Journal of Biochemistry and Cell Biology

Guo, J Biochem Cell Biol 2021, 4:2

Editorial Open Access

Cell Biology and Types

Ming Guo*

Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA.

***Corresponding author: Ming Guo, Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA, E-mail: guom@mit.edu**

Received date: July 09, 2021; **Accepted date:** July 23, 2021; **Published date:** July 30, 2021

INTRODUCTION

Cell biology (also cellular biology or cytology) is a branch of biology that studies the structure, function and behavior of cells. Cell biology encompasses both prokaryotic and eukaryotic cells and can be divided into many sub-topics which may include the study of cell metabolism, cell communication, cell cycle, biochemistry, and cell composition. The study of cells is performed using several techniques such as cell culture, various types of microscopy, and cell fractionation. These have allowed for and are currently being used for discoveries and research pertaining to how cells function, ultimately 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 research in biomedical fields such as cancer, and other diseases. Research in cell biology is interconnected to other fields such as genetics, molecular genetics, biochemistry, molecular biology, medical microbiology, immunology, and cytochemistry.

Cells are the basic building blocks of living things. The human body is composed of trillions of cells, all with their own specialized function. Cells are the basic structures of all living organisms; Cells provide structure for the body, take in nutrients from food and carry out important functions. Cells group together to form tissues?, which in turn group together to form organs?, such as the heart and brain. Our cells contain a number of functional structures called organelles? These organelles carry out tasks such as making proteins? processing chemicals and generating energy for the cell the nucleus? Is based at the centre of the cell and is the ‘control room’ for the cell the genome? Is found within the nucleus cells were first seen in 17th century Europe with the invention of the compound microscope. In 1665, Robert Hooke termed the building block of all living organisms as "cells" after looking at a piece of cork and observing a cell-like structure, however, the cells were dead and gave no indication to the actual overall components of a cell. A few years later, in 1674, Anton Van Leeuwenhoek was the first to analyze live cells in his examination of algae. All of this preceded the cell theory which states that all living things are made up of cells and that cells are the functional and structural unit of organisms.

This was ultimately concluded by plant scientist, Matthias Schneider and animal scientist Theodor Schwann in 1838, who viewed live cells in plant and animal tissue, respectively.19 years later, Rudolf Virchow further contributed to the cell theory, adding that all cells come from the division of pre-existing cells. Although widely accepted, there have been many studies that question the validity of the cell theory. Viruses, for example, lack common characteristics of a living cell, such as membranes, cell organelles, and the ability to reproduce by themselves. Scientists have struggled to decide whether viruses are alive or not and whether they are in agreement with the cell theory. Active Transport is the biological process in which molecules move against the concentration gradient and require chemical energy to move biochemical compounds from a lower region to the high region. Therefore, this process uses ATP – Adenosine triphosphate to pump molecules through a concentration gradient.

Complex sugar, ions, large cells, proteins and other particles are transported in this process. Passive transport is a type of membrane transport that does not require energy to move substances across cell membranes. Instead of using cellular energy, like active transport, passive transport relies on the second law of thermodynamics to drive the movement of substances across cell membranes. Fundamentally, substances follow Fick's first law, and move from an area of high concentration to one of low concentration because this movement increases the entropy of the overall system. The rate of passive transport depends on the permeability of the cell membrane, which, in turn, depends on the organization and characteristics of the membrane lipids and proteins. The four main kinds of passive transport are simple diffusion, facilitated diffusion, filtration, and/or osmosis.