

Cancer-killing compound spares healthy cells

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Lithocholic acid (LCA), naturally produced in the liver during digestion, has been seriously underestimated. A study published in the journal *Oncotarget* shows that LCA can kill several types of cancer cells, such as those found in some brain tumors and breast cancer.

The research team, led by Concordia University, included scientists from McGill University and the Jewish General Hospital's Lady Davis Institute in Montreal as well as the University of Saskatchewan.

Previous research from this same team showed LCA also extends the lifespan of aging yeast. This time, the team found LCA to be very selective in killing cancer cells while leaving normal cells unscathed. This could signal a huge improvement over the baby-with-the-bathwater drugs used in [chemotherapy](#).

"LCA doesn't just kill individual cancer cells. It could also prevent the entire tumor from growing," says senior author Vladimir Titorenko, a professor in the Department of Biology and Concordia University Research Chair in Genomics, [Cell Biology](#) and Aging.

What's more, LCA prevents tumors from releasing substances that cause neighboring cancer cells to grow and proliferate. Titorenko says LCA is the only compound that targets cancer cells, which could translate into tumor-halting power.

"This is important for preventing cancer cells from spreading to other parts of the body," he says, noting that unlike other anti-aging

compounds, LCA stops [cancer cell growth](#) yet lets normal cells continue to grow.

A wide effect on different types of cancers

The next step for the research team will be to test LCA's effect on different cancers in mice models. Titorenko expects that LCA will also kill cancer cells in those experiments and lead to human clinical trials.

"Our study found that LCA kills not only tumors (neuroblastomas), but also human [breast cancer cells](#)," says Titorenko. "This shows that it has a wide effect on different types of cancers."

Titorenko emphasizes that unlike drugs used in chemotherapy, LCA is a natural compound that is already present in our bodies. Studies have shown that LCA can be safely administered to mice by adding it to their food. So why is LCA so deadly for cancer cells? Titorenko speculates that cancer cells have more sensors for LCA, which makes them more sensitive to the compound than normal cells.

LCA sensors send signals to mitochondria — the powerhouses of all cells. It seems that when these signals are too strong, mitochondria self-destruct and bring the cell down with them. Simply put, Titorenko and his colleagues engaged in cancer cell sabotage by targeting a weakness to LCA.

More information: spectrum.library.concordia.ca/36018

Provided by Concordia University

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