

**Cancer Advances, Inc. announces a new publication “Vaccine Against Gastrin, a Polyclonal Antibody Stimulator, Decreases Pancreatic Cancer Metastases” in the American Journal of Physiology—Gastrointestinal and Liver Physiology**

- *Immune competent female mice with pancreatic cancer treated with Polyclonal Antibody Stimulator (PAS) vaccine had significantly smaller tumors and fewer metastases than control mice.*
- *PAS vaccine decreased metastasis by decreasing key pathway proteins involved in Epithelial to Mesenchymal Transition (EMT)*
- *PAS vaccine and PD-1 antibody therapy decreased fibrosis of the tumor microenvironment*

DURHAM, NC, November 11, 2019

Cancer Advances, Inc., a clinical stage biopharmaceutical company developing therapeutics for gastrointestinal cancers, today announced a new publication in the American Journal of Physiology-Gastrointestinal and Liver Physiology.

The team of researchers studied the effects of Cancer Advances’ anti-gastrin cancer vaccine, PAS (Polyclonal Antibody Stimulator), used alone or in combination with a PD-1 immune checkpoint antibody on pancreatic cancer growth, metastases, and the tumor microenvironment in mice.

Pancreatic cancer is a notoriously challenging disease as patients often present at late stages and therapy options are insufficient. Five-year survival rates in the United States are an abysmal 9.3%; the lowest of any cancer.

Gastrin is a digestive hormone known to have growth promoting effects in pancreatic and other gastrointestinal cancers. Prior clinical research with PAS demonstrated that blocking gastrin led to an increase in overall survival in patients who produced an antibody response following vaccination.

In this study the researchers exposed female mice to pancreatic cancer cells. One group was treated with PAS vaccine, and a second group was treated with a PD-1 immune checkpoint antibody. A third group of mice received both PAS and the PD-1 antibody. All three treatment groups were compared with a control group that received Placebo.

The research team measured tumor sizes weekly during the six-week trial and found a steady increase in tumor growth in the PD-1 antibody and control groups. In contrast, groups treated with the vaccine or the vaccine combined with PD-1 antibodies showed a decreased rate of tumor growth and a decrease in the number of metastases. Neutralizing gastrin with PAS inhibited development of metastases by interrupting EMT, the publication explains. EMT is a key reversible process in which cancer cells transition into highly motile and invasive cells and contribute to the development of metastases.



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The PAS and PD-1 antibody combination therapy resulted in less fibrosis in and around the tumors. This is important because a dense fibrotic network in the tumor microenvironment of pancreatic cancer is believed to impede infiltration of treatments such as chemotherapeutic agents and immunotherapy. PAS alters the tumor microenvironment rendering it more responsive to immunotherapy with a PD-1 immune checkpoint antibody.

“This pre-clinical research validates the efficacy of PAS as a monotherapy shown in earlier clinical trials and supports further exploration of PAS in combination with checkpoint inhibitors” said Dr. Allen Cato, CEO of Cancer Advances, Inc.

To read the entire publication, please go to: PMID:31433212

<https://www.ncbi.nlm.nih.gov/pubmed/?term=31433212>

Print version: Vaccine Against Gastrin, a Polyclonal Antibody Stimulator Decreases Pancreatic Cancer Metastases, American Journal of Physiology, Am J Physiol Gastrointest Liver Physiol 317: G682–G693, 2019. [https://www.physiology.org/doi/full/10.1152/ajpgi.00145.2019?url\\_ver=Z39.88-2003&rfr\\_id=ori:rid:crossref.org&rfr\\_dat=cr\\_pub%3dpubmed](https://www.physiology.org/doi/full/10.1152/ajpgi.00145.2019?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed)

### **About Cancer Advances, Inc.**

Cancer Advances Inc. (Durham, NC) is a biotechnology company focused on impacting human health and the progression of gastrointestinal cancers by enhancing the adaptive immune system. The company is led by an experienced management team and has a broad intellectual property portfolio.

Cancer Advances is a wholly owned subsidiary of Cato Bioventures. The company is planning a Phase 3 registrational study for its lead compound, Polyclonal Antibody Stimulator (PAS), a cancer vaccine, in gastric cancer.

### **About Polyclonal Antibody Stimulator (PAS)**

Polyclonal Antibody Stimulator (PAS) vaccine is an immunomodulator potentially applicability in multiple cancer types including gastric, pancreatic, colorectal and liver. The vaccine is a peptide-conjugate that includes an N-terminal epitope of human gastrin-17 (G17) linked to carrier diphtheria toxoid. PAS has already been studied in multiple clinical trials in 1,500+ subjects and has demonstrated an excellent safety and tolerability profile. Cancer Advances exclusively owns PAS and is funding and managing all aspects of the PAS gastrin vaccine program.

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