

Research identifies a way to make cancer cells more responsive to chemotherapy

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Breast cancer characterized as "triple negative" carries a poor prognosis, with limited treatment options. In some cases, chemotherapy doesn't kill the cancer cells the way it's supposed to. New research from Western University explains why some cancer cells don't respond to chemotherapy, and identifies a mechanism to rectify that.

Dr. Shawn Li, PhD, and his team at Western's Schulich School of Medicine & Dentistry, identified that a protein called Numb functions to promote the death of cancer cells by binding to and stabilizing a tumor suppressor protein called p53 -a master regulator of cell death. The scientists found when Numb is reduced or methylated by an enzyme called Set8, it will no longer protect p53. The research is published in the May 23rd issue of *Molecular Cell*. A related research paper on the role of chemotherapeutic agents on regulating protein methylation, also from the Li lab, will be published in the June 7th issue of *Molecular Cell*, and is now online.

"If you don't have Numb in a cell, then the p53 can be degraded very quickly, and these cells become resistant to chemotherapy," explains Li, a professor of Biochemistry and Canada Research Chair in Cellular Proteomics and Functional Genomics. "So if we can prevent Numb from being methylated in [cancer cells](#), then we will have the means to sensitize the cell to chemotherapy."

Now that he's identified the Set8-Numb-p53 pathway, Li is investigating various drugs to find a Set8 inhibitor which could be used as a novel

[breast cancer](#) therapy alone, or in combination with other [chemotherapy](#) regiments.

Provided by University of Western Ontario

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