Medical Xpress

Protein plays a critical role in the development of aggressive breast cancer

April 20 2010

Researchers at Fox Chase Cancer Center have identified a potentially significant molecular player in the development of aggressive breast cancer. The team's findings show that a protein called NEDD9 is critical in the formation of breast tumors induced by high levels of the cell-surface receptor HER2/neu in mice. HER2-driven breast cancer is known to be one the most aggressive forms of the disease.

Joy L. Little, Ph.D., a postdoctoral fellow in the laboratory of Erica A. Golemis, Ph.D., at Fox Chase Cancer Center, will present the findings at the 2010 annual meeting of the American Association for Cancer Research.

In mice engineered to overexpress the HER2/neu gene, Little and her colleagues found that 89% of mice with the Nedd9 gene developed tumors over an 18-month period. In comparison, only 29% of mice without the Nedd9 gene developed tumors. These findings indicate a novel role for NEDD9 in tumor initiation.

"There is a lot of research describing contributors to cancer formation, but it is always truly exciting when studies show that the loss or absence of something prevents cancer from occurring," says Little. "The fact that in the majority of our animals, HER2-driven tumors don't form without NEDD9 is new information we can use to view NEDD9 as a potential biomarker. If tumors show higher levels of NEDD9, it could be they are more aggressive."

Based on the data collected, researchers are now poised to delve deeper into discovering what about the biology of NEDD9 makes it crucial in the formation stages of HER2-driven tumors. Pharmacological targeting of NEDD9 could also be therapeutically relevant, Little notes.

Provided by Fox Chase Cancer Center