

DEBBIE'S DREAM FOUNDATION-AACR PARTNERSHIP 2014-2022 Overview



This partnership has provided
\$1,200,000
in research funding since 2014

Grantees are sharing their science and impacting the field

25  Presentations

16  Grantees

29  Project-generated Publications
with **630** Citations

19 Collaborations 

Publishing their work in leading journals





Heterogeneity and Dynamics of Active Kras-induced Dysplastic Lineages From Mouse Corpus Stomach

Jimin Min^{1 2}, Paige N Vega^{2 3}, Amy C Engevik^{1 2}, Janice A Williams⁴, Qing Yang^{1 2 5}, Loraine M Patterson⁶, Alan J Simmons^{2 3}, R Jarrett Bliton⁷, Joshua W Betts², Ken S Lau^{2 3}, Scott T Magness^{6 7 8 9}, James R Goldenring^{1 2 3 10}, Eunyoung Choi^{11 12}

Nat Commun, 10 (1), 5549 2019 Dec 5

PNAS

Striking heterogeneity of somatic L1 retrotransposition in single normal and cancerous gastrointestinal cells

Katsumi Yamaguchi , Alisha O. Soares, Loyal A. Goff, , and Haig H. Kazazian Jr 

December 4, 2020 | 117 (51) 32215-32222

CANCER DISCOVERY

Genomic Heterogeneity as a Barrier to Precision Medicine in Gastroesophageal Adenocarcinoma

Pectasides E, Stachler MD, Derks S, et al.
Cancer Discov, 8 (1), 37-48 Jan 2018

CANCER DISCOVERY

Gain-of-Function *RHOA* Mutations Promote Focal Adhesion Kinase Activation and Dependency in Diffuse Gastric Cancer

Haisheng Zhang; Antje Schaefer ; Yichen Wang ; Richard G. Hodge ; Devon R. Blake; J. Nathaniel Diehl; Alex G. Papageorge; Matthew D. Stachler; Jennifer Liao; Jin Zhou; Zhong Wu; Fahire G. Akarca ; Leonie K. de Klerk ; Sarah Derks; Mariaelena Pierobon; Katherine A. Hoadley ; Timothy C. Wang ; George Church; Kwok-Kin Wong; Emanuel F. Petricoin; Adrienne D. Cox; Douglas R. Lowy; Channing J. Der ; Adam J. Bass 

Cancer Discov (2020) 10 (2): 288–305.

And presenting their research findings worldwide



Eirini Pectasides, MD, PhD

2015 Debbie's Dream Foundation- AACR Gastric Cancer Research Fellowship



Funded Project: Enhancing the efficacy of ERBB2 inhibition in gastric cancer

Up to a third of gastric cancer patients have an overabundance of a protein called ERBB2 (HER2) in the surface of their tumors. Although the anti-HER2 antibody trastuzumab is used to treat these patients, clinical benefit has been modest.

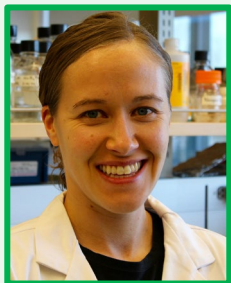
With support of the Debbie's Dream Foundation-AACR Gastric Cancer Research Fellowship, Dr. Pectasides used novel 3D cell culture models and identified effective combination therapies that can overcome resistance to HER2 inhibitors. One of the most promising combination that she and her laboratory identified was that of the HER2 inhibitor lapatinib and an epigenetic drug (a HDAC inhibitor) called belinostat.

Post-Award:

Dr. Pectasides was a postdoctoral and hematology-oncology fellow when she received this grant. She is currently a member of the Gastrointestinal Malignancies Program as a Medical Oncologist, at the Dana-Farber Cancer Institute, where she continues to focus on understanding mechanisms of resistance to targeted therapies in gastroesophageal cancer.

Holly A. Martinson, PhD

2016 Debbie's Dream Foundation- AACR Gastric Cancer Research Fellowship



Funded Project: Discovering biomarkers for early detection and treatment of gastric cancer

Alaska Native (AN) have the highest incidence and mortality rates of gastric cancer in North America.

With support of the Debbie's Dream Foundation-AACR Gastric Cancer Research Fellowship, Dr. Martinson sought to identify the factors behind the occurrence and poorer survival rates of AN gastric cancer patients. She and her colleagues identified multiple genes that could be drivers of gastric cancer among the AN people. In addition, she found that EBV-encoded small ribonucleic acid 1 (EBERs), and the proteins called COX-2 and MUC1, could be utilized as prognostic indicators and therapeutic targets.

Post-Award:

Dr. Martinson is now an Associate Professor at the University of Alaska in Anchorage. She continues to be committed to combatting gastric cancer in Alaska Native people.

Haisheng Zhang, PhD

2017 Debbie's Dream Foundation-
AACR Gastric Cancer
Research Fellowship



Funded Project: RHOA alterations in the development of diffuse gastric cancer

The diffuse-type of gastric cancer has been associated with a dismal prognosis. Up to a quarter of patients have a mutation in the RhoA gene. However, the mechanism by which these mutations result in gastric cancer formation was unclear.

With support of the Debbie's Dream Foundation-AACR Gastric Cancer Research Fellowship, Dr. Zhang developed a new mouse model and showed how the combination of a mutation in the RhoA gene with the inactivation of a tumor suppressor gene called Cdh1 can result in gastric cancer formation. In addition, he identified potential new treatment strategies.

Post-Award:

Although Dr. Zheng remains a postdoctoral research fellow at Harvard Medical School, he is co-founder and President of [Signet Therapeutics](#). Using its novel disease models platform, Signet made the groundbreaking discovery of a promising new target for diffuse gastric cancer (DGC). It launched a drug discovery program with another company, XtalPi. As Signet quickly advance its first-in-class DGC pipeline toward clinical trials, it has recently expanded its drug discovery program with XtalPi to another novel cancer target discovered by Signet.

Moritz Eissmann, PhD

**2022 AACR-Debbie's Dream
Foundation Career Development
Award in Gastric Cancer Research**



Group Leader,
Olivia Newton-John
Cancer Research Institute

Funded Project: Identification of therapeutic vulnerabilities that promote clonal fitness and metastatic spread of gastric cancer cells in vivo

Close to half (48%) and 15% of metastatic gastric cancer (GC) patients have lesions in the liver and the lung, respectively. Inflammatory processes involving a protein called Stat3 may play a role in the growth of tumor in the stomach and in metastatic sites (such as liver and lung).

With support of the Debbie's Dream Foundation-AACR Gastric Cancer Research Career Development Award, Dr. Eissmann will use a new 3D cell culture model that he developed, to determine how inflammatory/Stat3-dependent processes influence the behavior of gastric cancer cells. In addition, he is set to explore the therapeutic potential of combining an immune checkpoint blockade antibody with a targeted drug against Stat3.

Reviewer's Comment on Project :

"Reprogramming the tumor microenvironment by targeting STAT3 as a means of enhancing checkpoint inhibitor therapy is innovative and if successful would make a highly significant contribution to the treatment of gastric cancers.

Grantee Acknowledgment of Support:

"This prestigious award will fuel my passion to conduct gastric cancer research that aims to improve patient outcomes. Importantly, this award empowers me to pursue a project, which if successful, will bring hope for better therapies for those metastatic gastric cancer patients with the worst prognosis.

Moritz Eissmann, PhD
2022 AACR-Debbie's Dream
Foundation Career Development
Award in Gastric Cancer Research

Project title: *Role of SIRPα blockade in radiation-induced anti-tumor immunity*

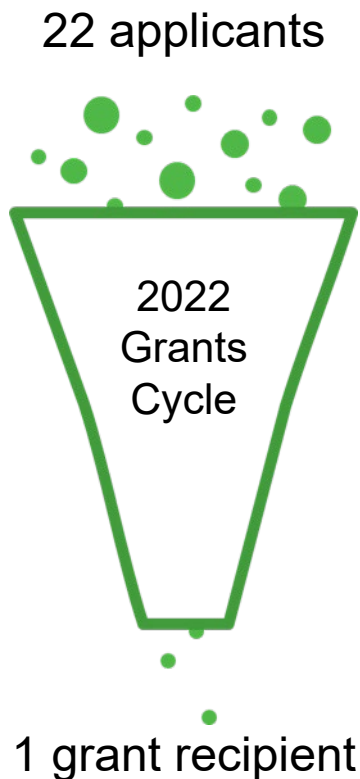
Project aims:

- To determine the role of the CD47/SIRPα pathway in regulating the phagocytosis-associated functions of dendritic cells and other myeloid cells in the tumor microenvironment after tumor-targeted radiotherapy
- To determine the synergistic effects of SIRPα blockade and tumor-targeted radiotherapy on the development of anti-tumor immunity and abscopal responses *in vivo*

Potential project impact:

- Advancement of our understanding of how radiotherapy induces anti-tumor responses
- If the combination of SIRPα blockade and tumor-targeted radiotherapy is shown to overcome immune resistance in preclinical models of TNBC, it represents a promising novel treatment strategy for TNBC patients, the majority of whom do not benefit from currently available immune checkpoint inhibitors

However, there is still great work that needs support!



The AACR looks forward to our continued
collaboration and to providing more
support to the next generation of gastric
cancer researchers

