RESEARCH DIGEST

BREAKING DOWN PANCREATIC CANCER NEWS

SPRING 2018

PANCREATIC CANCER ACTION NETWORK AND COMMUNITY NEWS

Check out the latest pancreatic cancer news and stories from our live newsfeed

New Report Highlights Pancreatic Cancer Prevalence

ACS Cancer Facts & Figures 2018

The American Cancer Society (ACS) released its 2018 Cancer Facts & Figures, an annual report that analyzes cancer statistics and trends and provides predictions for the coming year. The report estimates that 55,440 Americans will be diagnosed with pancreatic cancer this year and that 44,330 will die from the disease.

Why Pancreatic Cancer Is on the Rise

PanCAN article: Scientific American Explores Pancreatic Cancer Rise

Scientific American explored predictions that pancreatic cancer will become the second leading cause of cancer-related death in the United States around 2020 – and interviewed PanCAN's own scientific project manager, Lola Rahib.

The 30-Year Quest To Tame The 'Wily' Cancer Gene

PanCAN article: NPR Focuses on One of the Biggest Challenges in Pancreatic Cancer: KRAS

Check out this great NPR piece, featuring quotes from Frank McCormick and Adrienne Cox, focusing on renewed efforts to target the "undruggable" RAS protein.

National Doctors' Day

National Doctors' Day was March 30. In a tribute to doctors, we highlighted disciplines of medical professionals who diagnose and treat pancreatic cancer patients, through the voices of our Scientific and Medical Advisory Board members, in a series of three blogs: **gastroenterologists and pathologists**, **surgeons and radiation oncologists** and **medical oncologists and our chief medical officer**.

Largest Gift in PanCAN History Is a Powerful Testament to Donor's Commitment to Innovation, Impact

An unprecedented $25 million gift has been made to the Pancreatic Cancer Action Network (PanCAN) to honor Skip Viragh's memory and to support the organization's goal to change the paradigm for how pancreatic cancer patients are diagnosed and treated and, in turn, dramatically improve outcomes.

Innovation in Action: Precision Promise Update

The Pancreatic Cancer Action Network (PanCAN) is excited to launch Precision Promise^{SM} in the second half of 2018. Precision Promise is the first adaptive clinical trial platform for pancreatic cancer patients in the world and PanCAN's groundbreaking initiative to dramatically improve patient outcomes and advance the organization's goal to double survival by 2020.

National Pancreatic Cancer Advocacy Day

Registration is now open for National Pancreatic Cancer Advocacy Day 2018! Advocacy Day is an opportunity for you and others to Demand Better in our fight for much-needed progress to improve outcomes for patients. Increased federal funding for cancer research is the key to funding breakthroughs – and to saving more lives. Join us and share your story with your elected officials who have the power to save lives by prioritizing cancer research funding.

Society for Immunotherapy of Cancer Announces 2018 Recipient of the Richard V. Smalley, MD, Memorial Award and Lectureship

The Society for Immunotherapy of Cancer (SITC) is pleased to announce Philip D. Greenberg, MD, Head of the Program in Immunology at Fred Hutchinson Cancer Research Center and University of Washington Professor of Medicine (Oncology) and Immunology, as the 2018 recipient of the Richard V. Smalley, MD, Memorial Award and Lectureship, the society's highest honor. Dr. Greenberg received a Translational Research Grant from PanCAN in 2016, funded in memory of Abby Sobrato.

Clinical Trial Finder

The Clinical Trial Finder saves you time and energy by helping you quickly and easily find the most current pancreatic cancer clinical trials information. By registering for an account, you will have access to the most up-to-date and comprehensive database of pancreatic cancer clinical trials in the United States. Our online tool allows you to perform a patient-specific search to locate available trials based on your patients' needs or a general search to understand the current clinical trials landscape to inform research or trial design.

Know Your Tumor®
Powerful Knowledge. Personal Treatment.®

Our Know Your Tumor service is an IRB-approved protocol that provides you and your pancreatic cancer patients with a molecular profiling report of their tumor, which includes personalized treatment options – including standard treatments, off-label treatments and available clinical trials. Treatment options are determined after findings of the molecular reports are interpreted by an expert panel, providing valuable insight to support your treatment decisions.

Patient Registry

The Patient Registry is a global online database created to look for patterns in treatments, side effect management and diagnostics that will lead to improved treatment options and outcomes for patients. We welcome contributions from people diagnosed with pancreatic cancer or who have provided care for someone with pancreatic cancer. By encouraging your patients to join our quickly growing community to share their experiences, you're giving researchers access to crucial data that will help make discoveries. Together, we will move pancreatic cancer research forward.

FUNDING AND JOB OPPORTUNITIES

Damon Runyon Innovation Award

Application deadline: July 6, 2018

The Damon Runyon-Rachleff Innovation Award is designed to provide support for the next generation of exceptionally creative thinkers with "high-risk/high-reward" ideas that have the potential to significantly impact our understanding of and/or approaches to the prevention, diagnosis or treatment of cancer.

Damon Runyon-Dale F. Frey Award for Breakthrough Scientists

Application deadline: July 16, 2018

At the end of the Damon Runyon Fellowship, there are often a select few who have greatly exceeded the

Foundation's highest expectations. To catapult their research careers – and their impact on cancer – the Foundation will make an additional investment in these exceptional individuals by selecting them as recipients of the Damon Runyon-Dale F. Frey Award for Breakthrough Scientists.

National Cancer Institute Funding Opportunities
NCI funding opportunities are listed by type, research topic or special initiatives.

American Cancer Society Funding Opportunities
The American Cancer Society focuses its funding on investigator-initiated, peer-reviewed proposals. This intellectual freedom encourages discovery in areas that scientists believe are most likely to solve the problems of cancer. The American Cancer Society also offers grants that support the clinical and/or research training of health professionals (nurses, physicians, and social workers).

Cancer Moonshot℠ – Funding Opportunities
The funding opportunity announcements (FOAs) listed on this page highlight research initiatives that align with the efforts of the Cancer Moonshot. They may be supported with existing funds or with the 21st Century Cures funding.

Job opportunities:

Postdoctoral Position: Fox Chase Cancer Center
There is an opening for a motivated Postdoctoral Fellow in the research laboratory of Paul Campbell, PhD, in the Cancer Biology Program at Fox Chase Cancer Center (FCCC) in Philadelphia, PA. The lab focuses on gastrointestinal cancers, particularly pancreatic cancer, and the microenvironment signaling that drives cancer progression. They are interested in basic and translational science approaches that ultimately lead to improved therapeutics. The lab resides in the newly-formed Marvin and Concetta Greenberg Pancreatic Cancer Institute within FCCC.

The ideal candidate will have an interest in identifying novel mechanisms that promote the development of cancer from early lesions through to metastatic disease, using fundamental mechanisms discovered in model systems as a starting point. Familiarity with methods for manipulating gene expression and signaling in mammalian cultured cells and mouse models, as well as experience in molecular biology are desired. Please provide a brief summary of future career plans in your application.
Interested candidates should send curriculum vitae, a brief description of research experience, and names of three references to Dr. Paul Campbell (email: paul.campbell@fccc.edu).

Post-doctoral Position: Moffitt Cancer Center
The Karen Mann lab is recruiting post-doctoral fellows to investigate cooperating cancer drivers that promote pancreatic cancer metastasis. We are focused on delineating transcriptional reprogramming and alternative splicing events influenced by novel drivers identified using *Sleeping Beauty* insertional mutagenesis in a mouse model of pancreatic cancer. We employ computational, *in vitro* and novel *in vivo* approaches to delineate the biological context in which these drivers function**.** Our lab is in the Department of Molecular Oncology and is part of the Cancer Biology and Evolution Program at Moffitt Cancer Center.

The ideal candidate has a PhD in Genetics, Molecular Biology, Biochemistry or related discipline earned within the last 2 years, a strong foundation in molecular biology, mammalian cell culture and mouse genetics, a proven track record of publication in international journals, and excellent written and oral communication skills.

Interested applicants should send a single PDF file that includes a current CV with recent publications, a personal statement of scientific interests and goals (2-page maximum) including contact information for three references to Dr. Karen Mann via email to Karen.Mann@moffitt.org.

Postdoctoral Position: Institute of Cancer Genetics of Columbia University
A post-doctoral position is available in the lab of Dr. Christine Chio at the Institute of Cancer Genetics of Columbia University to study the etiology and progression of pancreatic ductal adenocarcinoma using ex-vivo organoid cultures and in vivo genetically engineered mouse models. The research interest of the lab is in investigating the role of reactive oxygen species as selective secondary messengers to support cancer cell viability and tumor-stroma co-evolution.

MEETINGS

Pancreas 2018
April 26 – 29, 2018
Baltimore, MD
Pancreas 2018 follows on from the successful meetings in Glasgow (2016), Verona (2014) and Kyoto (2012) and is a major event in the calendar, providing a unique opportunity for all those working in the diagnosis and treatment of pancreatic cancer, to learn of the latest developments in this rapidly changing and expanding field.

2018 Annual Los Angeles NET Patient Education Conference
May 19, 2018, 8 a.m. – 5 p.m.
UCLA Covel Commons, Los Angeles, CA
This has been a huge year for the NET community! NET research has been accelerating, creating many options for treatments. This full day event offers an opportunity to hear several experts all in one location and learn about the latest treatment options for patients. Join LACNETS at UCLA's Covel Commons for a full day event featuring renowned Neuroendocrine Tumor (NET) specialists from across the country. Their theme for this year is "Educate & Empower."

ASCO Annual Meeting
June 1 – 5, 2018
McCormick Place, Chicago, IL
The Annual Meeting brings together more than 32,000 oncology professionals from around the world to discuss state-of-the-art treatment modalities, new therapies, and ongoing controversies in the field.

Pancreas Club Annual Meeting
June 1 – 2, 2018
Washington, D.C.
Registration for the 2018 Annual Meeting will open in March 2018.

Digestive Disease Week®
June 2 – 5, 2018
Walter E. Washington Convention Center, Washington, D.C.
Deadline for early registration: April 18, 2018
Digestive Disease Week® (DDW) is the world's largest gathering of physicians, researchers and industry in the fields of gastroenterology, hepatology, endoscopy and gastrointestinal surgery.

3rd International Conference on Pancreatic Cancer and Liver Diseases
June 18 – 19, 2018

Rome, Italy
The conference will be organized around the theme “Making Life Better: Fight against Pancreatic Cancer and Liver Diseases.”

PancreasFest
July 25 – 27, 2018
Pittsburgh, PA
PancreasFest is an annual meeting of pancreas physicians and translational researchers who convene during the last week of July to find new ways of working together to improve patient care.

13th International Hepato-Pancreato-Biliary Association (IHPBA) World Congress
Sept. 3 – 7, 2018
Geneva, Switzerland
Deadline for early registration: May 2, 2018
An outstanding scientific program that combines current evidence and state of the art technology is being organized and will provide an excellent opportunity for learning and discussion.

AACR Pancreatic Cancer Special Conference
Sept. 21 – 24, 2018
Boston Marriott Copley Place, Boston, MA
PanCAN and the Lustgarten Foundation are co-lead supporters for this upcoming meeting.

BIOLOGY OF CANCER

β2 Adrenergic-Neurotrophin Feedforward Loop Promotes Pancreatic Cancer
PanCAN article: Grantee’s Work Explains Stress in Disease Progression
Journal: *Cancer Cell*
Institution(s): Columbia University Medical Center, New York, NY, and others
Corresponding author(s): Timothy Wang
PanCAN-affiliated authors: Kenneth Olive and Timothy Wang
Major finding: The authors’ findings suggest that catecholamines drive a feedforward loop, whereby upregulation of neurotrophins increases sympathetic innervation and local norepinephrine accumulation.

The Pancreatic Cancer Microbiome Promotes Oncogenesis by Induction of Innate and Adaptive Immune Suppression
PanCAN article: Grantee’s Study Suggests Bacteria Can Influence Tumor Growth and Immune Response
Journal: *Cancer Discovery*
Institution(s): New York University School of Medicine, New York, NY, and others
Corresponding author(s): George Miller or Deepak Saxena
PanCAN-affiliated author: George Miller
Major finding: The authors’ data suggest that endogenous microbiota promote the crippling immune-suppression characteristic of pancreatic ductal adenocarcinoma and that the microbiome has potential as a therapeutic target in the modulation of disease progression.

Association of Alterations in Main Driver Genes With Outcomes of Patients With Resected Pancreatic Ductal Adenocarcinoma
PanCAN article: Tumor’s Genetic Changes Can Impact Patient Outcomes
Journal: *JAMA Oncology*
Institution(s): Dana-Farber Cancer Institute and Harvard Medical School, Boston, MA, and others
Corresponding author(s): Brian Wolpin
PanCAN-affiliated author: Andrew Aguirre, Jennifer Tseng, David Linehan, Aram Hezel and Brian Wolpin

Major finding: Although patients with resected pancreatic adenocarcinoma are at high risk for disease recurrence, few biomarkers are available to inform patient outcomes. The authors conclude that patient outcomes are associated with alterations of the 4 main driver genes in resected pancreatic adenocarcinoma.

Transcriptional Regulation by NR5A2 Links Differentiation and Inflammation in the Pancreas
Journal: *Nature*
Institution(s): Spanish National Cancer Research Centre-CNIO, Madrid, Spain, and others
Corresponding author(s): Francisco Real
PanCAN-affiliated author: Gloria Petersen
Major finding: These findings support the notion that, in the pancreas, the transcriptional networks involved in differentiation-specific functions also suppress inflammatory programs. Under conditions of genetic or environmental constraint, these networks can be subverted to foster inflammation.

Evolutionary Routes and KRAS Dosage Define Pancreatic Cancer Phenotypes
Journal: *Nature*
Institution(s): Technische Universität München, Munich, Germany, and others
Corresponding author(s): Roland Rad
Major finding: Evolutionary constraints and contingencies direct oncogenic dosage gain and variation along defined routes to drive the early progression of pancreatic ductal adenocarcinoma and shape its downstream biology. The authors' study uncovers universal principles of *Ras*-driven oncogenesis that have potential relevance beyond pancreatic cancer.

Immune Cell Production of Interleukin 17 Induces Stem Cell Features of Pancreatic Intraepithelial Neoplasia Cells
PanCAN article: Grantee Explains Inflammation Driving Cancer Growth
Journal: *Gastroenterology*
Institution(s): The University of Texas MD Anderson Cancer Center. Houston, TX, and others
Corresponding author(s): Florencia McAllister
PanCAN-affiliated authors: Huamin Wang, Paul Chiao, Anirban Maitra, Steven Leach, Timothy Wang, Jennifer Bailey and Florencia McAllister
Major finding: In studies of mouse and human pancreatic tumors and precursors, the authors found immune cell-derived interleukin 17 (IL17) to regulate development of tuft cells and stem cell features of pancreatic cancer cells via increased expression of DCLK1, POU2F3, ALDH1A1, and IL17RC. Strategies to disrupt this pathway might be developed to prevent pancreatic tumor growth and progression.

Breast and Pancreatic Cancer Interrupt IRF8-Dependent Dendritic Cell Development to Overcome Immune Surveillance
Journal: *Nature Communications*
Institution(s): Washington University School of Medicine, St. Louis, MO, and others
Corresponding author(s): David DeNardo
PanCAN-affiliated authors: William Hawkins, David Linehan and David DeNardo
Major finding: The authors' data suggest immune surveillance can be impaired by tumor-induced alterations in conventional dendritic cell development.

Autophagy Sustains Pancreatic Cancer Growth through Both Cell-Autonomous and Nonautonomous Mechanisms
Journal: *Cancer Discovery*
Institution(s): Dana Farber Cancer Institute, Harvard Medical School, Boston, MA, and others
Corresponding author(s): Alec Kimmelman
PanCAN-affiliated authors: Alec Kimmelman
Major finding: The authors' study supports autophagy inhibition in pancreatic ductal adenocarcinoma may have future utility in the treatment of pancreatic cancer and illustrates the importance of assessing complex biological processes in relevant autochthonous models.

Loss of KDM6A Activates Super-Enhancers to Induce Gender-Specific Squamous-like Pancreatic Cancer and Confers Sensitivity to BET Inhibitors
Journal: *Cancer Cell*
Institution(s): George Washington University (GWU) School of Medicine and Health Sciences, Washington, DC
Corresponding author(s): Alexandros Tzatsos
Major finding: KDM6A, an X chromosome-encoded histone demethylase and member of the COMPASS-like complex, is frequently mutated in a broad spectrum of malignancies and contributes to oncogenesis with poorly characterized mechanisms. The authors also demonstrate that KDM6A-deficient pancreatic cancer is selectively sensitive to BET inhibitors, which reversed squamous differentiation and restrained tumor growth *in vivo*, highlighting a therapeutic niche for patient tailored therapies.

Recapitulating the Clinical Scenario of BRCA-Associated Pancreatic Cancer in Pre-Clinical Models
Journal: *International Journal of Cancer*
Institution(s): Sheba Medical Center, Tel Hashomer, Israel, and others
Corresponding author(s): Talia Golan
Major finding: The authors' results demonstrate heterogeneous responses to DNA damaging agents/PARP inhibitors in BRCA-associated patient-derived xenografts thus reflecting the wide clinical spectrum.

Saa3 Is a Key Mediator of the Protumorigenic Properties of Cancer-Associated Fibroblasts in Pancreatic Tumors
Journal: *PNAS*
Institution(s): Centro Nacional de Investigaciones Oncológicas (CNIO), Madrid, Spain, and others
Corresponding author(s): Carmen Guerra or Mariano Barbacid
Major finding: These findings support the concept that selective inhibition of SAA1, a member of the serum amyloid A (SAA) apolipoprotein family, in cancer-associated fibroblasts may provide potential therapeutic benefit to pancreatic ductal adenocarcinoma patients.

Pancreatic Cancer in 2017: Rebooting Pancreatic Cancer Knowledge and Treatment Options
Journal: *Nature Reviews Gastroenterology & Hepatology*
Institution(s): UT MD Anderson Cancer Center, Houston, TX
Corresponding author(s): Anirban Maitra
PanCAN-affiliated authors: Anirban Maitra
Major finding: High stromal cellularity in pancreatic cancer is an important factor for ineffective treatment and molecular studies. In 2017, major advancements were made in transcriptional characterization, treatment delivery and clinical regimes, raising hope for a breakthrough against this deadly disease.

Establishment of the First Well-Differentiated Human Pancreatic Neuroendocrine Tumor Model
Journal: *Molecular Cancer Research*
Institution(s): University Medical Center Hamburg-Eppendorf, Hamburg, Germany, and others
Corresponding author(s): Joerg Schrader
Major finding: High expression of somatostatin receptors and a well-differentiated phenotype as well as a slow growth rate qualify the new cell line as a relevant model to study neuroendocrine tumor biology and to develop new tumor treatments.

EARLY DETECTION AND RISK FACTORS

Detection and Localization of Surgically Resectable Cancers with a Multi-Analyte Blood Test
PanCAN articles: Can a Blood Test Lead to Early Detection? and 6 Things to Know about the CancerSEEK Test and Early Detection
Journal: *Science*
Institution(s): Johns Hopkins University School of Medicine, Baltimore, MD, and others
Corresponding author(s): Cristian Tomasetti, Anne Marie Lennon, Kenneth W. Kinzler, Bert Vogelstein

or Nickolas Papadopoulos
PanCAN-affiliated authors: Ralph Hruban, Michael Goggins, Alison Klein and Samir Hanash
Major finding: Here the authors describe a blood test that can detect eight common cancer types through assessment of the levels of circulating proteins and mutations in cell-free DNA.

Genome-wide Meta-Analysis Identifies Five New Susceptibility Loci for Pancreatic Cancer
Journal: *Nature Communications*
Institution(s): Johns Hopkins University School of Medicine, Baltimore, MD, and others
Corresponding author(s): Alison Klein or Laufey Amundadottir
PanCAN-affiliated authors: Alison Klein, Brian Wolpin, Michael Goggins and Gloria Petersen
Major finding: To identify common susceptibility alleles, the authors performed the largest pancreatic cancer GWAS to date, including 9040 patients and 12,496 controls of European ancestry from the Pancreatic Cancer Cohort Consortium (PanScan) and the Pancreatic Cancer Case-Control Consortium (PanC4).

IPMNs with Co-Occurring Invasive Cancers: Neighbours but Not Always Relatives
PanCAN article: When Characterizing Cysts, You Should Look at the Entire Pancreas, Experts Say
Journal: *Gut*
Institution(s): Johns Hopkins University School of Medicine, Baltimore, MD, and others
Corresponding author(s): Laura Wood
PanCAN-affiliated author: Michael Goggins
Major finding: This study demonstrates a higher prevalence of likely independent co-occurring intraductal papillary mucinous neoplasms (IPMN) and ductal adenocarcinoma than previously appreciated. These findings have important implications for molecular risk stratification of patients with IPMN.

Progression Patterns in the Remnant Pancreas after Resection of Non-Invasive or Micro-Invasive Intraductal Papillary Mucinous Neoplasms (IPMN)
Journal: *Annals of Surgical Oncology*
Institution(s): Memorial Sloan Kettering Cancer Center, New York, NY, and others
Corresponding author(s): Peter Allen
Major finding: In this study, 22% of patients had disease progression following resection of noninvasive or microinvasive intraductal papillary mucinous neoplasms (IPMN); 16% of these progressions represented invasive disease. These patients represent a high-risk group and should undergo long-term radiographic surveillance.

Prospective Evaluation of Germline Alterations in Patients With Exocrine Pancreatic Neoplasms
Journal: *Journal of the National Cancer Institute*
Institution(s): Memorial Sloan Kettering Cancer Center, New York, NY, and others
Corresponding author(s): Eileen O'Reilly
PanCAN-affiliated authors: Steven Leach, Christine Iacobuzio-Donahue and Eileen O'Reilly
Major finding: Pathogenic germline alterations (PGAs) frequently occur in pancreas exocrine neoplasms and involve multiple genes beyond those previously associated with hereditary pancreatic cancer. These PGAs are therapeutically actionable in about 5% to 10% of patients. These data support routinely offering germline testing in all pancreatic ductal adenocarcinoma patients with a broad panel of known hereditary cancer predisposition genes.

An Integrated Flow Cytometry-Based Platform for Isolation and Molecular Characterization of Circulating Tumor Single Cells and Clusters
Journal: *Scientific Reports*
Institution(s): University of Pennsylvania, Philadelphia, PA, and others
Corresponding author(s): Erica Carpenter
PanCAN-affiliated authors: Ben Stanger and Erica Carpenter
Major finding: As proof of principle, the authors isolated and transcriptionally characterized 63 single circulating tumor cells (CTCs) from a genetically engineered pancreatic cancer mouse model (n = 12

mice) and, using index sorting, were able to identify distinct epithelial and mesenchymal sub-populations based on linked single cell protein and gene expression.

Early Detection of Pancreatic Cancer: The Role of Depression and Anxiety as a Precursor for Disease
Journal: *Pancreas*
Institution(s): Kenner Family Research Fund, New York, NY
Corresponding author(s): Barbara Kenner
Major finding: This editorial addresses the role of depression and anxiety as a precursor to cancer and encourages further research on both the biomarker and mental health aspect of pancreatic cancer.

Determinants and Prognostic Value of Quality of Life in Patients with Pancreatic Ductal Adenocarcinoma
PanCAN article: Study Shows Quality of Life Impacts Survival
Journal: *European Journal of Cancer*
Institution(s): The University of Texas MD Anderson Cancer Center, Houston, TX, and others
Corresponding author(s): Xifeng Wu
PanCAN-affiliated authors: Alison Klein
Major finding: Quality of life (QOL) after diagnosis is a significant prognostic indicator for patients with pancreatic ductal adenocarcinoma (PDAC). Multiple factors determine QOL, suggesting possible means of intervention to improve QOL and outcomes of PDAC patients.

A Sub-Type of Familial Pancreatic Cancer: Evidence and Implications of Loss-of-Function Polymorphisms in Indoleamine-2,3-Dioxygenase-2
Journal: *Journal of the American College of Surgeons*
Institution(s): Thomas Jefferson University, Philadelphia, PA
Corresponding author(s): Jonathan Brody
PanCAN-affiliated authors: Jonathan Brody
Major finding: The authors' preliminary data suggest a strong association between the *IDO2* inactivating Y359Stop SNP and an increased risk of familial pancreatic cancer when compared with the control group. Future studies will evaluate the value of *IDO2* genotyping as a prognostic, early detection marker for pancreatic ductal adenocarcinoma and a predictive marker for novel immune checkpoint therapies.

Pancreatic Juice Mutation Concentrations Can Help Predict the Grade of Dysplasia in Patients Undergoing Pancreatic Surveillance
Journal: *Clinical Cancer Research*
Institution(s): Johns Hopkins University School of Medicine, Baltimore, MD
Corresponding author(s): Michael Goggins
PanCAN-affiliated authors: Marcia Canto and Michael Goggins
Major finding: Pancreatic juice mutation analysis using digital next-generation sequencing (NGS) has potential diagnostic utility in the evaluation of patients undergoing pancreatic surveillance.

Opium Use and Risk of Pancreatic Cancer: A Prospective Cohort Study
Journal: *Cancer Epidemiology, Biomarkers & Prevention*
Institution(s): Tehran University of Medical Sciences, Tehran, Iran., and others
Corresponding author(s): Reza Malekzadeh
Major finding: The authors examined the association between opium consumption and pancreatic cancer incidence in a large-scale prospective cohort of the general population in northeastern Iran. Their results showed a positive association between opium consumption and pancreatic cancer.

Association of *VHL* Genotype With Pancreatic Neuroendocrine Tumor Phenotype in Patients With von Hippel–Lindau Disease
Journal: *JAMA Oncology*
Institution(s): National Cancer Institute, National Institutes of Health, and Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel, and others

Corresponding author(s): Electron Kebebew
Major finding: The authors conducted a prospective study (NCT00062166) to evaluate the natural history of Von Hippel–Lindau (VHL) disease–associated pancreatic lesions to determine what factors were associated with pancreatic neuroendocrine tumor phenotype and prognosis.

Lifetime and Baseline Alcohol Intakes and Risk of Pancreatic Cancer in the European Prospective Investigation into Cancer and Nutrition Study
Journal: *International Journal of Cancer*
Institution(s): International Agency for Research on Cancer, Lyon, France, and others
Corresponding author(s): Pietro Ferrari
Major finding: Findings from a large prospective study suggest that baseline and lifetime alcohol intakes were positively associated with pancreatic cancer risk, with more apparent risk estimates for beer and spirits/liquors than wine intake.

TREATMENT AND SURVIVORSHIP

FDA Approves New Treatment for Certain Digestive Tract Cancers
PanCAN articles: Lutathera® Drug Approved for Pancreatic Neuroendocrine Tumors and 5 Key Facts about PNETs
The U.S. Food and Drug Administration approved Lutathera (lutetium Lu 177 dotatate) for the treatment of a type of cancer that affects the pancreas or gastrointestinal tract called gastroenteropancreatic neuroendocrine tumors (GEP-NETs). This is the first time a radioactive drug, or radiopharmaceutical, has been approved for the treatment of GEP-NETs. Lutathera is indicated for adult patients with somatostatin receptor-positive GEP-NETs.

PanCAN's Precision Medicine Results Featured at Major Meeting
GI Cancers Symposium abstracts: Multiomic molecular comparison of primary versus metastatic pancreatic tumors; Molecular and clinical characterization of BRAF mutations in pancreatic ductal adenocarcinomas (PDACs) and Introduction of #PancChat: A novel Twitter platform to inform and engage the pancreatic cancer community
Two of the PanCAN-affiliated posters presented at the GI Cancers Symposium relate to the organization's Know Your Tumor® precision medicine service, prepared in collaboration with the precision medicine company Perthera and research partners at several major institutions. The final poster involving PanCAN that will be presented at this year's GI Cancers Symposium switches gears to social media – and how Twitter can facilitate disease-specific conversations.

Consensus Statement on Mandatory Measurements in Pancreatic Cancer Trials (COMM-PACT) for Systemic Treatment of Unresectable Disease
Journal: *The Lancet Oncology*
Institution(s): Cancer Center Amsterdam, Academic Medical Center, Amsterdam, Netherlands, and others
Corresponding author(s): Hanneke W M van Laarhoven
PanCAN-affiliated authors: Jordan Berlin, Eileen O'Reilly, Philip Philip
Major finding: The COnsensus statement on Mandatory Measurements in unresectable PAncreatic Cancer Trials (COMM-PACT) identifies a mandatory set of baseline and prognostic characteristics to allow adequate comparison of outcomes between pancreatic cancer studies.

Determinants and Prognostic Value of Quality of Life in Patients with Pancreatic Ductal Adenocarcinoma
PanCAN article: Study Shows Quality of Life Impacts Survival

Journal: *European Journal of Cancer*
Institution(s): The University of Texas MD Anderson Cancer Center, Houston, TX, and others
Corresponding author(s): Xifeng Wu
PanCAN-affiliated author: Alison Klein
Major finding: Quality of life (QOL) after diagnosis is a significant prognostic indicator for patients with pancreatic ductal adenocarcinoma (PDAC). Multiple factors determine QOL, suggesting possible means of intervention to improve QOL and outcomes of PDAC patients.

Efficacy of Larotrectinib in TRK Fusion-Positive Cancers in Adults and Children
Journal: *New England Journal of Medicine*
Institution(s): Memorial Sloan Kettering Cancer Center, New York, NY, and others
Corresponding author(s): David Hyman
PanCAN-affiliated author: Jordan Berlin
Major finding: Larotrectinib had marked and durable antitumor activity in patients with tropomyosin receptor kinases (TRK) fusion-positive cancer, regardless of the age of the patient or of the tumor type.

Activity of Mesothelin-specific Chimeric Antigen Receptor T cells Against Pancreatic Carcinoma Metastases in a Phase 1 Trial
Journal: *Gastroenterology*
Institution(s): University of Pennsylvania, Philadelphia, PA
Corresponding author(s): Gregory Beatty
PanCAN-affiliated author: Gregory Beatty
Major finding: The authors engineered T cells to transiently express an mRNA encoding a chimeric antigen receptor (CAR) specific for mesothelin-a protein that is over-expressed by pancreatic ductal adenocarcinoma (PDAC) cells. Their results provide evidence for the potential anti-tumor activity of mRNA mesothelin-specific CAR T cells (CARTmeso cells) cells, as well as PDAC resistance to the immune response.

Genomics-Driven Precision Medicine for Advanced Pancreatic Cancer: Early Results from the COMPASS Trial
Journal: *Clinical Cancer Research*
Institution(s): Princess Margaret Cancer Centre, Toronto, ON, Canada, and others
Corresponding author(s): Xifeng Wu
Major finding: Prospective genomic profiling of advanced pancreatic ductal adenocarcinoma is feasible and the authors' early data indicate that chemotherapy response differs among patients with different genomic/transcriptomic subtypes.

Expression of Dihydropyrimidine Dehydrogenase (DPD) and hENT1 Predicts Survival in Pancreatic Cancer
Journal: *British Journal of Cancer*
Institution(s): University of Liverpool, Liverpool, UK, and others
Corresponding author(s): William Greenhalf
Major finding: Dihydropyrimidine dehydrogenase (DPD) tumor expression was a negative prognostic biomarker. Together with tumor expression of human equilibrative nucleoside transporter-1 (hENT1), DPD tumor expression defined patient subgroups that might benefit from either postoperative 5-fluorouracil/folinic acid (5FU/FA) or gemcitabine.

Dynamic Changes During the Treatment of Pancreatic Cancer
Journal: *Oncotarget*
Institution(s): MD Anderson Cancer Center, Houston, TX, and others
Corresponding author(s): Arnold Levine
PanCAN-affiliated authors: Andrea Wang-Gillam, Anirban Maitra and David Tuveson
Major finding: This detailed analysis of the clinical descriptions, imaging, pathology, molecular and cellular evolution of the tumors, treatments, and responses to chemotherapy, targeted therapies, and

immunotherapies, as well as attempts at the development of personalized medical treatments for a single patient should provide a valuable guide to future directions in cancer treatment.

Neoadjuvant Therapy Affects Margins and Margins Affect All: Perioperative and Survival Outcomes in Resected Pancreatic Adenocarcinoma
Journal: *HPB*
Institution(s): Boston University School of Medicine, Boston, MA, and others
Corresponding author(s): Jennifer Tseng
PanCAN-affiliated author: Jennifer Tseng
Major finding: While neoadjuvant therapy is associated with decreased R1/R2-resection rates after pancreaticoduodenectomy, the poor prognostic impact of positive margins is not abrogated by neoadjuvant therapy, stressing the need for complete tumor clearance and postoperative treatment even after neoadjuvant therapy.

Gemcitabine and Taxane Adjuvant Therapy with Chemoradiation in Resected Pancreatic Cancer: A Novel Strategy for Improved Survival?
Journal: *Annals of Surgical Oncology*
Institution(s): Virginia Mason Medical Center, Seattle, WA
Corresponding author(s): Flavio Rocha
PanCAN-affiliated author: Vincent Picozzi
Major finding: Adjuvant gemcitabine-taxane combination chemotherapy (gem/ax) with or without chemoradiation is feasible, with a favorable overall survival. Future prospective studies of gem/tax-based adjuvant treatment for pancreatic cancer are warranted.

Evaluating Mismatch Repair Deficiency in Pancreatic Adenocarcinoma: Challenges and Recommendations
Journal: *Clinical Cancer Research*
Institution(s): Memorial Sloan Kettering Cancer Center, New York, NY, and others
Corresponding author(s): Eileen O'Reilly
PanCAN-affiliated author: Christine Iacobuzio-Donahue and Eileen O'Reilly
Major finding: An integrated approach of germline testing and somatic analyses of tumor tissues in advanced pancreatic ductal adenocarcinoma (PDAC) using next-generation sequencing (NGS) may help guide future development of immune and molecularly directed therapies in PDAC patients.

Imaging-Based Biomarkers: Changes in the Tumor Interface of Pancreatic Ductal Adenocarcinoma on Computed Tomography Scans Indicate Response to Cytotoxic Therapy
Journal: *Cancer*
Institution(s): The University of Texas MD Anderson Cancer Center, Houston, TX, and others
Corresponding author(s): Eugene Koay
PanCAN-affiliated authors: Huamin Wang, Anirban Maitra, Jason Fleming, Joseph Herman, Eugene Koay
Major finding: Changes at the pancreatic ductal adenocarcinoma (PDAC)/parenchyma interface may serve as an early predictor of response to therapy.

Analyzing the Impact of Compliance with National Guidelines for Pancreatic Cancer Care Using the National Cancer Database
Journal: *Journal of Gastrointestinal Surgery*
Institution(s): Geisinger Medical Center, Danville, PA
Corresponding author(s): Kathryn Jaap
Major finding: Adherence to National Comprehensive Cancer Network guidelines for pancreatic cancer patients improves survival. Compliance nationwide is low, especially for older patients and minorities and those treated outside academic centers. More studies will need to be performed to identify factors that hinder compliance.

Amphiphilic Nanocarrier-induced Modulation of PLK1 and miR-34a Leads to Improved Therapeutic Response in Pancreatic Cancer
Journal: *Nature Communications*
Institution(s): Tel Aviv University, Tel Aviv, Israel, and others
Corresponding author(s): Ronit Satchi-Fainaro
Major finding: Here the authors show a potent combination of microRNA and siRNA delivered by an efficient nanocarrier to pancreatic ductal adenocarcinoma (PDAC) tumors. Taken together, their findings warrant this unique combined polyplex's potential as a novel nanotherapeutic for PDAC.

Personalized RNA Medicine for Pancreatic Cancer
Journal: *Clinical Cancer Research*
Institution(s): Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, and others
Corresponding author(s): Frank Slack
PanCAN-affiliated author: Manuel Hidalgo
Major finding: In this study, the authors tested whether RNA-based therapeutics were suitable for personalized medicine by using patient-derived-organoid (PDO) and patient-derived-xenograft (PDX) models. This general approach appears suitable for co-clinical validation of personalized RNA medicine and paves the way to prospectively identify patients with eligible miRNA profiles for personalized RNA-based therapy.

Global Surveillance of Trends in Cancer Survival 2000-14 (CONCORD-3): Analysis of Individual Records for 37 513 025 Patients Diagnosed with One of 18 Cancers from 322 Population-based Registries in 71 Countries
Journal: *The Lancet*
Institution(s): London School of Hygiene & Tropical Medicine, London, UK, and others
Corresponding author(s): Claudia Allemani
Major finding: The CONCORD program enables timely comparisons of the overall effectiveness of health systems in providing care for 18 cancers that collectively represent 75% of all cancers diagnosed worldwide every year. Governments must recognize population-based cancer registries as key policy tools that can be used to evaluate both the impact of cancer prevention strategies and the effectiveness of health systems for all patients diagnosed with cancer.

Pancreatic Cancer Subtypes: A Roadmap for Precision Medicine
Journal: *Annals of Medicine*
Institution(s): University of Illinois at Chicago, Chicago, IL
Corresponding author(s): Carolina Torres
PanCAN-affiliated author: Paul Grippo
Major finding: The ultimate goal of this review is to *identify* current challenges in this area and *summarize current* efforts in developing clinical modalities that can effectively identify these subtypes in order to advance Precision Medicine.

ChemoCentryx Announces Positive Overall Survival Results with CCR2 Inhibitor CCX872 for Locally Advanced/Metastatic Pancreatic Cancer
Company: ChemoCentryx, Inc., Mountain View, CA
Major finding: ChemoCentryx, Inc., announced positive overall survival (OS) results from an ongoing Phase Ib clinical trial of the Company's second CCR2 inhibitor - CCX872 - in the treatment of locally advanced/metastatic pancreatic cancer.

FibroGen Granted Fast Track Designation by U.S. FDA for Pamrevlumab Treatment of Patients with Locally Advanced Unresectable Pancreatic Cancer
Company: FibroGen, Inc., San Francisco, CA
Major finding: FibroGen, Inc., announced that the U.S. Food and Drug Administration (FDA) has granted Fast Track designation for the company's anti-CTGF antibody, pamrevlumab, for the treatment of patients with locally advanced unresectable pancreatic cancer. This follows review of the Phase 2 clinical trial

evaluating pamrevlumab in combination with gemcitabine and nab-paclitaxel and represents recognition by the FDA that pamrevlumab has the potential to address an unmet medical need for this disease.

BERG Announces FDA Orphan-Drug Designation of BPM31510 for the Treatment of Pancreatic Cancer

Company: BERG, Boston, MA

Major finding: BERG, a Boston-based biopharmaceutical company that merges biology with technology to map the nature of diseases, announced the U.S. Food and Drug Administration (FDA) has granted orphan-drug designation to the Company's leading product candidate BPM31510, for the treatment of pancreatic cancer. BPM31510 is a first in class molecule that specifically targets the dysregulated metabolism observed in cancer.

The US FDA Granted Orphan Drug Designation to Yisheng Biopharma's Biological Product for Pancreatic Cancer Treatment

Company: Yisheng Biopharma Co., Ltd., Beijing, China

Major finding: Yisheng Biopharma, a biopharmaceutical company focusing on research, development, manufacturing, sales and marketing of immunological biologics and vaccines, announced that the U.S. Food and Drug Administration (FDA) has granted orphan drug designation (ODD) for its lead immuno-oncology candidate, YS-ON-001, for the treatment of pancreatic cancer. YS-ON-001 is a multi-component complex with broad immunomodulating properties, such as promoting Th1-biased immunity, inducing the activation and proliferation of dendritic cell (DC), B and natural killer cells (NK cells), promoting macrophage M1 polarization and downregulating regulatory T cells.