

# Researchers discover a DNA marker that indicates if ovarian cancer treatment will be successful

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Researchers and doctors at the North Shore-LIJ Health System and the Feinstein Institute for Medical Research have discovered that blood can help determine the best treatment plan for patients with ovarian cancer. More specifically, a genetic marker embedded in deoxyribonucleic acid (DNA), called microRNA, indicates if a patient with ovarian cancer has a benign or cancerous tumor, and that she will benefit from chemotherapy after surgery on the tumor. This data will be presented at the American Association for Cancer Research (AACR) Annual Meeting to be held from Saturday through Wednesday (March 31- April 4) in Chicago, IL.

It is estimated that there will be 22,280 new cases and 15,500 deaths this year from ovarian cancer in the United States. Due to lack of adequate screening, the majority of patients with ovarian cancer are diagnosed at stage III (the second-to-last and most devastating stage of cancer), when 70 percent of these patients will die of their disease within 5 years.

"The discovery that microRNAs can help predict the best treatment plan for women with ovarian cancer, who are most likely at stage III of the disease, offers them enormous hope," noted Iuliana Shapira, MD, director of the Cancer Genetics Program at the North Shore-LIJ Health System's Monter Cancer Center. "We can now inform patients at [stage III](#) ovarian cancer, if they will have success with chemotherapy following surgery, similar to patients who are at stage 1 disease. This information

gives them hope that their disease is curable despite being diagnosed at an 'advanced stage.' It also gives them the strength necessary to undergo chemotherapy, which is a very invasive and toxic therapy necessary to obtain the cure."

Several microRNAs have been found to have links with various [types of cancer](#). The research conducted at the North Shore-LIJ Health System and the Feinstein Institute for Medical Research found that microRNA-195 increased 40 fold during chemotherapy and microRNA-16 increased 80 fold during chemotherapy. These changes may explain why some patients with ovarian cancer have side effects of chemotherapy, why others become cured of cancer as a result of chemotherapy, and why others need ongoing chemotherapy to continue living with the cancer.

"Understanding the changes in microRNA throughout chemotherapy treatment helps us better understand ovarian cancer and how best to treat patients who have this disease," said Annette Lee, PhD, associate investigator at the Feinstein Institute. "The genetic markers we identified allow patients to individualize their own therapy in order to have maximum benefit and minimal side effects. In addition, this knowledge will help researchers develop new treatments for patients with [ovarian cancer](#)."

Dr. Shapira adds that, "We applied for a government grant and hope to receive the funds needed to validate these markers allow result in women receiving therapies that are more personalized and match their genetic makeup."

Provided by North Shore-Long Island Jewish (LIJ) Health System

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