Medical Xpress

Could there be a gleevec for brain cancer?

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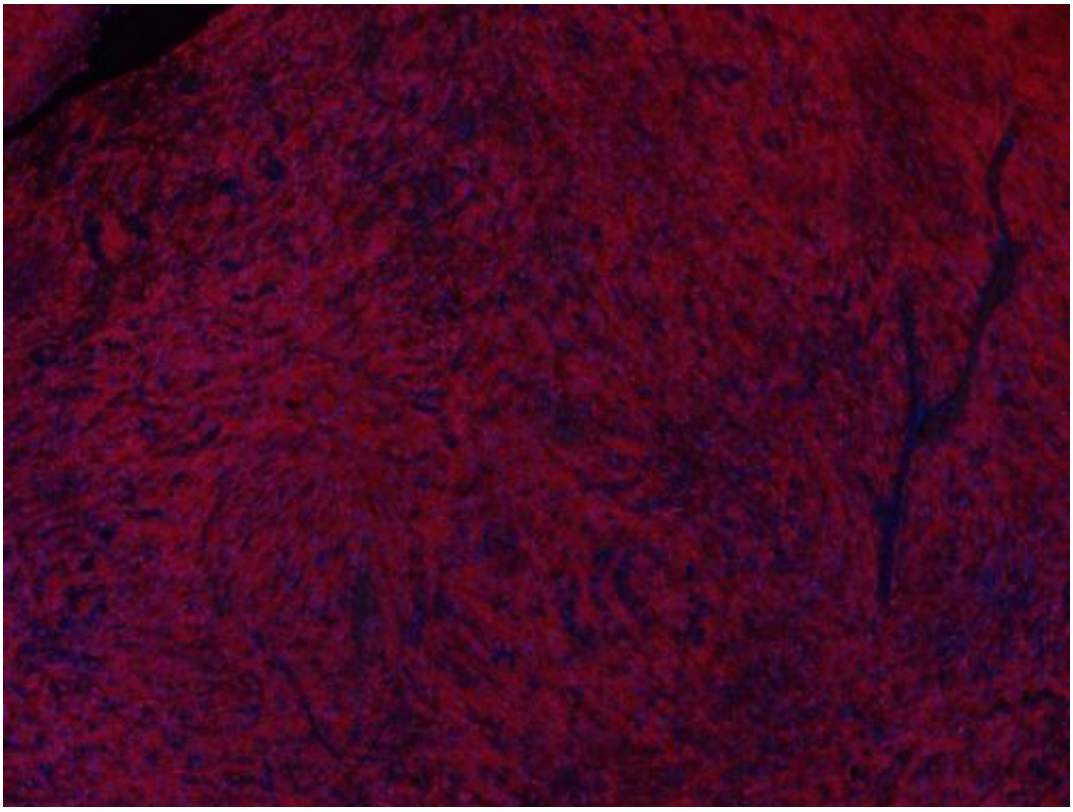

Fusion protein (red) in tumor cells from a histological section of human glioblastoma. Credit: Lab of Antonio Iavarone

The drug Gleevec (imatinib mesylate) is well known not only for its effectiveness against chronic myeloid leukemia (CML) and acute lymphoblastic leukemia, but also for the story behinds its development. The drug was specifically designed to target an abnormal molecule—a fusion of two normal cell proteins—that fueled a tumor's growth.

A similar drug might be able to tame some brain cancers, new research from Columbia University Medical Center has shown. A team led by Antonio Iavarone, MD, professor of neurology and of pathology and cell biology, Institute for Cancer Genetics, previously discovered that a fusion of two proteins (present only in cancer cells and different from the two in CML) drives some cases of glioma, a common form of brain cancer.

The team's most recent study, published in *Clinical Cancer Research*, looked closely at two patients affected by recurrent glioblastoma with the fused proteins, in a first in-human trial of a drug that targets half of the fusion protein. Those patients, the researchers found, responded particularly well to the drug, with clinical improvement and radiological tumor reduction. The responses lasted 115 and 134 days, respectively.

"This suggests that if we developed a drug that hits the fused protein more precisely, while leaving normal cells alone, we may get even better results," said Dr. Iavarone. "The real test of that will have to wait for the development of such a drug and the clinical trials."

The study also found the fused protein in a significant fraction of the 795 glioma cases they examined, indicating that a smart drug that targets the fused proteins could have a meaningful impact.

More information: "Detection, characterization and inhibition of FGFR-TACC fusions in IDH wild type glioma" *Clinical Cancer Research*, 2015.

Provided by Columbia University Medical Center