

Diet-Derived Compound Could Repair Gut Damage Caused by HIV

Vegetables such as broccoli and cabbage may help support immune activity involved in gut repair.

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For many people living with HIV, today's treatments can suppress the virus and dramatically improve health. But even when HIV is controlled, damage to the gut caused by the disease can persist, fueling chronic inflammation linked to serious health problems. A new Tulane University study published in [JCI Insight](#) helps explain why.

Researchers found that long-term antiretroviral treatments did not fully restore key immune functions that protect and repair the gut lining. The study also found early evidence that diet-derived compounds found in vegetables from the mustard family, such as broccoli and cabbage, may help support immune activity involved in gut repair.

The study, led by [Namita Rout](#), associate professor of microbiology and immunology at the Tulane National Biomedical Research Center, examined gut changes in nonhuman primates that had received long-term antiretroviral therapy for SIV, a virus closely related to HIV that researchers use to model HIV infection. Although treatment successfully suppressed the virus, researchers still found signs of intestinal barrier dysfunction, along with disruption in key immune cells that help keep the gut lining healthy.

Those cells included gamma delta T cells and innate lymphoid cells, which normally produce molecules involved in communication between cells that help protect the intestinal lining and support tissue repair. In the treated animals, those protective responses were reduced and linked to changes in proteins that help direct immune activity needed to maintain the gut barrier.

Researchers then tested whether that pathway could be influenced through diet. A small group of animals received a broccoli-based supplement designed to increase exposure to dietary compounds known as indoles, which are found naturally in vegetables such as broccoli and cabbage. After one month, the animals showed signs consistent with improved gut barrier integrity and changes in immune cell populations associated with mucosal repair.

The findings do not show that such supplements are a treatment for people with HIV, and the study was limited to a small number of animals. But the results suggest that a biological pathway

involved in maintaining gut balance may still be responsive even after long-term antiretroviral treatment.

“This study helps us better understand why gut damage and chronic inflammation can persist even when the virus is well controlled,” said Rout. “These findings identify an immune pathway that appears to be important to intestinal health and may help guide future nutritional strategies aimed at improving long-term health outcomes for people living with HIV.”

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