

Questions

1. What is a hormone? [K/U](#)
2. Name and describe the two most common types of hormones, classified according to their molecular structure. [K/U](#)
3. What are the two main mechanisms that hormones use to produce their effects in target cells? [K/U](#)
4. If a particular hormone, such as the hormone that stimulates the development of facial hair, is released throughout the bloodstream, why does it not affect all the cells in the same way? [K/U](#) [T/I](#)
5. Use a graphic organizer to compare and contrast the endocrine system's methods of controlling and regulating processes in the body with the nervous system's methods. [K/U](#) [C](#)
6. Testosterone is a hormone derived from cholesterol. Explain how you would expect testosterone to perform its intended action in a cell. [T/I](#)
7. Research a hormone whose path was not explained in this section, such as cholecystokinin (CCK), insulin, progesterone, or estrogen. Create a flow chart to explain its pathway. [K/U](#) [T/I](#) [C](#)
8. Osteoporosis is a loss of bone tissue usually associated with aging. Research the hormone calcitonin and its use as a therapy and preventive agent for osteoporosis. Summarize your findings in a report. You are free to choose the format for your report. For example, you could choose to do a written report, an oral presentation, or a slide show. [T/I](#) [C](#) [A](#)
9. Why does the imbalance of a particular hormone affect the entire body and cause so many different symptoms? [K/U](#)
10. Steroid hormones bind to receptors inside cells. Why can steroid hormones diffuse into a cell while protein hormones cannot? [K/U](#)
11. Use a t-chart to contrast the ways in which steroid and protein hormones
 - (a) interact with cell membranes
 - (b) get messages into cells
 - (c) cause chemical reactions
 - (d) make products [K/U](#) [C](#)
12. How are the target cell's activities changed if a gland produces too much of a particular hormone? Support your answer with an example. [K/U](#)

1. **Hormones are chemical messengers allowing communication throughout the body.**
2. **Steroid – cholesterol base**
Protein – amino acid base
3. **Steroid hormones are fat soluble and can usually pass-through cell membranes using receptors located inside the cell to control gene expression**
Protein hormones are water soluble so rely on receptors in the cell membranes and secondary messengers (usually cAMP) to cause changes inside the cell – ie. gene expression, activating deactivation of proteins...
4. **Hormones have specific receptors. Only target cells with appropriate receptors will respond to the presence of a specific hormone.**
6. **It would pass through the cell membrane since it is hydrophobic and bind to a steroid hormone receptor inside the cell. The hormone-receptor complex will then bind to a control sequence of a gene leading to activation or inhibition of expression (transcription).**
10. **They are hydrophobic as are the fatty acid tails of the phospholipids making up the cell membrane. Since like dissolves like, the cholesterol based steroid hormone can pass through the hydrophobic portion, which is the largest part), of the membrane relatively easily.**