Medical Xpress

Limiting lung cancer's spread and growth in the brain

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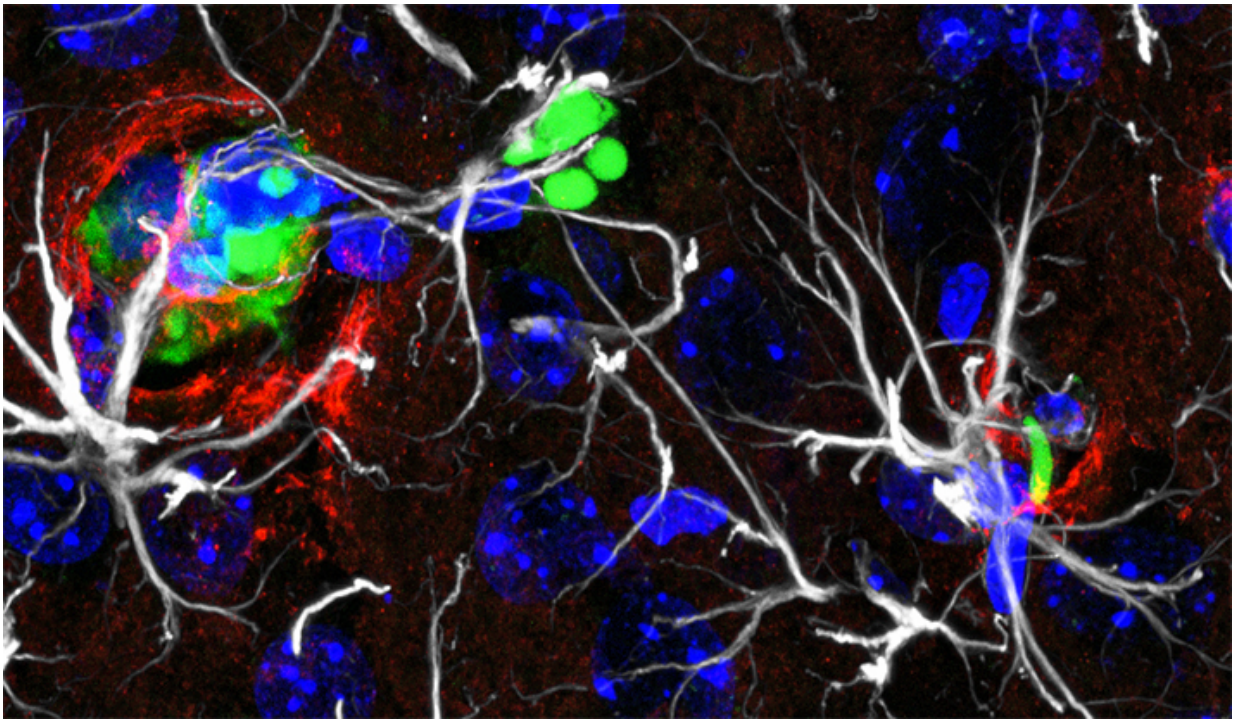

Soon after lung cancer cells (in green) spread into the brain, extracellular matrix molecules (in red) can shield them from the hostile surroundings. Credit: Yale University

More people die of lung cancer each year than breast, colon, and prostate cancers combined. One particularly lethal form of the disease is lung adenocarcinoma or LUAD, which afflicts both smokers and non-

smokers. In many patients diagnosed with LUAD, tumors cells have already spread to the brain, leading to decreased quality of life and low survival rates. A Yale team of researchers conducted a study to determine how those tumor cells manage to grow outside the lungs.

Led by associate professor of pathology Don Nguyen, the Yale team analyzed RNA from patients with disease that was limited to the lungs as well as cancers that had spread. They also studied animal models of LUAD to identify common pathways.

The researchers found that aggressive LUAD cells expressed a number of proteins that allow them to persist outside the lungs in small numbers. They observed that the tumor cells that spread to the brain were able to utilize an extracellular molecule, which shields them from their hostile surroundings. "These occult lung cancer cells have found a unique way to co-opt the 'brain microenvironment' and survive," said Nguyen, who is a member of Yale Cancer Center. The study findings have already led to a collaboration with a pharmaceutical company to test drugs targeting that pathway, he said.

The study is published by *Cancer Research*.

More information: Laura E Stevens et al. Extracellular matrix receptor expression in subtypes of lung adenocarcinoma potentiates outgrowth of micrometastases, *Cancer Research* (2017). DOI: 10.1158/0008-5472.CAN-16-1978

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