

# ENDOCRINE SYSTEM

19 May 1995, 22 May 98, 19 May 00, 16 May 01, 20 May 05, 22 May 06, 23 May 08, 22 May 09, 19 May 10  
 Campbell's 5th, p 893-912, 6th: 955-972, 7th: 943-961, Sadava 8th, 874-894

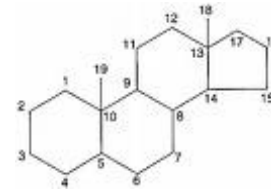
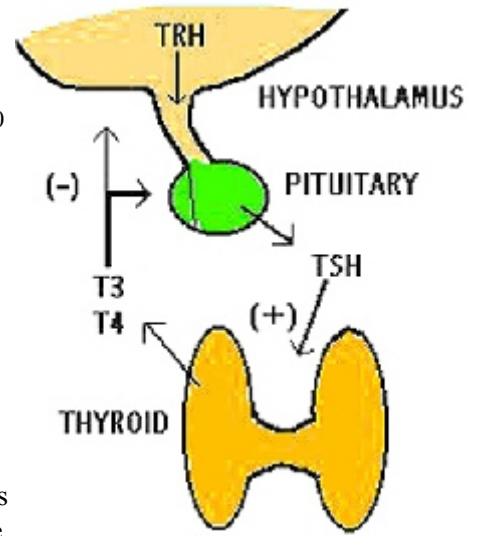
Monitors environment, especially internal.  
 Internal communication, slower than nervous system.  
 Fine tunes body to both external and internal environment

## MAINTAIN STABLE INTERNAL ENVIRONMENT. MEANS:

**homeostasis**, negative feedback loop  
 (show thermostat and thyroxine/thyroid systems)

**hormones: peptide** cannot be taken orally, must be injected, act on receptors  
**cellular interactions:** receptor triggers internal message

(P. 888) **steroids** can be taken orally, penetrate into nucleus, alters gene expression



see p. 880 for illustration of glands and hormones

GLANDS:	Hormone	action (the hormone stimulates or triggers these actions):
<b>Anterior pituitary</b> (p 881)  ("Master gland")	Thyroid Stim Hormone Growth Hormone Adrenocorticotrop H. Follicle Stimulating H. Luteinizing Hormone Prolactin	thyroxine release, thyroid growth bone elongation, growth maintains adrenal cortex testes to make sperm, ovaries eggs testes to make testosterone, ovaries to ovulate growth of breasts
<b>posterior pituitary</b> (p. 882)	oxytocin antidiuretic hormone	smooth muscle contraction: milk let down, labor retention of H <sub>2</sub> O in kidney
<b>thyroid</b> (p. 884)	thyroxine calcitonin	mitochondria, reqd for growth, increase with cold deposition of Ca <sup>++</sup>
<b>parathyroid</b> (p. 886)	parathormone	breakdown of bone to raise blood Ca <sup>++</sup>
<b>pancreas</b>	insulin glucagon	use and storage of glucose and synth of fat glycogenolysis
<b>adrenal medulla</b> (p 888)	adrenaline	sympathetic responses (fight or flight)
<b>adrenal cortex</b> (p 888)	glucocorticoids mineral corticoids androgens	increases blood glucose, sup immune sys, gluconeogenesis increased retention of Na in kidney (incr BP) male secondary sex characteristics: muscle, hair, larynx
<b>gonads:</b> <b>testes</b> (p. 889) <b>ovaries</b>	testosterone estrogen progesterone	male secondary sex characteristics: muscle, hair, larynx female secondary sex: breasts, hips, pelvis, endometrium secretory phase in endometrium
<b>pineal gland</b> (p890)	melatonin	synchronized circadian rhythm, sleep cycle ( fr. tryptophan)