MedicalXpress

Researchers identify a potential therapeutic target for brain cancer

February 23 2010

Researchers at the Cleveland Clinic report the identification of a protein that is highly expressed in a subgroup of glioblastoma brain tumor cells and show that depletion of this protein increases the survival of mice with these tumors. This work will be published in the online open-access journal *PLoS Biology*.

Recent studies have increased our understanding of cancer by elucidating some of the differences that exist between tumor cells among patients and even between distinct subsets of tumor cells within the same patient. Evidence suggests there are subgroups of cells - called cancer stem cells or tumor initiating cells - within tumors that are harder to kill with current therapies than other cells within these tumors. Cancer stem cells may in fact be more important to destroy than non-cancer stem cells because they may be responsible for metastasis and for tumor recurrence after therapy. Identifying therapies which specifically target cancer stem cells therefore hold great promise for effective and lasting treatment.

In this study, Dr. Hjelmeland and colleagues determine that a protein called A20, that has been previously implicated in cell survival, is highly expressed in a population of cells that is enriched for glioblastoma stem cells. They demonstrate that decreasing levels of A20 in these cells reduces their growth in cell culture by inducing cell death. Decreasing A20 levels in animal models of brain tumors also increases survival. Using publicly available datasets from human brain tumor specimens, they also determine that increased levels of A20 are associated with poor

patient survival. Together, these studies suggest that targeting A20 could be beneficial for human glioblastoma patients.

Although there continues to be controversy over the cancer stem cell concept, Dr. Hjelmeland believes that "Everyone recognizes the need to identify new cancer targets, and this may be achieved by studying subgroups of tumor cells. Using this technique, we identified A20 as an important target. However, we still have a lot of work to do before translation for patient therapies."

More information: Hjelmeland AB, Wu Q, Wickman S, Eyler C, Heddleston J, et al. (2010) Targeting A20 Decreases Glioma Stem Cell Survival and Tumor Growth. PLoS Biol 8(2): e1000319. doi:10.1371/journal.pbio.1000319

Provided by Public Library of Science

Citation: Researchers identify a potential therapeutic target for brain cancer (2010, February 23) retrieved 30 April 2024 from https://medicalxpress.com/news/2010-02-potential-therapeutic-brain-cancer.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.