Medical Xpress

Scientists identify new mechanism of prostate cancer cell metabolism

March 22 2012

Cancer cell metabolism may present a new target for therapy as scientists have uncovered a possible gene that leads to greater growth of prostate cancer cells.

Study results are published in *Cancer Discovery*, a journal of the American Association for Cancer Research.

Almut Schulze, Ph.D., a group leader in the Gene Expression Analysis Laboratory at Cancer Research U.K., and colleagues analyzed three metastatic prostate cancer cell lines and compared those findings with those of a nonmalignant prostate epithelial cell line.

"Cancer metabolism is a new and emerging target that can be exploited as a potential therapeutic, and our study identified one of the components for the growth of these cancer cells," she said.

The researchers analyzed the effects of gene silencing of 222 metabolic enzymes, transporters and regulators on the survival of the cell lines.

"This approach revealed a significant complexity in the metabolic requirements of prostate cancer cells and identified genes selectively required for their survival," said Schulze.

Researchers determined that the gene PFKFB4 was vital in many of these processes. Specifically, it was required to balance glycolytic activity and antioxidant production to maintain cellular redox balance in

the cancer cells. When levels of this gene were depleted in laboratory models, tumor growth was inhibited. Higher levels of this gene were found in the metastatic prostate cancer cell lines.

Schulze concluded that this gene is required for tumor growth and thus could be manipulated with targeted therapies. Although this study was confined to prostate cancer, she believes the findings could be applicable in other cancers as well.

Provided by American Association for Cancer Research

Citation: Scientists identify new mechanism of prostate cancer cell metabolism (2012, March 22) retrieved 27 June 2024 from https://medicalxpress.com/news/2012-03-scientists-mechanism-prostate-cancer-cell.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.