Journal Of Harmonized Research (JOHR)

Journal of Harmonized Research in Medical and Health Science 8(2), 2021, 08-09

ISSN 2454-5384

Commentary

BASIC STUDY OF CELL BIOLOGY

Andrew Rubens*

Department of Health Studies, University of Columbia, New York, USA

DESCRIPTION

Cell biology is a branch of biology that studies the structure, function and behavior of cells. All living organisms are made of cells. A cell is the basic unit of life that's responsible for living and functioning of organisms. Cell biology is the study of structural and functional units of cells. Cell biology encompasses both prokaryotic and eukaryotic cells and has numerous subtopics which may include the study of cell metabolism, cell communication, cell cycle, biochemistry, and cell composition. The study of cells is performed using several microscopy ways, cell culture, and cell fractionation. These have allowed for and are presently being used for discoveries and exploration pertaining to how cells serve, eventually giving insight into understanding larger organisms. Knowing the components of cells and how cells work is fundamental to all biological sciences while also being essential for exploration in biomedical fields similar as cancer, and other diseases. Research in cell biology is interconnected to other fields such as genetics, molecular genetics, molecular biology, medical microbiology, immunology, and cytochemistry.

Cell biology research looks at different ways to culture and manipulate cells outside of a living body to further research in human anatomy and physiology, and to derive medications. The ways by which cells are studied have evolved. Due to advancements in microscopy, ways and technology have allowed for scientists to hold a better understanding of the structure and function of cells.

Cell culture utilizes rapidly growing cells on media which allows for a large amount of a specific cell type and an effective way to study cells. Cell culture is one of the major tools used in cellular and molecular biology, providing excellent model systems for studying the normal physiology and biochemistry of cells (e.g., metabolic studies, aging), the effects of medicines and toxic compounds on the cells, and mutagenesis and carcinogenesis. It's also used in medicine webbing and development, and large scale manufacturing of natural composites

Fluorescence microscopy Fluorescent markers such as GFP are used to label a specific component of the cell. Afterwards, a certain light wavelength is used to excite the fluorescent marker which can also be imaged. Phase-discrepancy microscopy uses the optic aspect of light to represent the solid, liquid, and gas phase changes as brightness differences Confocal microscopy combines fluorescence microscopy with imaging by focusing light and snap shooting cases to form a 3-D image. Transmission electron microscopy Involves metal staining and the passing of electrons through the cells, which will be veered upon interaction with metal. This ultimately forms an image of the components being studied. Cytometry The cells are placed in the machine which uses a ray to scatter the cells grounded on different aspects and can thus separate them grounded on size and content. Cells may also be tagged with GFP-fluorescence and can be separated that way as well. Cell Separation This process requires breaking up the cell using high temperature or signification followed by centrifugation to separate the parts of the cell allowing for them to be studied independently.

There are two fundamental groups of cells prokaryotic and eukaryotic. Prokaryotic cells are distinguished from eukaryotic cells by the absence of a cell nucleus or other membrane-bound organelle. Prokaryotic cells are much lower than eukaryotic cells, making them the lowest form of life. Prokaryotic cells include Bacteria and Achaea, and warrant an enclosed cell nucleus. Eukaryotic cells are found in plants, creatures, fungi, and protists. They range from 10-100 µm in diameter, and their DNA is contained within a membrane-bound nucleus. Eukaryotes are organisms containing eukaryotic cells. The four eukaryotic kingdoms are animal, planate, fungi, and Protista.

For Correspondence:

a.rubens@gmail.com

Received on: December 02, 2021

Accepted after revision: December 16, 2021

CONCLUSION

They both reproduce through binary fission. Bacteria, the most prominent type, have several different shapes, although most are globular or rod-shaped. Bacteria can be codified as either gram-positive or gram-negative depending on the cell wall composition. Gram-positive bacteria have a thicker peptidoglycan subcaste than gram-negative bacteria. Bacterial structural features include a flagellum that helps the cell to move, ribosomes for the restatement of RNA to protein, and a nucleoid that holds all the inheritable material in an indirect structure. There are numerous processes that do in prokaryotic cells that allow them to survive. In prokaryotes, mRNA synthesis is initiated at a promoter sequence on the DNA template comprising two consensus sequences that recruit RNA polymerase. The prokaryotic polymerase consists of a core enzyme of four protein subunits and a σ protein that assists only with initiation. For instance, in a process nominated conjugation, fertility factor allows the bacteria to retain a pilus which allows it to transmit DNA to other bacteria which lacks the F factor, permitting the transmittance of resistance allowing it to survive in certain surroundings.