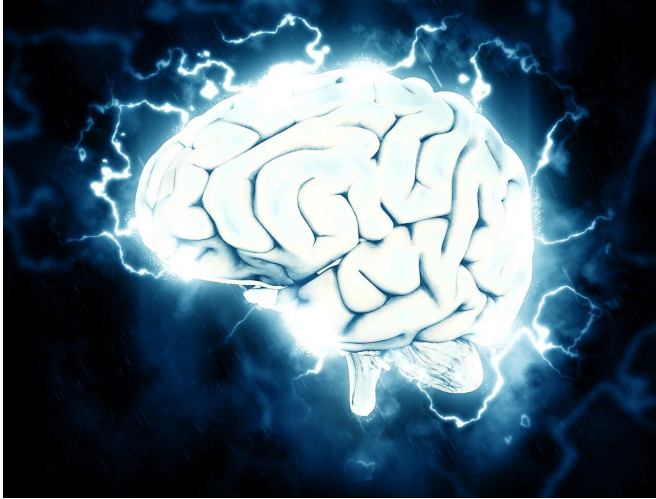


Study uncovers unexpected connection between gliomas, neurodegenerative diseases

23 January 2020, by Haley Otman



Credit: CC0 Public Domain

A protein typically associated with neurodegenerative diseases like Alzheimer's might help scientists explore how gliomas, a type of cancerous brain tumor, become so aggressive.

The new study, in mouse models and human brain [tumor](#) tissues, was published in *Science Translational Medicine* and found a significant expression of the protein TAU in glioma cells, especially in those patients with better prognoses.

Patients with glioma are given a better prognosis when their tumor expresses a mutation in a gene called isocitrate dehydrogenase 1 (IDH1). In this international collaborative study led by the Instituto de Salud Carlos III-UFIEC in Madrid, Spain, those IDH1 mutations stimulated the expression of TAU. Then, the presence of TAU acted as a brake for the formation of new blood vessels, which are necessary for the aggressive behavior of the tumors.

"We report that the levels of microtubule-associated protein TAU, which have been associated with [neurodegenerative diseases](#), are epigenetically controlled by the balance between normal and mutant IDH1/2 in mouse and human gliomas," says co-author Maria G. Castro, Ph.D., a professor of neurosurgery and cell and [developmental biology](#) at Michigan Medicine. "In IDH1/2 mutant tumors, we found that expression levels of TAU decreased with tumor progression."

That means levels of TAU could be used as a biomarker for tumor progression in mutant IDH1/2 gliomas, Castro says.

More information: Ricardo Gargini et al. The IDH-TAU-EGFR triad defines the neovascular landscape of diffuse gliomas, *Science Translational Medicine* (2020). [DOI: 10.1126/scitranslmed.aax1501](#)

Provided by University of Michigan

APA citation: Study uncovers unexpected connection between gliomas, neurodegenerative diseases (2020, January 23) retrieved 28 April 2021 from <https://medicalxpress.com/news/2020-01-uncovers-unexpected-gliomas-neurodegenerative-diseases.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.