

Ready to start planning your care? Call us at [800-525-2225](tel:800-525-2225) to make an appointment.

×



Memorial Sloan Kettering  
Cancer Center

[Make an Appointment](#)

[Back](#)

[In the News](#)

[About Our Center & Treatment](#)

[Refer a Patient](#)

... ..

#### ABOUT US

[Our mission, vision & core values](#)

[Leadership](#)

[History](#)

[Equality, diversity & inclusion](#)

[Annual report](#)

[Give to MSK](#)

tumor to other organs). [\[PubMed Abstract\]](#)

The researchers analyzed a process called DNA methylation in tumor samples from breast cancer patients. DNA methylation, the addition of small molecules called methyl groups to some of DNA's building blocks, plays a key role in the development and function of normal cells and tissues and often malfunctions in cancer. Unlike mutations, methylation changes do not alter a cell's genetic code. Nevertheless, such changes can radically transform a cell's gene expression pattern and behavior.

In a subset of tumors, the researchers examined the genomes of breast cancers and identified a DNA methylation pattern that correlated with the risk of metastasis in patients. Based on these findings, they developed a test that could be used to predict whether a tumor is prone to spread. "Strikingly, we found that the test can indicate good prognosis in breast cancer as well as in cancers of the colon and brain," said investigator Timothy A. Chan, of Memorial Sloan Kettering's [Human Oncology and Pathogenesis Program](#), who led the study.

Eventually, the findings could yield new understanding of what Dr. Chan and his colleagues believe might be a fundamental underpinning of metastasis with bearings on many additional cancer types.

The survival rate of women diagnosed with metastatic breast cancer is low, even for patients who receive chemotherapy and other types of treatment aimed at destroying metastatic tumor cells. "The clinical test we've developed could help us determine which patients don't need aggressive treatment and may be spared the toxic side effects of chemotherapy. This methylation pattern may be used in conjunction with other available clinical tests to enhance prognostic accuracy," Dr. Chan explained. "And ultimately, we hope our findings will shed light on the genes and pathways that cause some patients' tumors to metastasize, and which therapies we need to explore to improve outcomes in those patients."

#### Connect

[Contact us](#)

[Locations](#)

#### APPOINTMENTS

[800-525-2225](tel:800-525-2225)



## ▾ About MSK

[About us](#)

[Careers](#) ■

[Giving](#) ■

## ▾ Cancer Care

[Adult cancer types](#)

[Child & teen cancer types](#)

[Integrative medicine](#)

[Nutrition & cancer](#)

[Find a doctor](#)

## ▾ Research & Education

[Sloan Kettering Institute](#)

[Gerstner Sloan Kettering Graduate School](#) ■

[Graduate medical education](#)

[MSK Library](#) ■

---

[Communication preferences](#)

[Cookie preferences](#)

[Legal disclaimer](#)

[Accessibility statement](#)

[Privacy policy](#)

[Price transparency](#)

[Public notices](#)

© 2024 Memorial Sloan Kettering Cancer Center