

## **MEDICAL BREAKTHROUGHS** **RESEARCH SUMMARY**

TOPIC: MAAT: TREATING BRAIN FOG AFTER BREAST CANCER  
REPORT: MB #4964

**BACKGROUND:** Chemotherapy-induced cognitive impairment, also known as chemo brain, refers to problems such as forgetfulness, mental fogginess, and decision-making issues. These typically occur during and possibly after cancer treatment. People often think of cognitive impairment as a symptom of chemotherapy, but it can develop before, during, or after any cancer treatment. Doctors don't always know what causes chemo brain because it can be a side effect of chemotherapy because some chemotherapy drugs are able to get through the blood-brain barrier. However, different issues related to cancer and its treatment may also lead to this symptom.

(Source: <https://my.clevelandclinic.org/health/diseases/21032-chemo-brain>)

**CANCER-RELATED COGNITIVE IMPAIRMENT:** Chemo brain has been studied most extensively in breast cancer patients. Reports show anywhere from 15-75% of patients experience it. Most recover within a year, but 20-35% continue to experience symptoms for months to years after chemotherapy ends. For many, chemo brain is so subtle that it is undetectable by oncologists, as well as close friends and colleagues. Treatment options mostly consist of medications, cognitive skills training, and exercise, but don't offer much relief. There is current research supported by the National Cancer Institute (NCI) that is identifying risk factors and developing diagnostic tools and treatments. "Our aim is to bring together cognitive psychologists, neuroscientists and oncologists," says Todd Horowitz, PhD, a program director at NCI. Researchers are zeroing in on the genetics of susceptibility to cancer-based cognitive impairment.

(Source: <https://www.apa.org/monitor/2020/03/cognition-cancer>)

**TACKLING CHEMO BRAIN:** Michelle Monje, MD, PhD, associate professor of neurology and neurological sciences at Stanford, has spent much of her career studying the effects of chemotherapy and radiation on cognitive function in cancer survivors. Monje and her colleagues recently pinpointed a possible source of chemo brain and discovered two potential therapies. They found that the common cancer drug, methotrexate, leads to a cascade of molecular events that ultimately disturb the workings of the glial cells, or the brain's support system. In laboratory mice, it caused fundamental and persistent changes in the brain that impaired its function. The scientists tested two different compounds that interfered with the destructive process, effectively halting the damage, and restoring normal brain processing. Clinical trials are still a few years away, pending additional studies, but the research has given hope to patients.

(Source: <https://scopeblog.stanford.edu/2020/04/27/combating-chemo-brain-researchers-zero-in-on-causes-and-treatment/>)

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**If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at [mthomas@ivanhoe.com](mailto:mthomas@ivanhoe.com)**