



## Editorial Note

# New trends in the field of biotechnology

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### DESCRIPTION

Current research works in International Journal of Biochemistry and Biotechnology is a new primary research for tomorrow's innovations.

### Current Research

Signal transduction is a process of extracellular signalling, by binding the extracellular ligands to trans-membrane receptors, which is responsible to create a response. Programmed cell death, mutation, phosphor-transferase action, phosphorylation, reactive oxygen species formations are the examples for the signal transduction.

In cellular biology, membrane transportation is the collection of mechanisms that regulate the passage of solutes such as small molecules and ions through biological membranes. These membranes are lipid bilayers that contain proteins embedded in them. Based on the chemical nature and the principle of membrane permeability there is an exchange of molecules and ions takes place. They can be permeable to certain substances but not to others. The movements of most solutes through the membrane are mediated by membrane transport proteins which are specialized to specific molecules transportation. This differential expression of proteins is regulated by the gene through the process of translation. For instance, through genetic-molecular mechanisms, but also at the cell biology level: the production of these proteins can be activated by cellular signalling pathways, at the biochemical level, or even by being situated in cytoplasmic vesicles.

Cells consist of cytoplasm enclosed within a membrane; it consists of many biomolecules such as proteins and nucleic acids. Most of plant and animal cells are visible under a light microscope only. Electron microscopy shows detailed cell structure with higher resolution. Organisms can be classified as unicellular or multicellular. Most

unicellular organisms are classified as microorganisms. Biotechnology uses techniques to produce genetically modify crops; cloning; to produce and ensure high quality food is available at lower costs; to produce purer medicines and in time organs for people who need transplants.

Proteins have the unique structure, the uniqueness in structure and folding determines its function. Proteins are not static objects, but rather populate ensembles of conformations. The study of protein dynamics is most directly concerned with the transitions between these states, but can also involve the nature and equilibrium populations of the states themselves. Folding pattern defines the type of protein production.

Molecular medicine is a new scientific discipline; it is a bridge between the two subject's contemporary medical studies and biochemistry. It develops ways to diagnose and treat the disease by understanding the gene functions and its mechanisms, proteins, and other cellular molecules work. Molecular medicine is based on research that shows how genes express and regulates the mechanism, molecules, and cellular functions may become abnormal in diseases such as cancer. Disease prevention and treatment, synthesis of new proteins, and manipulation desired phenotypic traits of plants and animals are the applications in the field of molecular medicine.

Microbiology includes fundamental researches like biochemistry, cell biology, evolution, ecology and clinical aspects of microorganisms, physiology, including the host response to these agents. Bacteria, viruses, fungi, prions, protozoa and algae are collectively included under category of microorganisms. These microbes play key roles in biodegradation/bio-deterioration, nutrient cycling, environmental change, food spoilage, control of illness, and biotechnology. Their versatility can be put to work in many ways: making life-saving drugs, production of biofuels, cleaning up contamination, and producing/processing food and drink.