Researcher finds Baxdelta2 tumor suppressor can be generated in some colon cancer cells

June 12 2014

(Medical Xpress)—Illinois Institute of Technology researcher Jialing Xiang, who recently discovered Baxdelta2, the powerful tumor suppressor found only in mutated cells, has learned more about its cell death-causing mechanism and therapeutic implications.

Certain colon tumors with genetic microsatellite instability often lose tumor suppressor Bax due to microsatellite mutation. But a Bax alternative isoform, Baxdelta2, can be "salvaged" from the mutated gene. Xiang has found that Baxdelta2-positive cells are selectively sensitive to chemotherapeutics through an unconventional signaling pathway. This means that colorectal tumors thought to have been "Bax-negative" may instead be able to generate the Baxdelta2 that will be beneficial for chemotherapeutic treatment.

Xiang and her team reported their findings in the journal *Molecular Cancer Research.* Their work is supported by the National Cancer Institute (NCI) in the National Institutes of Health (NIH).

The pro-apoptotic (cell death-causing) protein Bax is one of the universal tumor suppressors in our body. Loss of Bax will have a negative effect on the cellular "suicide" program and promote tumor development. The ability to generate Baxdelta2 means the cancer cell might be triggered to re-start the apoptotic (cell death-causing) process.

"Discovery of Baxdelta2 will lead us to a better understanding of the 'Bax-negative' colon cancer and potentially provide targeted chemotherapeutics for treatment," said Xiang.

One of the areas that Xiang's team is working on is to find out how the production of Baxdelta2 is controlled and to identify drugs that can enhance Baxdelta2 production in cancer cells.

More information: "Baxdelta2 Promotes Apoptosis through Caspase-8 Activation in Microsatellite Unstable Colon Cancer." Honghong Zhang, Yuting Lin, Adriana Manas, Yu Zhao, Mitchell F. Denning, Li Ma, and Jialing Xiang. *Mol Cancer Res* molcanres.0162.2014; Published OnlineFirst May 19, 2014; DOI: 10.1158/1541-7786.MCR-14-0162

Provided by Illinois Institute of Technology