

Researchers find protein that fuels repair of treatment-resistant cancer cells

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Imagine you're fighting for your life but no matter how hard you hit, your opponent won't go down.

The same can be said of highly treatment-resistant cancers, such as head and [neck cancer](#), where during radiation and chemotherapy some cancer cells repair themselves, survive and thrive. Head and neck cancer is the sixth most common cancer in the world, but the late detection and treatment resistance result in a high mortality rate.

Now, University of Michigan researchers have found that a particular protein—TRIP13—encourages those cancer cells to repair themselves. And they have identified an existing chemical that blocks this mechanism for cell repair.

"This is a very significant advance, because identifying the function of the protein that fuels the repair of cancer cells and having an existing chemical that blocks the process, could speed the process of moving to clinical trials," said principal investigator Nisha D'Silva, U-M professor of dentistry and associate professor of pathology.

Typically, if scientists discover a promising drug therapy target, it takes years to develop drug compounds from scratch and move these into clinical trials.

If cell DNA is damaged and the cell cannot repair the damage, the cell dies. In head and neck cancers, D'Silva and colleagues showed that

[cancer cells](#) that overexpress TRIP13 were able to repair their DNA enough to survive and continue to grow as cancer.

"Targeting this repair mechanism with specific drugs could increase effectiveness of treatment and improve survival of [cancer](#) patients," D'Silva said. "And given the overexpression of TRIP13 in several treatment-resistant cancers, this strategy will likely be important for multiple cancers."

More information: *Nature Communications* 31 Jul 2014. [DOI: 10.1038/ncomms5527](#)

Provided by University of Michigan

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