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Inventors

Joshua LaBaer

Ji Qiu

Lusheng Song

Yunro Chung

Contact

Jovan Heusser
jovan.heusser@skysonginnovations.com

Novel Antibodies for Detecting Gastric Cancer or Gastric Intestinal Metaplasia

Gastric cancer (GC) is a major public health problem in many countries, with more than 1 million new cases, worldwide, in 2020, contributing to almost 800,000 deaths. And new research suggests that GC may be on the rise in the US, particularly among younger adults. Early detection of GC often allows for greater therapeutic options, however, because routine screening is not common, most people are diagnosed at a more advanced stage where they have limited treatment options. Gastric intestinal metaplasia (GIM) is a heterogeneous precancerous lesion which increases the risk for gastric cancer and in need of heightened screening and monitoring for signs of gastric cancer.

It is widely known that chronic infections with Helicobacter pylori (H. pylori) are a key risk factor for GC as well as GIM. While H. pylori infection is common, progression to GC or GIM is rare, and the etiology is poorly understood. A better understanding of this relationship could help stratify patients who are at risk of developing GIM or GC.

Researchers at the Biodesign Institute of Arizona State University have developed novel panels of antibodies for identifying patients which may either be at risk of developing, or already have GC or GIM. Using nucleic acid programmable protein arrays (NAPPA), a comprehensive proteome-level assessment of humoral immunoproteomic profiles of H. pylori in GC and GIM was performed. Immunodominant proteins were discovered and several antibodies were identified. For gastric cancer, some of the antibodies may actively contribute to carcinogenesis while the absence of others may contribute to carcinogenesis. Additional antibodies were identified which seem to distinguish between current and past H. pylori infections. Further, proteins targeted by the antibodies may represent novel H. pylori or GC candidate vaccines.

These antibody panels, and the specific associations with GC and GIM may help stratify patients into high or low risk categories and even help in the early diagnosis, monitoring or treatment of GC and GIM.

Potential Applications

- Identifying patients at risk of developing gastric cancer
- Diagnosis of gastric cancer or gastric intestinal metaplasia
- Diagnosis of H. pylori infection
- Vaccines for gastric cancer
- Vaccines for H. pylori infections

Benefits and Advantages

- Identifying patients at risk of developing gastric cancer
- Diagnosis of gastric cancer or gastric intestinal metaplasia
- Diagnosis of H. pylori infection
- Vaccines for gastric cancer
- Vaccines for H. pylori infections

For more information about this opportunity, please see

Song et al – J Gastroenterol - 2023

Song et al – AGA Abstracts - 2018

For more information about the inventor(s) and their research, please see

Dr. LaBaer's departmental webpage