

# Team uncovers pathway linking heartburn and esophageal cancer

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Got heartburn? More than 60 million adults in the U.S. have acid reflux, or heartburn, and approximately 10 percent are at risk for developing esophageal cancer, due in part to complications from Barrett's esophagus. But researchers at Rhode Island Hospital discovered a pathway they believe links Barrett's esophagus to the development of esophageal cancer. Their data suggest that blocking this pathway, such as with a proton pump inhibitor (e.g. omeprazole), may prevent the development of esophageal cancer. The study is published online in advance of print in the journal *American Journal of Cell Physiology*.

The common ailment goes by many names: heartburn, [acid reflux](#), [gastroesophageal reflux disease](#) (GERD). But no matter what you call it, it's uncomfortable and at times painful.

There are numerous causes of acid reflux, including pregnancy; large meals and eating habits; bending forward; hiatal hernia; peptic ulcers and insufficient digestive enzymes; asthma; smoking; and alcohol. Only a small percentage of those with GERD or [heartburn](#) will develop Barrett's esophagus, a condition in which the cells of the lower esophagus become damaged from repeated exposure to stomach acid.

"Patients with persistent acid reflux complicated by Barrett's esophagus may be at a higher risk of developing cancer of the esophagus," said principal investigator Weibiao Cao, M.D., of the department of pathology and medicine at Rhode Island Hospital. "However, we have discovered a pathway connecting the two that, if blocked by complete acid suppression with a proton pump inhibitor, may reduce the risk of esophageal cancer."

Patients with acid reflux and Barrett's esophagus may need to take a [proton pump inhibitor](#) (PPI) such as omeprazole twice a day if they are still experiencing symptoms with just a single daily

dose. The study also suggests that an enzyme NADPH oxidase NOX5-S, which produces hydrogen peroxide, is responsible for gene damage such as p16, a tumor suppressor, and plays an important role in the development of esophageal cancer. NOX5-S may be a preventive and/or therapeutic target for esophageal cancer.

"Further research is needed, but this finding suggests that patients with acid reflux complicated by Barrett's [esophagus](#) may be able to significantly reduce, or even eliminate, their risk of [esophageal cancer](#) through daily or twice-daily doses of PPI," Cao said.

One of the PPIs, omeprazole, is available by prescription and over the counter, but patients should consult with their physicians before taking any medication.

Provided by Lifespan

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