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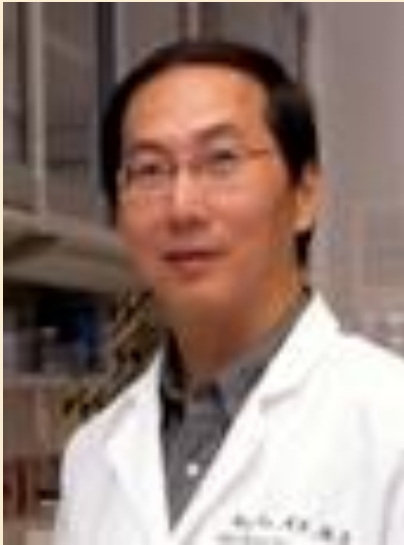
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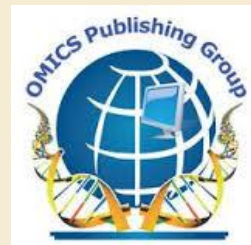
Ming Tan



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# BIOGRAPHY

Ming Tan, M.D., Ph.D., is an Associate Professor, an endowed research scholar, and the Director of Center for Cell Death and Metabolism Research at Mitchell Cancer Institute, University of South Alabama. Upon earning his Ph.D. degree in cancer biology from the University of Texas MD Anderson Cancer Center in 2000, he continued his research on the mechanisms of oncogene induced cancer progression and therapeutic resistance as a postdoctoral fellow. He joined the Faculty at Mitchell Cancer Institute at the University of South Alabama in 2007, where he directed a research program on metabolism and cancer, mechanism of cancer cell therapeutic resistance, invasion and metastasis, and microRNA in cancer development.

# RESEARCH INTEREST

- oncogene -mediated dysregulation of bioenergetic metabolism in cancer cells, breast cancer therapeutic resistance, signal transduction, and cancer progression/metastasis, metabolism and cancer, mechanism of cancer cell therapeutic resistance, and microRNA in cancer development.
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# INTRODUCTION

**The term “breast cancer” refers to a malignant tumor that has developed from cells in the breast.** Usually breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple. Less commonly, breast cancer can begin in the stromal tissues, which include the fatty and fibrous connective tissues of the breast.

Breast cancer is always caused by a genetic abnormality (a “mistake” in the genetic material). However, only 5-10% of cancers are due to an abnormality inherited from your mother or father. Instead, 85-90% of breast cancers are due to genetic abnormalities that happen as a result of the aging process and the “wear and tear” of life in general.



- **STAGES OF BREAST CANCER:**
- (0) Cancer cells remain inside the breast duct, without invasion into normal adjacent breast tissue
- (1A) The tumor measures up to 2 cm and the cancer has not spread outside the breast; no lymph nodes are involved
- (1B) There is no tumor in the breast; instead, small groups of cancer cells -- larger than 0.2 millimeter but not larger than 2 millimeters -- are found in the lymph nodes or there is a tumor in the breast that is no larger than 2 centimeters, and there are small groups of cancer cells -- larger than 0.2 millimeter but not larger than 2 millimeters -- in the lymph nodes

- 2(A) No tumor can be found in the breast, but cancer cells are found in the axillary lymph nodes or the tumor measures 2 centimeters or smaller and has spread to the axillary lymph nodes or the tumor is larger than 2 but no larger than 5 centimeters and has not spread to the axillary lymph nodes
- 2(B) The tumor is larger than 2 but no larger than 5 centimeters and has spread to the axillary lymph nodes OR the tumor is larger than 5 centimeters but has not spread to the axillary lymph nodes.
- 3(A) No tumor is found in the breast. Cancer is found in axillary lymph nodes that are sticking together or to other structures, or cancer may be found in lymph nodes near the breastbone the tumor is any size. Cancer has spread to the axillary lymph nodes, which are sticking together or to other structures, or cancer may be found in lymph nodes near the breastbone

. 3(A) The tumor may be any size and has spread to the chest wall and/or skin of the breast  
may have spread to axillary lymph nodes that are clumped together or sticking to other structures, or cancer may have spread to lymph nodes near the breastbone.

Inflammatory breast cancer is considered at least stage IIIB

3(C) There may either be no sign of cancer in the breast or a tumor may be any size and may have spread to the chest wall and/or the skin of the breast, the cancer has spread to lymph nodes either above or below the collarbone, the cancer may have spread to axillary lymph nodes or to lymph nodes near the breastbone.

4 The cancer has spread - or metastasized - to other parts of the body

# SIGNS AND SYMPTOMS

- Nipple tenderness or a lump or thickening in or near the breast or underarm area
- A change in the skin texture or an enlargement of pores in the skin of the breast
- **A CHANGE IN THE BREAST OR NIPPLE APPEARANCE**
- Any unexplained change in the size or shape of the breast
- Dimpling anywhere on the breast
- Unexplained swelling of the breast
- Unexplained shrinkage of the breast
- Recent asymmetry of the breasts
- Nipple that is turned slightly inward or inverted
- Skin of the breast, areola, or nipple that becomes scaly, red, or swollen or may have ridges or pitting resembling the skin of an orange

- ANY NIPPLE DISCHARGE-PARTICULARLY CLEAR DISCHARGE OR BLOODY DISCHARGE
- It is also important to note that a milky discharge that is present when a woman is not breastfeeding should be checked by her doctor, although it is not linked with breast cancer

# PREVENTION

- Diet plays a very small but measurable role in breast cancer prevention. Dietary fats may increase your risk of developing breast cancer, and fruits, vegetables, and grains may help to reduce the risk. This has been seen in countries other than the United States. In the United States, no reduction in breast cancer risk as has been seen resulting from following low fat diets.
- Alcohol consumption has been associated with an increased risk of breast cancer. Women who drink two and a third to four and a half bottles of beer per day, two and a half to more than five and a half glasses of wine per day, or two to four shots of liquor per day, have a 41% increased incidence of breast cancer. So the recommendation is to limit alcohol consumption.
- Regular aerobic exercise may offer some protection. Studies have found that women who exercised vigorously and often were only half as likely as non-exercisers to get breast cancer

# TREATMENT

- There are two major goals of breast cancer treatment:
- 1) To rid the body of the cancer as completely as possible
- 2) To prevent cancer from returning

# DIAGNOSIS

- **Breast Self-Exam**
- Do you do regular breast self-exams? While some cancers are too tiny to feel, and most lumps aren't cancer, self-exams are a proactive way to help take care of yourself. Learn how.
- **Clinical Breast Exam**
- A clinical breast exam is a breast exam performed by a health care professional. It's a basic part of women's check-ups, starting at age 20. Find out what to expect from a clinical breast exam.
- **Mammogram**
- A mammogram is a special type of X-ray taken to look for abnormal growths or changes in breast tissue. It's a key tool in breast cancer detection, though no test is perfect. Learn more here.



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