MedicalXpress

New target to stop cancer's spread discovered

January 30 2013

Disrupting a key interaction between two types of proteins in cells inhibits the spread of cancerous cells, providing researchers with a new pathway toward developing cancer-fighting drugs, according to new findings by Georgia State University scientists.

Cell migration is essential for the spread of cancerous cells, also known as metastasis, as well as for other diseases. The research team in the labs of Zhi-Ren Liu, professor of biology, and Jenny Yang, professor of biochemistry, studied the interaction of two molecules, p68 RNA helicase and calcium-calmodulin.

Interrupting the interaction between p68 and calcium-calmodulin, which is essential for cell migration, inhibited metastasis.

The findings were recently published in *Nature Communications*.

"Cancer, at its primary site, will not necessary kill," Liu explained. "Cancer kills by multi-site metastasis. If we are able to disrupt this interaction, we will able to inhibit cancer metastasis. The research indicates that the interaction is absolutely required for all cell migration, and we suspect it may not be limited to cancerous-type cells. It may be a general phenomenon for all cell types."

Calcium-calmodulin is an important protein, acting like a messenger to turn different proteins on and off, said Yang, whose lab focuses on calcium's role in biological processes.

"Calmodulin is a very interesting protein and it interacts with many different systems in response to calcium level changes," she said. "We have demonstrated a new target. There are new ways possible to modulate calcium signaling as a way to treat diseases."

Because cell migration is a common phenomenon that is not only normal, but also related to diseases, there are impacts on treating other diseases, Liu said, from inflammation to neurodegenerative diseases and heart disease.

More information: The paper, "Interaction between p68 RNA helicase and Ca2+-calmodulin promotes cell migration and metastasis" in *Nature Communications* is available at dx.doi.org/10.1038/ncomms2345

Provided by Georgia State University