Advanced Techniques in Biology & Medicine

OPEN ACCESS Freely available online

Commentary

Commentary on Cell Biology - A Fundamental Unit of Life

Zhao Chan*

Department of Cell Biology, Tsinghua University, Beijing, China

The cell (from Latin cellula, which means "little room") is the fundamental structural, functional, and biological unit of all living things. The lowest unit of life is the cell. As a result, cells are frequently referred to as the "building blocks of life." The study of cells is known as cell biology (sometimes known as cellular biology or cytology). The 1830s might be regarded the beginning of this discipline. Despite the fact that scientists had been using microscopes for centuries, they didn't always know what they were looking at. In 1665, Robert Hooke saw plant-cell walls in slices of cork, which was quickly followed by Antonie van Leeuwenhoek's first descriptions of living cells with clearly moving components [1].

In the 1830s, two colleagues — Schleiden, who studied plant cells, and Schwann, who studied animal cells initially — established the first unambiguous description of the cell. All living organisms, whether simple and complex, are made up of one or more cells, and the cell is the structural and functional unit of life, according to their definition — a notion that became known as cell theory. Modern cell biology study examines several methods for cultivating and manipulating cells outside of a living organism in order to advance human anatomy and physiology studies and to develop medicines. Cell biology was largely ignored during the time when philosophy of science was primarily concerned with laws [2].

Although helpful generalisations are crucial to cell biologists, they are rarely referred to as laws. More philosophers of science have shifted their focus to the practises of cell biology since turning their attention from laws to processes, from representational realism to models and their functioning, and from ideas and theories to experiments and instruments. These activities are problematic from an epistemological standpoint.

Because cells are mainly tiny, they bring up old philosophical questions about the status of unobservables and the reliability of evidence. Because one of the primary goals of cell biology is to link activities (such as biochemical processes) to cell structures, cell scientists must not only observe but also physically alter cells and their constituent structures in order to produce useful representations. As a result, philosophers may learn a lot from their actions. Cell biology is divided into numerous subfields. The study of cell energy and the molecular systems that enable cell metabolism is one such example [3].

Because cells are machines in and of themselves, the study of cell energy intersects with the study of how energy originally emerged billions of years ago in primordial cells. Another branch of cell biology is cell genetics, which is closely linked to the proteins that govern the transfer of genetic information from the nucleus to the cytoplasm. Another branch focuses on the structure of subcellular compartments, which are cell components.

The extra area of cell biology, which is concerned with cell communication and signalling, focuses on the signals that cells deliver to and receive from other cells and themselves, cuts across many scientific disciplines. Finally, there is the subfield that is largely concerned with the cell cycle, which is the rotation of phases that begins and ends with cell division and is focused on various stages of growth and DNA replication. As our capacity to examine cells in more complicated ways grows, many cell biologists work at the intersection of two or more of these subfields [4].

The nucleus contains the majority of the genetic information in the cell, which is stored within the chromosomes (mitochondria also carry some DNA of their own). Cell biology is concerned with the microscopically apparent stages of cell division during mitosis and meiosis, whereas molecular biology is concerned with the actual submicroscopic activity of DNA replication and protein synthesis. Systems biology has made it possible to ask and answer increasingly complicated issues in the area of cell biology, such as the interrelationships of gene regulation networks, evolutionary connections between genomes, and interactions between intracellular signalling networks. Finally, the more wide a lens we use to our cell biology findings, the more likely we are to comprehend the complexity of all biological systems, great and tiny [5].

REFERENCES

1. Schopf JW, Kudryavtsev AB, Czaja AD, Tripathi AB. Evidence of Archean life: stromatolites and microfossils. Precambrian Res. 2007;158(3-4):141-155.
2. Griffiths AJ, Miller JH, Suzuki DT, Lewontin RC, Gelbart WM. Bacterial conjugation. InAn Introduction to Genetic Anal. 7th edition 2000. WH Freeman.
3. Avise JC. Perspective: The evolutionary biology of aging, sexual reproduction, and DNA repair. Evolution. 1993;47(5):1293-1301.
4. Satir P, Christensen ST. Structure and function of mammalian ciliaHistochem. Cell Biol. 2008;129(6):687-93.
5. Blair DF, Dutcher SK. Flagella in prokaryotes and lower eukaryotes. Curr Opin Genet Dev. 1992;2(5):756-767.

***Correspondence to:** Zhao Chan, Department of Cell Biology, Tsinghua University, Beijing, China Email- Chan@tsinghua.edu.cn

Received: 06 September 2021; **Accepted:** 19 September 2021; **Published:** 25 September 2021

Citation: Chan Z (2021) Commentary on Cell Biology - A Fundamental Unit of Life. Adv Tech Biol Med. 9:322. doi: 10.4172/2379-1764.1000322