

Pathology Summit 2018: Delving KS-01 as a novel therapeutic strategy in treating breast cancer - Sourav Taru Saha - Department of Biochemistry, University of the Witwatersrand, Johannesburg, South Africa.

Sourav Taru Saha

Department of Biochemistry, University of the Witwatersrand, Johannesburg, South Africa

Cancer cells have an increased need for cholesterol, which is necessary for the integrity of the cell membrane. Cholesterol accumulation has been described in various malignant tumors, including breast cancer. Cholesterol is also known to be the precursor of estrogen and vitamin D, both of which play a key role in the histology of breast cancer. Thus, the depletion of cholesterol levels in cancer cells is an innovative strategy proposed to treat cancer. Therefore, new cholesterol-depleting compounds are currently being studied. KS-01 is a cyclic amylose oligomer composed of glucose units. It solubilizes cholesterol and has been shown to be toxicologically benign in humans. This led us to speculate that it could deplete cholesterol from cancer cells and could prove to be a clinically useful compound. Our work provides preliminary experimental evidence to support this hypothesis. We identified the potency of KS-01 in vitro against two breast cancer cell lines: MCF-7 (Estrogen positive, ER +), MDA-MB-231 (Estrogen negative, ER-) and compared the results against two lines normal cells: MRC -5 (normal human pulmonary fibroblasts) and HEK-293 (normal human embryonic kidney cells) using cytotoxic analyzes, apoptosis and cholesterol. Treatment with KS-01 reduced intracellular cholesterol, resulting in significant inhibition of the growth of breast cancer cells by apoptosis. The results are valid for ER + and ER-. These data suggest that KS-01 might avert the accumulation of cholesterol in breast cancer cells and is a promising novel anticancer agent.

Breast cancer is cancer that arrangements in the cells of the breast. After skin cancer, breast cancer is the furthestmost commonly analyzed cancer in women in the United States. Breast cancer can ensue in men and women, but it is abundant more common in women. Cancer occurs when changes called mutations take place in the genes that regulate cell growth. Mutations allow cells to divide and multiply in an uncontrolled manner.

The balance of advantages and disadvantages of breast cancer screening is controversial. A 2013 Cochrane review revealed that it was unclear whether mammography screening did more harm than good, since a large proportion of women who tested positive were found not to have the disease. A 2009 review for the U.S. Preventive Services task force found evidence of benefit in those 40 to 70 years of age, and the organization recommends screening every two years for women 50 to 74 years of age. Tamoxifen or raloxifene can be used to prevent breast cancer in people at high risk of developing it. Surgical removal of both breasts is another preventive measure in some high-risk women. For those who have been diagnosed with cancer, a number of treatments can be used, including surgery, radiation therapy, chemotherapy, hormone therapy, and targeted therapy. The types of surgery vary from breast conserving surgery to mastectomy. Breast reconstruction can take place at the time of surgery or at a later date. For those in whom the cancer has spread to other parts of the body, treatment is mainly aimed at improving quality of life and comfort.

Breast cancer is cancer that develops in the cells of the breast. As a rule, cancer forms in the lobules or mammary ducts. The lobules are the glands that produce milk and the channels are the pathways that bring milk from the glands to the nipple. Cancer can also occur in the fatty tissue or fibrous connective tissue of your breast. Abandoned cancer cells habitually invade other healthy breast tissue and can travel to the lymph nodes under the arms. Lymph nodes are a primary route that helps cancer cells to travel to other parts of the body. See the photos and learn more about the structure of the breast.

Symptoms of breast cancer:

In its initial phases, breast cancer may not cause any symptoms. In many cases, a tumor may be too small to be felt, but an abnormality can still be seen on a mammogram. If a tumor can be manipulated, the first

symbol is typically a new lump in the breast that was not there before. However, not all lumps are cancerous. Each type of breast cancer can cause various symptoms. Many of these symptoms are similar, but some may be different. The most common symptoms of breast cancer include:

- breast growth or thickening of tissue that looks different from the surrounding tissue and has developed recently
- breast pain
- red, itchy skin all over your breast
- swelling of all or part of your breast
- a nipple discharge other than breast milk
- bloody discharge from your nipple
- peeling, peeling or peeling of the skin on the nipple or chest
- a sudden, unexplained change in the shape or size of your breast
- inverted nipple
- changes in the appearance of the skin on your breasts
- a lump or swelling under the arm

Types of breast cancer:

There are several types of breast cancer, and they are divided into two main categories: "invasive" and "non-invasive", or in situ. While offensive cancer has feast from the breast canals or glands to additional parts of the breast, non-invasive cancer has not spread from the original tissue.

Breast cancer is the most common invasive cancer in women and the second leading cause of death from cancer in women after lung cancer. Advances in breast cancer screening and treatment have dramatically improved survival rates since 1989. According to the American Cancer Society (ACS), there are more than 3.1 million breast cancer survivors in the United States. United. The probability of a woman dying from breast cancer is approximately 1 in 38 (2.6%). The ACS estimates that 268,600 women will be diagnosed with invasive breast cancer and 62,930 people will be diagnosed with non-invasive cancer in 2019. The same year, ACS reports that 41,760 women will die from cancer of the breast. Breast. However, due to advances

in treatment, death rates from breast cancer have decreased since 1989.

Awareness of symptoms and the need for screening are important ways to reduce the risk. In rare cases, breast cancer can also affect men, but this article will focus on breast cancer in women. Find out about breast cancer in men here.