



Recent Developments in Cancer Treatment

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DESCRIPTION

Cancer research has made remarkable progress and new discoveries are beginning to be made. For example, the discovery of immune checkpoint inhibition mechanisms in cancer cells has led to the development of immune checkpoint inhibitors that have benefited many cancer patients. In this review, we will introduce and describe the latest novel areas of cancer research: exosomes, microbiome, immunotherapy and organoids. Exosomes research will lead to further understanding of the mechanisms governing cancer proliferation, invasion, and metastasis, as well as the development of cancer detection and therapeutic methods. Microbiomes are important in understanding the disease. Immunotherapy is the fourth treatment for cancer. Organoid biology continues to evolve with the goal of transforming research into personalized therapies. These areas of research may lead to the development of new cancer therapies in the future.

Treatment, staging, and guidelines for cancer Syntheses offer clinicians with the necessary information to appropriately stage and treat most malignancies according to the most recent recommendations and guidelines.

Cancer progresses due to genetic and epigenetic processes. Local control of cancer is achieved with surgery and/or radiation, with systemic control achieved through combination chemotherapy. Ant hormonal medications that target the oestrogen receptor (breast cancer) and the testosterone receptor (prostate cancer) have proved successful in the past. The failure of current treatments due to the advent of genetic pathways of drug resistance has been the "Achilles heel" of cancer treatment.

- Drugs that lower cholesterol are linked to a better prognosis in triple-negative breast cancer patients.
- Prostate Cancer Blood Test Reduces the Need for MRI and Biopsy Screening
- Vitamin D intake is linked to a lower risk of early colon cancer.

In the cancer world, news is constantly breaking. It can be huge, like when a breakthrough medicine improves survival in a

difficult-to-treat malignancy. It is sometimes smaller. Any of this could be important to you and your families as you go through your cancer treatment. With a monthly compilation of some of the most important current cancer news, we try our best to keep you informed. Drugs that lower cholesterol are linked to a better prognosis in triple-negative breast cancer patients.

According to study published online on August 3 in the journal *Cancer*, statin medication, which is normally prescribed to assist lower cholesterol levels, may also enhance Overall Survival (OS) and Breast Cancer-Specific Survival (BCSS) for women diagnosed with Triple-Negative Breast Cancer (TNBC).

Details of research The Texas Cancer Registry-Medicare database and the Surveillance, Epidemiology, and End Results (SEER)-Medicare database were used to identify women aged 65 and younger who were diagnosed with stage 1-3 breast cancer between 2008 and 2015. The researchers found 2,281 women who had begun taking a statin within a year of their diagnosis, 1,543 of whom had also been diagnosed with TNBC. TNBC patients had a 30 percent better OS and a 58 percent better BCSS than women with other kinds of breast cancer, according to the findings. The findings also suggested that statin benefit may be greater in women with early-stage TNBC, and that the type of statin-specifically lipophilic statins like Zocor (simvastatin), Lipitor (atorvastatin), Mevacor (lovastatin), Lescol (Fluvastatin), and Livalo (pitavastatin)—had a statistically significant impact on improving survival.

According to the American Cancer Society, TNBC accounts for 10 to 15% of all breast cancers. TNBC cells do not respond to hormone therapy or targeted medication therapy because they lack progesterone or oestrogen receptors and do not overexpress the Human Epidermal Growth Factor Receptor 2 (HER2) protein. According to previous research, statins reduce the ability of breast cancer cells to divide and increase their inclination to self-destruct. While more research is needed, there may be a future role for statin therapy for TNBC.

Advantages for using organoids in cancer research

Organoid formation usually requires culturing stem cells or their

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progenitor cells in 3D. The morphological and functional properties of different types of cancer tissue are reproduced in organoids produced from single cell suspensions or cell aggregates. These suspensions or aggregates are isolated from mouse and human tissues or cultured cells, as well as cancer stem cells grown in culture. The structure of organoids reveals the potential for self-renewal, proliferation, and differentiation of cancer stem cells, and also provides insight into the role of molecular signaling pathways and niche factors essential to cancer

tissue. The organoid system is also used to study multiple biological processes, including motility, stress response, cell-cell interactions, and cell interactions involving various cell types such as fibroblasts, endothelial cells, and inflammatory cells. These interactions are mediated through cell surface molecules, extracellular matrix proteins, and receptors in the microenvironment under homeostatic and pathologic conditions.