

# Scientists identify gene that predicts post-surgical survival from brain metastasis of breast cancer patients

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Brunhilde Felding-Habermann, Ph.D., is an associate professor at the Scripps Research Institute. Credit: Brunhilde Felding-Habermann, Ph.D.

Researchers at the National Cancer Institute have identified a gene that may play a role in breast cancer metastasis to the brain, according to a report in *Molecular Cancer Research*, a journal of the American Association for Cancer Research.

Diane Palmieri, Ph.D., a staff scientist at the NCI, said Hexokinase 2 overexpression was more highly expressed in brain [metastasis](#) in patients with [breast cancer](#) than in primary breast tumors.

"Importantly, this study was conducted in human tissue rather than animal models, so we are able to extrapolate data without the problems inherent in animal studies," said Palmieri.

Brunhilde Felding-Habermann, Ph.D., an associate professor at The Scripps Research Institute, said the findings are a major step forward in potential breast cancer treatments.

"Improvements in breast cancer therapy have made prognoses like brain metastasis a growing problem, and this research points to a potential target for future therapies," said Felding-Habermann.

Researchers performed analyses on both primary tumors and brain metastases. They found higher levels of Hexokinase 2 in brain metastases compared with unlinked primary tumors. Among resected brain metastases, these higher levels of Hexokinase 2 were linked with worse survival. The median survival for patients with high levels of Hexokinase 2 expression in their brain metastasis was 9.6 months compared with 17.5 months for those with lower expression.

Palmieri said that Hexokinase 2 plays a key role in [glucose metabolism](#), which provides the energy tumors need to grow. It also impacts the cell survival process, apoptosis.

"Potential therapies would need to turn off this gene and thus starve the tumor of its growth potential," said Palmieri.

Source: American Association for Cancer Research ([news](#) : [web](#))

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