

# Presence of certain oral bacterium in esophageal cancer samples associated with shorter survival

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**Bottom Line:** Among Japanese patients with esophageal cancer, those whose cancer tested positive for DNA from the bacterium *Fusobacterium nucleatum* had shorter cancer-specific survival compared with those whose cancer had no DNA from the bacterium.

**Journal in Which the Study was Published:** *Clinical Cancer Research*, a journal of the American Association for Cancer Research.

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**Background:** More than 100 trillion bacteria naturally inhabit every person's body; they are collectively referred to as the microbiome, Baba explained.

"The gut microbiome has recently been shown to play an important role in health, as well as in diseases such as obesity, [inflammatory bowel disease](#), diabetes, nonalcoholic fatty liver disease, and several types of cancers," said Baba. "We set out to investigate whether *F. nucleatum*, which is part of many people's oral microbiome, is associated with esophageal cancer development and/or progression."

**How the Study Was Conducted and Results:** Baba and colleagues

collected esophageal cancer tissue samples from 325 consecutive patients who were having the cancer surgically removed at Kumamoto University Hospital from April 2005 to June 2013 and tested them for the presence of *F. nucleatum* DNA. Patients were followed until January 31, 2016, or death. During this time, there were 75 deaths attributable to esophageal cancer.

The researchers detected *F. nucleatum* DNA in 23 percent of the esophageal cancer tissue samples they tested. The presence of *F. nucleatum* DNA was associated with shorter survival. Specifically, after controlling for factors associated with survival, such as age, tobacco use, and tumor stage, patients with tumors positive for *F. nucleatum* DNA were significantly more likely to have died as a result of esophageal cancer.

Author Comment: "Our findings suggest that testing for the presence of *F. nucleatum* DNA in esophageal cancer tissue could provide a biomarker of prognosis," said Baba. "If they are replicated in a large, international, multi-institutional study, such testing could provide physicians with important information to consider while deciding how best to manage the care of a patient with esophageal cancer. In addition, the data suggest that therapeutic targeting of *F. nucleatum* could be a potential new approach to suppress the development and growth of esophageal cancer.

"It is important to note that our data provide no insight into whether *F. nucleatum* causes [esophageal cancer](#)," added Baba. "However, this is something we are hoping to study in the future."

Limitations: According to Baba, the main limitation of the study is that this is a single-institution study. Because the component bacteria of a person's microbiome differ according to numerous factors, including age, place of residence, food consumed, and race, these data cannot be

generalized to all individuals unless they are confirmed in a large, international, multi-institutional study.

Provided by American Association for Cancer Research

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