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Cellular Communication Vocabulary Crossword Match the word to the definition.

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| **Across****4.** Messenger of neurologic information from one cell to another.**5.** Occurs when endocrine cells release hormones that act on distant target cells in the body.**16.** Monetary value of all the finished goods and services produced within a country's borders in a specific time period. **18.** Process of programmed cell death that occurs in multicellular organisms. **19.** System of stimuli and response correlated to population density.**24.** Generated by one of the enzymes in the citric acid cycle.**27.** Guanine nucleotide-binding proteins, are a family of proteins that act as molecular switches inside cells, and are involved in transmitting signals from a variety of stimuli outside a cell to its interior.**28.** Crucial regulators of many key signaling pathways.**29.** Molecules that relay signals received at receptors on the cell surface — such as the arrival of protein hormones, growth factors, etc. — to target molecules in the cytosol and/or nucleus. | **Down****1.** Process by which foreign DNA is introduced into a cell by a virus or viral vector.**2.** A set of chemical reactions in a cell that occurs when a molecule, such as a hormone, attaches to a receptor on the cell membrane.**3.** Strengthening of stimulus energy during transduction.**6.** Ionotropic receptors, are a group of transmembrane ion channel proteins which open to allow ions such as Na+, K+, Ca2+, and/or Cl− to pass through the membrane in response to the binding of a chemical messenger, such as a neurotransmitter.**7.** The high-affinity cell surface receptors for many polypeptide growth factors, cytokines, and hormones.**8.** Seven-transmembrane domain receptors, 7TM receptors, heptahelical receptors, serpentine receptor, and G protein–linked receptors (GPLR), constitute a large protein family of receptors, that detect molecules outside the cell and activate internal signal transduction pathways and, ultimately, cellular responses. **9.** Similar to paracrine signaling but there is a special structure called the synapse between the cell originating and the cell receiving the signal.**10.** Sequence of events where one enzyme phosphorylates another, causing a chain reaction leading to the phosphorylation of thousands of proteins. **11.** An enzyme that removes a phosphate group from the phosphorylated amino acid residue of its substrate protein.**12.** Convert (a substance, molecule, etc.) into a reactive form.**13.** Form of cell-to-cell communication in which a cell produces a signal to induce changes in nearby cells, altering the behavior or differentiation of those cells.**14.** The transferring of phosphoryl group from a donor to the recipient molecule.**15.** A common biochemical process in which a phosphate group is removed from an organic compound through hydrolysis.**17.** The bulging out of a part of a cell below the plasma membrane or expansion of air-filled tissue, as occurs in the lungs in bullous emphysema.**20.** Target cell's detection of a signal via binding of a signaling molecule, or ligand.**21.** Kinase enzyme that modifies other proteins by chemically adding phosphate groups to them (phosphorylation).**22.** Any behavior of a living organism that results from an external or internal stimulus.**23.** Can control different processes in the cell including the cell cycle.**25.** A chemical substance produced in the body that controls and regulates the activity of certain cells or organs. **26.** Substance that forms a complex with a biomolecule to serve a biological purpose. |