

The Endocrine System (TB ch. 39, p. 997)

While neurons are good for cell to cell communication, the endocrine system creates hormones, which it pumps into the bloodstream to create a body-wide communication system.

Hormones are travelling chemicals that affect the function of various organs and cells.

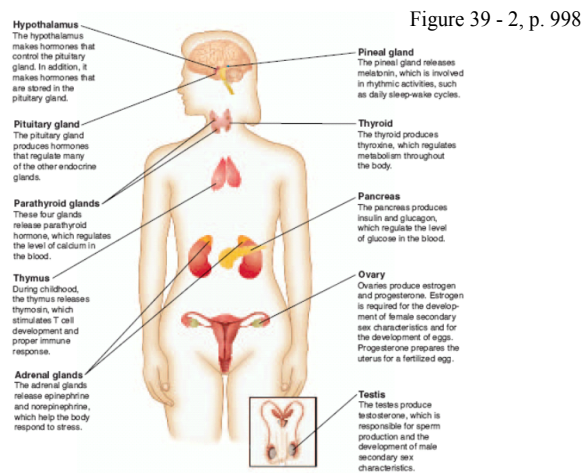
Target cells have special receptors on their cell membranes to which specific hormones can bind, thus activating a particular process.

Glands of the System

Glands are organs that secrete chemical substances into the body.

There are 2 types of glands:

- 1) Exocrine glands: - secrete hormones via ducts (small tubes) directly into intended organs.
- 2) Endocrine glands: - secrete hormones into bloodstream.



Using the information on page 998, fill in the following table:

Gland	Function	Hormone secreted

Correction

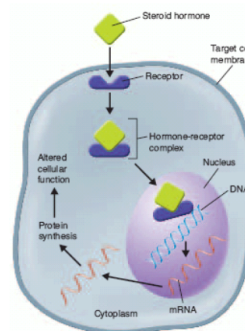
Hormones

There are 2 main groups of hormones:

- 1) steroid hormones (made from cholesterol)
- 2) non-steroid hormones (proteins, peptides and amino acids)

Steroid Hormones:

- Can pass directly through cell membrane.
- Binds to receptor of target cell to create a hormone-receptor complex.
- Complex enters cell nucleus and binds to DNA control sequence.
- Specific gene transcription is initiated.
- Proteins are created as a result.



Steroid hormones can turn on and off genes, and thus can alter gene expression.

Non-steroid hormones

- cannot cross cell membrane and will generally bind to a receptor on the cell's surface.
- This binding action activates an internal enzyme.
- The enzyme facilitates the actions of a secondary (internal) messenger which can activate or inhibit cell processes.

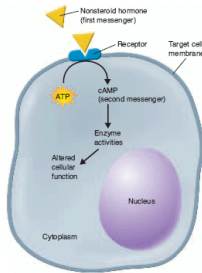


Figure 39 - 3, p. 999

Local Hormones

Local hormones, or prostaglandins, are not produced by glands, but instead by cells themselves.

These hormones act locally on neighboring cells and tissues.

- ex:
- smooth muscle contractions in the intestine
 - headache pain

Attachments

Major Endocrine Glands (Correction).pdf