $Ca^{++}$ ,  $OP^{-}$  in bone

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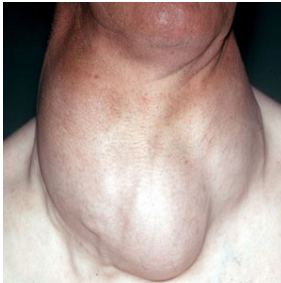
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## Goiter of Thyroid Gland



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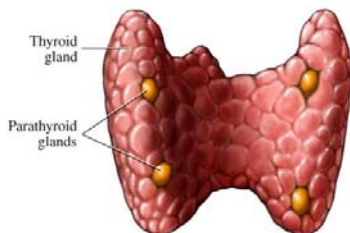
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## PARATHYROID GLANDS



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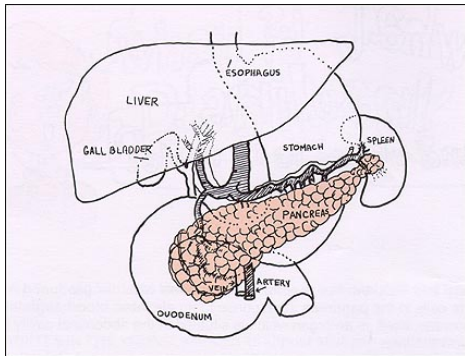
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# The Pancreas




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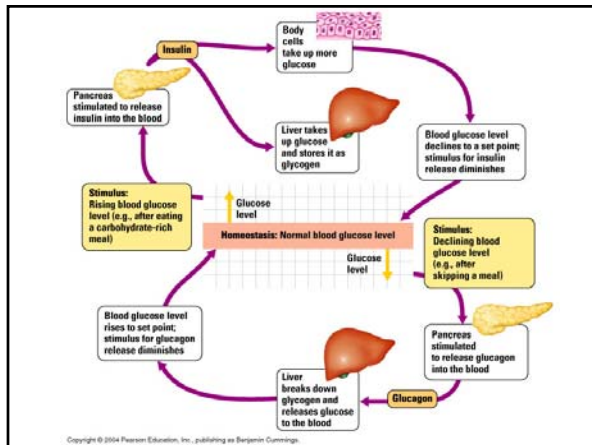
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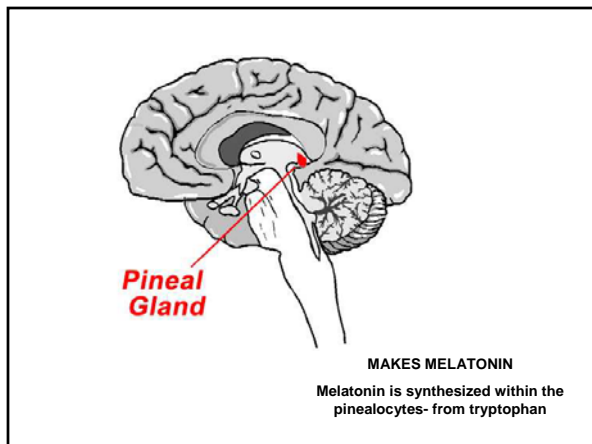
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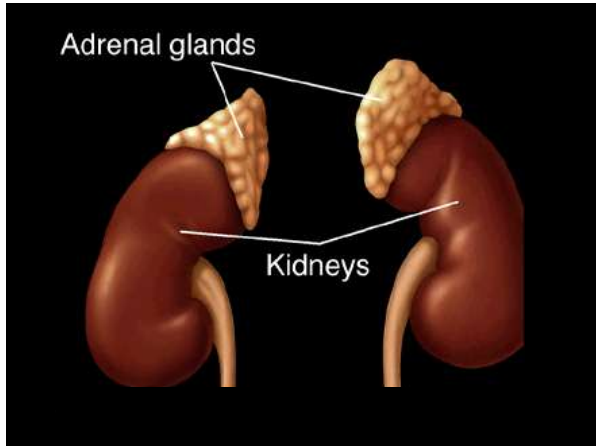
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**ADRENAL HORMONES**

- **CORTEX-** ALDOSTEROL, CORTISOL, ANDROGENS
  
- **MEDULLA-** ADRENILINE, EPINEPHRINE

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