Hormones are chemical messengers produced by numerous glands of the endocrine system (see diagram). Hormones travel through the bloodstream and take information from one part of the body to another. They only produce responses through a receptor site of the target cells.

Hormones and the endocrine system represent an organism’s homeostatic control system (analogous to a thermostat controlling room temperature) that uses negative feedback to regulate the rate of hormone production. That is, hormones help the body respond to environmental changes that it constantly faces within the body and outside the body. Hormones keep the body in a balanced, steady state. And, as humans are genetically unique organisms living in unique environmental conditions, each human has a unique level of hormones that change from day to day and over time and space.

The level of hormones circulating in the blood is tightly controlled by three homeostatic mechanisms:

1. When one hormone stimulates the production of a second, the second suppresses the production of the first.
2. Antagonistic pairs of hormones.
3. Hormone secretion is increased or decreased by the same substance whose level is decreased or increased by the hormone.

Examples of hormonal regulation/stimulation/inhibition

- Mental activity and neurons
- Changes in environment like light or temperature
- Other hormonal activity
- Plasma concentrations of ions or nutrients

Four Classes of Hormones

- Amine hormones are derived from amino acids.
  Examples: adrenaline, serotonin and dopamine
- Peptide hormones consist of chains of amino acids, also known as proteins.
  Examples: insulin and growth hormone
- Steroid and sterol hormones are derived from cholesterol.
  Examples: testosterone, estrogen and cortisol
- Lipid hormones are derived from lipids and phospholipids.
  Examples: prostaglandin and thromboxane