

Frontier research of nucleotide-related biomarkers in breast cancer

Guest Editor(s)

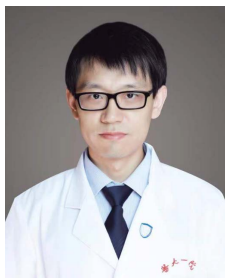


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Dear Colleagues,

Breast cancer is the most common cancer in women worldwide. Data from the Global Cancer Statistical Report shows that in 2020, breast cancer in women surpassed lung cancer for the first time to become the most common cancer in the world, with an estimated 2,261,419 new cases. At the same time, breast cancer is the fifth leading cause of cancer death globally, with 684,996 deaths. In recent years, the incidence and mortality of female breast cancer have risen sharply worldwide, and the burden of the disease has also increased, which has become a major global public health problem.

Nucleotides are the main building blocks of genetic material and are made up of purines (adenine and guanine) and pyrimidines (thymine, uracil, and cytosine). They are essential substances in DNA and RNA biosynthesis, cell signaling, enzymatic regulation and metabolism. Nucleotide metabolism in cancer cells is significantly higher than in normal cells, indicating that the replication and transcription of cancer cells' genetic material are enhanced considerably, providing favorable conditions for cancer cell proliferation and metastasis. Nucleotide synthesis ensures timely DNA replication, is essential for cancer cell proliferation, and is one of the critical elements of cancer metabolism. Therefore, nucleotide metabolism is a potential target for cancer therapy. Although many efforts targeting this attractive metabolic pathway have been reported, key enzymes' metabolic and regulatory mechanisms in nucleotide metabolism remain unclear. Exploring the critical molecules of nucleotides and the biological functions of nucleotide metabolism are expected to greatly improve cancer's clinical diagnosis and targeted therapy.

This special issue aims to organize original research and review articles exploring those promising nucleotide molecules and nucleotide metabolism-related anticancer targets, which may assist in the diagnosis and treatment of cancer, especially breast cancer, including experimental techniques and methods, as well as clinical validation and application.

Key Words: Breast Cancer; Nucleotides; Nucleotide Metabolism; Precision Medicine; Gene Therapy

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