

Rare mutation may extend survival in lung cancer patients with brain metastases

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Most patients with non-small cell lung cancer (NSCLC) that has metastasized to the brain have a dire prognosis. But Yale researchers have identified a subset of those patients with a rare genetic mutation who are living significantly longer than patients without the mutation.

The findings were published this month in the *Journal of Clinical Oncology* and will be presented Monday, Oct. 19 at the 2015 Annual Meeting of the American Society for Radiation Oncology.

NSCLC accounts for 85% of all lung cancers, with 30%-50% of patients developing metastatic disease to the [brain](#). Typically, patients with this diagnosis die of the disease within seven months. However, patients with the rare ALK mutation, which is found in just 5% of NSCLC cases, are living an average of four years, with the disease controlled in the brain nearly a year after their initial treatment, said the study's lead author Kimberly Johung, M.D., assistant professor of therapeutic radiology.

"This study is among the first to show that genetic information about tumors can guide decision making for the treatment of brain metastases," Johung said. "Patients with the ALK mutation respond so well to targeted systemic treatments that the brain lesions actually become the driving prognostic factor in their treatment plan."

Treatment approaches include whole-brain radiation therapy, non-surgical radiation for individual lesions, and surgery, typically for a single metastasis. Since whole-brain radiation is associated with

significant cognitive effects and the use of additional radiation therapy for progression is common in this population, the Yale researchers suspect that patients with the ALK mutation would benefit from other treatments. "Since [patients](#) are living longer with systemic disease controlled, there is likely a benefit to intensifying treatment of their brain lesions. This is a significant change in strategy for this population," Johung said.

Provided by Yale University

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