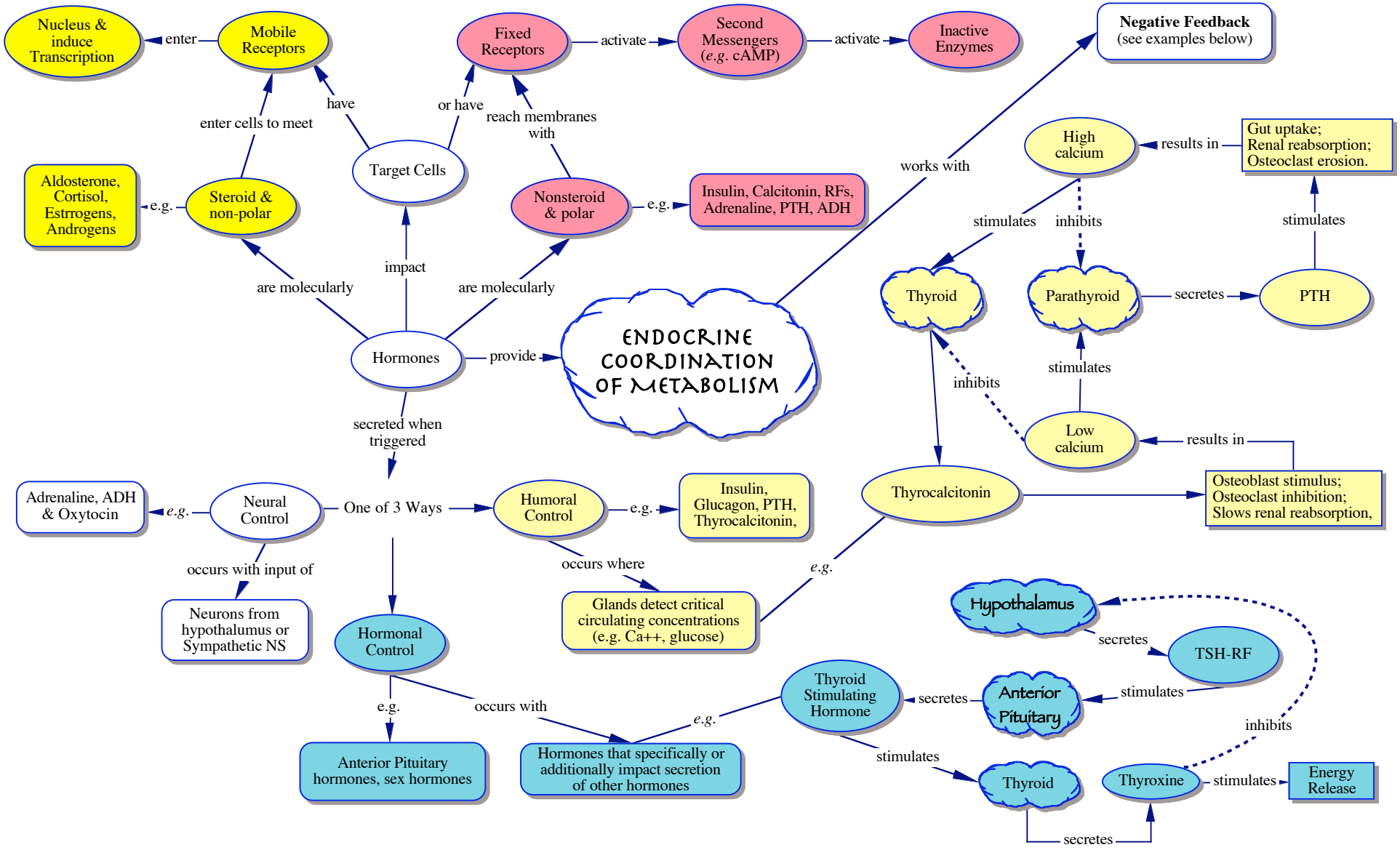
ENDOCRINE COORDINATION OF METABOLISM
Hormones
provide
Target Cells
have
or have
impact
Mobile Receptors
enter
Nucleus & induce Transcription
enter cells to meet
Steroid & non-polar
e.g.
Aldosterone, Cortisol, Estrogens, Androgens
are molecularly
Fixed Receptors
activate
Second Messengers (e.g. cAMP)
activate
Inactive Enzymes
reach membranes with
Nonsteroid & polar
e.g.
Insulin, Calcitonin, RFs, Adrenaline, PTH, ADH
are molecularly
secreted when triggered
One of 3 Ways
Neural Control
e.g.
Adrenaline, ADH & Oxytocin
occurs with input of
Neurons from hypothalumus or Sympathetic NS
Humoral Control
e.g.
Insulin, Glucagon, PTH, Thyrocalcitonin,
occurs where
Glands detect critical circulating concentrations (e.g. Ca++, glucose)
Hormonal Control
e.g.
Anterior Pituitary hormones, sex hormones
occurs with
Hormones that specifically or additionally impact secretion of other hormones
e.g.
Negative Feedback (see examples below)
works with
Thyrocalcitonin
e.g.
Thyroid
inhibits
Low calcium
results in
Osteoblast stimulus; Osteoclast inhibition; Slows renal reabsorption,
High calcium
results in
Gut uptake; Renal reabsorption; Osteoclast erosion.
stimulates
inhibits
Parathyroid
secretes
PTH
stimulates
stimulates
Hypothalamus
secretes
TSH-RF
stimulates
Anterior Pituitary
secretes
Thyroid Stimulating Hormone
stimulates
Thyroid
secretes
Thyroxine
inhibits
stimulates
Energy Release