Scientists identify genetic marker for gastric cancer prognosis

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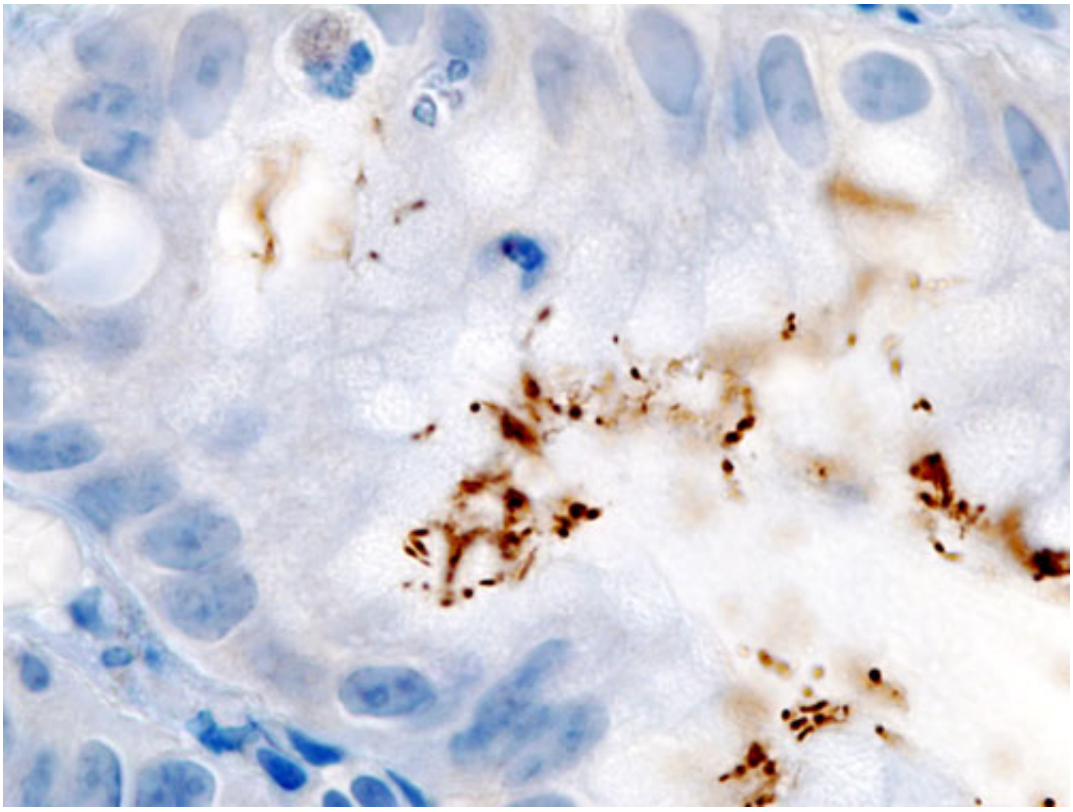

Histopathology of Helicobacter pylori infection in a gastric foveolar pit demonstrated in endoscopic gastric biopsy. Credit: Wikipedia.

Although immunotherapy is seen as a very promising treatment for cancer, currently only 20 to 30 percent of patients respond positively. Being able to identify the people most likely to benefit from the costly therapy is a Holy Grail for oncologists.

In the current online edition of *JAMA Oncology*, scientists at Wake Forest Baptist Medical Center report finding a new molecular biomarker for gastric cancer—the leading cause of cancer-related deaths worldwide.

Despite progress in the eradication of the bacteria helicobacter pylori, the major cause of gastric cancer, as well as earlier cancer diagnosis, the five-year survival rate for gastric cancer remains less than 30 percent. Gastric cancer is one of the most common cancer types in China but the incidence for gastric cancer has seen a steady increase in the United States in recent years.

"Immunotherapy treatment has shown remarkable benefit for some cancer patients whereas others experience toxicities," said Wei Zhang, Ph.D., professor of cancer biology at Wake Forest Baptist and lead author of the study. "More potential markers are urgently needed to help oncologists decide which patient would benefit from this promising new treatment strategy."

In this study, a team of scientists from Wake Forest Baptist and Tianjin Cancer Institute in China performed systematic and comprehensive analyses of 437 gastric cancer samples from The Cancer Genome Atlas (TCGA) in the United States and 256 gastric cancer samples from an Asian cohort. The TCGA cohort was used as discovery set, while the Asian cohort was used as a validation set.

Zhang's team found that mutation of a gene called MUC16 was observed in 22 percent of Asian samples and 38 percent of samples from the TCGA cohort. Mutation of MUC16 was associated with higher tumor mutation load. Tumors with higher mutation loads tend to be more responsive to immunotherapy, Zhang said.

These findings identified a potential new marker that will guide

immunotherapy for up to 38 percent of gastric cancer patients, Zhang said. Future studies will examine the relationship between MUC16 gene mutation and other forms of cancer.

Provided by Wake Forest University Baptist Medical Center