

# Insights in to the cancer biology and future therapies.

Rubis Noriyo\*

Department of Biology, Sichuan University, Sichuan, China

## Introduction

Cancer is a complex and devastating disease that has impacted millions of people worldwide. In basic terms, cancer occurs when normal cells in the body undergo mutations and start to divide and grow uncontrollably, forming a mass of abnormal cells known as a tumor. Cancer is a disease that can be caused by a combination of genetic, environmental, and lifestyle factors. While the exact cause of cancer is not fully understood, there are several factors that can increase the risk of developing the disease. One of the primary risk factors for cancer is age. As we get older, our cells are more likely to develop mutations that can lead to cancer. Other risk factors include exposure to carcinogens, such as tobacco smoke, radiation, or certain chemicals, as well as a family history of cancer, a weakened immune system, and unhealthy lifestyle choices, such as a poor diet, lack of exercise, and obesity [1].

## The biology of cancer

Cancer biology is the study of the biological processes that drive the formation and growth of cancer. At the core of cancer biology is the idea that normal cells undergo genetic mutations that allow them to grow and divide uncontrollably. These mutations can be caused by a variety of factors, including exposure to carcinogens, genetic predisposition, and lifestyle choices.

Once a cell undergoes a mutation that allows it to grow uncontrollably, it begins to form a mass of abnormal cells known as a tumor. As the tumor grows, it can begin to invade nearby tissues and organs, spreading the cancer throughout the body in a process known as metastasis. Cancer cells have a number of unique properties that make them different from normal cells. For example, cancer cells are able to divide and grow at a much faster rate than normal cells, and they are often able to evade the body's natural immune defenses. Cancer cells also have the ability to stimulate the growth of new blood vessels to supply them with nutrients and oxygen, a process known as angiogenesis [2].

## Cancer treatment strategies

Because cancer is such a complex disease, treatment strategies can vary depending on the type and stage of the cancer. Some common cancer treatments include surgery, radiation therapy, chemotherapy, and targeted therapy. Surgery is often used to remove the tumor and any surrounding tissue that may be affected. Radiation therapy uses high-energy radiation to kill cancer cells, while chemotherapy uses drugs to kill cancer cells

throughout the body. Targeted therapy is a newer approach that uses drugs to target specific molecules that are involved in the growth and spread of cancer cells.

One of the biggest challenges in treating cancer is the fact that cancer cells can become resistant to treatment over time. This is due in part to the fact that cancer cells are able to mutate and evolve rapidly, making them more difficult to target with traditional therapies. Additionally, cancer cells can often hide from the body's natural immune defenses, allowing them to continue to grow and spread even in the presence of treatment [3].

## New developments in cancer research

Despite the challenges associated with treating cancer, there have been a number of promising developments in cancer research in recent years. For example, immunotherapy is a relatively new approach to cancer treatment that involves using the body's own immune system to target and kill cancer cells. CAR T-cell therapy is a type of immunotherapy that involves engineering a patient's own immune cells to target and kill cancer cells.

Another area of cancer research that shows promise is the development of targeted therapies that are tailored to a patient's specific genetic makeup. By analyzing a patient's tumor DNA, doctors can identify specific mutations that are driving the growth of the cancer. This information can then be used to develop drugs that target these specific mutations, allowing for more effective and personalized cancer treatment [4].

## The future of cancer biology

As cancer biology continues to evolve, researchers are hopeful that new treatments and therapies will emerge that can better target and treat the disease. In particular, advances in technology such as artificial intelligence and genomics are likely to play a major role in shaping the future of cancer research. For example, machine learning algorithms can be used to analyze large datasets of patient information, identifying patterns and correlations that can help guide treatment decisions [5].

## References

1. Armitage P, Doll R. The age distribution of cancer and a multi-stage theory of carcinogenesis. *Br J Cancer*. 2004;91(12):1983-9.
2. Cannataro VL, Townsend JP. Neutral theory and the somatic evolution of cancer. *Mol Biol Evol*. 2018;35(6):1308-15.

\*Correspondence to: Rubis Noriyo. Department of Biology, Sichuan University, Sichuan, China, E-mail: rubis.noriyo@nm.org

Received: 29-Mar-2023, Manuscript No. AAJCIT-23-94461; Editor assigned: 31-Mar-2023, Pre QC No. AAJCIT-23-94461(PQ); Reviewed: 14-Apr-2023, QC No. AAJCIT-23-94461;

Revised: 19-Apr-2023, Manuscript No. AAJCIT-23-94461(R); Published: 26-Apr-2023, DOI: 10.35841/aajcit-6.2.139

3. Massie CE, Lynch A, Ramos-Montoya A, et al. The androgen receptor fuels prostate cancer by regulating central metabolism and biosynthesis. *EMBO J.* 2011;30(13):2719-33.
4. Taylor BS, Schultz N, Hieronymus H, et al. Integrative genomic profiling of human prostate cancer. *Cancer cell.* 2010;18(1):11-22.
5. Williams MJ, Werner B, Barnes CP, et al. Identification of neutral tumor evolution across cancer types. *Nat Genet.* 2016;48(3):238-44.