

SELF-TEST

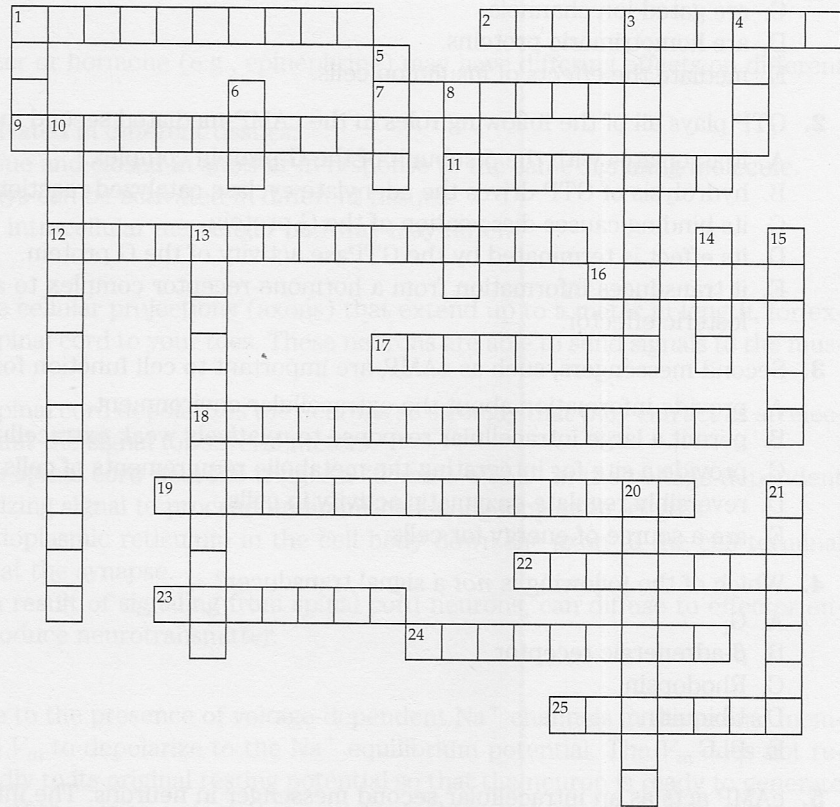
Do You Know the Terms?

ACROSS

- This protein mediates many of the actions of the intracellular messenger Ca^{2+} .
- The G protein that transduces light signals into an electrical signal in the vertebrate rod.
- This is necessary for the cellular reception of all biologically relevant signals.
- Activation of signaling pathways often results in the phosphorylation of specific cellular proteins; signaling in this type of pathway can be reversed through the actions of this class of enzyme.
- Ion _____ provide a thermodynamically favorable route for the movements of ions across the lipid bilayer.
- The direction in which Na^+ ions move through voltage-dependent ion channels is determined by the _____ potential, which is a combination of the chemical and charge gradients that exist across the cell membrane.
- The insulin receptor can also be classified as this type of enzyme.
- "Regulates the Cell Cycle" describes the normal function of this class of mutant gene.
- One way to reduce a cell's response to an extracellular signal is to reduce the ability of the cell's receptors to respond to the signal; a process referred to as _____.
- In neurons, a(n) _____ is initiated by a localized redistribution of ions across the cell membrane, resulting in a shift of V_m to more positive values. (2 words)
- GTP-binding transducer molecule. (2 words)
- The channels that permit entry of Na^+ and initiates an action potential is an example of a(n) _____-gated channel.
- When phosphorylated, the β -adrenergic receptor binds this protein, arresting the flow of information through this signaling pathway. (2 words)
- Hormonal signals in the circulatory system of vertebrates are usually found in relatively low concentrations. These weak extracellular signals are usually amplified inside the cell as a result of an enzyme _____.

DOWN

- The activation of $\text{Gs}\alpha$ by epinephrine results in the production of this second messenger.
- The β -adrenergic receptor is one example of this class of integral membrane protein receptor that contains multiple membrane-spanning regions.
- The receptor-enzyme complex that synthesizes this second messenger molecule can be found either in the cytosol or associated with the membrane of cells. (abbr.)



- Extracellular signals that are lipid soluble bind to intracellular receptors. The resulting complex then influences gene expression by binding to specific regulatory sequences in DNA called _____ (abbr.)
- G protein-mediated activation of phospholipase C results in the production of two intracellular second messengers, IP_3 and _____ (abbr.)
- The R subunit is to PKA as _____ is to CDK.
- When V_m changes to a more negative value a cell is said to be _____.
- The process of converting a light stimulus into an electrical signal in neurons or a hormonal signal into altered cellular metabolism in hepatocytes are examples of signal _____.
- A protein kinase that regulates the β -adrenergic receptor. (abbr.)
- IP_3 , cAMP, cGMP, and Ca^{2+} are all examples of _____ messengers.
- Ducks do not form distinct claws during embryogenesis, as do most other birds; this is because the cells present between the forming toe bones do not experience programmed cell death or _____.
- The cell membranes of most neurons do not actually touch; usually there is a small space between them called a(n) _____ through which neurotransmitters must diffuse.