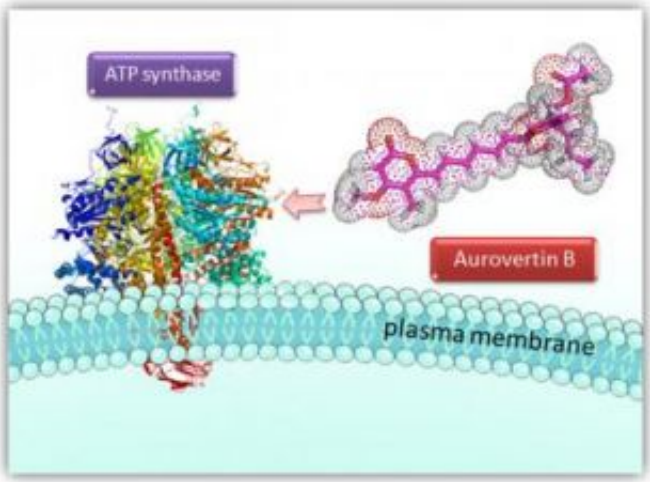
Medical Xpress

First evidence that blocking key energy protein kills cancer cells

March 31 2008



In a finding that could lead to more effective anti-cancer medication, scientists exposed breast cancer cells to a substance that blocks a protein called ATP synthase. The cancer cells were killed while normal ones were preserved. Courtesy of Hsin-Yi Chang and Hsueh-Fen Juan

Researchers in Taiwan report for the first time that blocking a key energy-supplying protein kills cancer cells. The finding, described as the first to test possible medical uses of so-called ATP-synthase inhibitors, may lead to new and more effective anti-cancer medications, according to their report, which is scheduled for the April 4 issue of ACS' monthly *Journal of Proteome Research*.

In the new study, Hsueh-Fen Juan and colleagues focused on ATP synthase, a key protein involved in producing the energy-rich molecules of ATP that power all life processes.

For years researchers thought that the protein existed only in mitochondria, structures located inside cells that convert nutrients into energy. Recent studies found high levels of ATP synthase on the surface of cancer cells, but until now the medical implications went unexplored.

The researchers analyzed tissue samples from breast cancer patients and found for the first time that the surface of breast cancer cells contains high levels of ATP synthase. In cell studies, exposing breast cancer cells to a substance that blocks ATP synthase killed the cancer cells but did not harm normal cells, the researchers say. The findings suggest that ATP synthase inhibitors may represent a new approach for fighting breast cancer and other cancer types, they say.

Source: ACS

Citation: First evidence that blocking key energy protein kills cancer cells (2008, March 31) retrieved 17 April 2024 from
https://medicalxpress.com/news/2008-03-evidence-blocking-key-energy-protein.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.