

# **MASONIC CANCER CENTER**

University of Minnesota  
Biennial Report

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**2020**

2020 BIENNIAL REPORT

# **MINNESOTA'S CANCER CENTER**



Comprehensive Cancer Center designated by the National Cancer Institute

# TABLE OF CONTENTS

## Top Stories

CGI	3	University of Minnesota First in U.S. to Offer New Targeted Therapy for Recurrent Brain Tumors	18
Tobacco Research: A Cancer Research	5	First in Human	20

## Scientific Advances

Robert Turesky Named Masonic Chair in Cancer Causation	8	Raising a Glass to Judy Survive, then Thrive	21
Masonic Cancer Center, University of Minnesota, Receives ‘Outstanding’ Rating from the National Cancer Institute	9	Gut Check on Cancer Faith-Based Medicine	23
Dr. Anne Blaes Named Director of Cancer Survivorship Services and Translational Research	11	Backed by a Generation of Research, Childhood Cancer Survivors are Living Well Decades After Treatment	25
Research Brief: Largest Study of Childhood Cancer after IVF - UMNews	13		
University of Minnesota Medical School Researchers Discover New Therapy for Prostate Patients	14		
Research Brief: Developing a Blood Test to Screen for Ovarian Cancer - UMNews Release	15		

## Clinical Care

New Digital Pills Allow University of Minnesota Medical School Doctors to Monitor Patients at Home	17		
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## Philanthropy

Raising a Glass to Judy Survive, then Thrive	21
Gut Check on Cancer Faith-Based Medicine	23
Backed by a Generation of Research, Childhood Cancer Survivors are Living Well Decades After Treatment	25

## Of Note

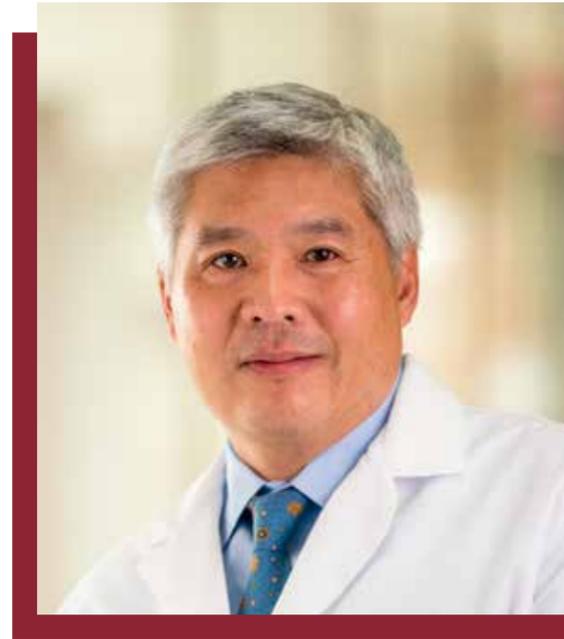
MNCCTN	27
CPSR	29
Cancer Center Leadership New Leaders	30
Clinical Trials	32
Masonic Scholars	33
New Researchers	35

## Honors

Top Doctors	39
-------------	----

Grant Highlights	41
------------------	----

Publications	43
--------------	----



Dear Friends,

The last two years have both been banner years for the Masonic Cancer Center, with many achievements and advancements. 2018 marked the 20th anniversary of our designation as a Comprehensive Cancer Center by the National Cancer Institute. It also was time for us to reapply to the National Cancer Institute through the rigorous, peer-reviewed process of submitting the Cancer Center Support Grant as we do every five years. I'm pleased to report that we not only succeeded in our re-designation as an NCI comprehensive cancer center, but also earned our highest rating to date: 'Outstanding.'

One initiative that drove our 'Outstanding' rating was the launch of the Minnesota Cancer Clinical Trials Network. The network has increased the availability of clinical trials to rural Minnesotans, created research capacity and jobs statewide, and created lasting collaborations with care organizations throughout Minnesota. Together with our partners - M Health Fairview, Mayo Clinic, Essentia Health CCRP, Metro Minnesota Community Oncology Research Consortium, and Sanford Health, we are informing the public about risks and rewards of participating in clinical trials and to-date, have enrolled more than 350 rural Minnesotans.

Our researchers continue to be on the vanguard of cancer research. In the fall of 2019, we opened a number of first in human, tri-specific killer engager immunotherapy clinical trials. Our expertise in Natural Killer (NK) cells, led by Deputy Director and immunologist, Dr. Jeffrey Miller, has propelled us to be a leader in the field, attracting industry and other collaborators for multi-site clinical trials. Pioneering BMT researcher, Dr. John Wagner, led the formation of the Institute for Cellular, Gene, Immunotherapy (ICGI). The institute is building on existing strengths at the University of Minnesota and speeding translation of innovation to clinical care.

With better, more precise treatments come increased cancer survival rates. There are more than 15 million cancer survivors in the world today, each living with the systemic impacts of their cancer treatments. The Masonic Cancer Center doubled-down on prioritizing survivorship research by creating a role for a Director of Cancer Survivorship Services and Translational Research in 2019, naming Dr. Anne Blaes to that position. She and her team of multi-disciplinary researchers together study cancer survivorship and translate the findings into better cancer care and follow-up.

Included with these many highs was a very big low for our team and for me personally. The Masonic Cancer Center lost one of our greatest supporters and dear friends, Judy Erdahl, to metastatic breast cancer. Her philanthropic foundation, Team Judy, has long supported and raised funds for metastatic breast cancer research at the Masonic Cancer Center. Judy will be missed, but we will not let her legacy fade. We will continue to work for cures, to research for more todays and even healthier tomorrows.

Whether you are a long time friend of the Masonic Cancer Center or have just recently learned about Minnesota's Cancer Center, all of our members appreciate your help; we cannot solve the problem of cancer alone and we would not exist without your support and advocacy. More information can be found at [YourCancerCenter.cancer.umn.edu](http://YourCancerCenter.cancer.umn.edu). As always, I welcome your comments of questions by email at [ccinfo@umn.edu](mailto:ccinfo@umn.edu).

Sincerely,

Douglas Yee, MD  
Director, Masonic Cancer Center

# CGI

## During the summer of 2019, John Wagner, MD, established the Institute for Cell, Gene, and Immunotherapy (ICGI).

Wagner has been a key contributor to establishing the University's international clinical leadership in blood and marrow transplantation and cell therapy. He is a professor of pediatrics, Co-Director of the Center for Translational Medicine, and Program Co-Leader of Transplant Biology and Therapy within the Masonic Cancer Center. He led the Department of Pediatrics Division of Blood and Marrow Transplantation for 16 years, but is now focusing his efforts on ICGI.

ICGI aims to accelerate the development and testing of novel cell, gene and immune-based therapeutics that hold promise in the treatment of cancer and other life-threatening diseases. The Institute builds on existing strengths at the Masonic Cancer Center and the University of Minnesota, further developing high-tech core capabilities, and connecting to industry partners with access to new technologies to speed the translation of innovation to clinical care.

"This institute is a key part of our strategy to advance interdisciplinary clinical translational research, grow new partnerships with industry, and increase external research funding – all in the pursuit of transforming health and health care," said Jakub Tolar, MD, PhD, Vice President for Clinical Affairs.

Wagner also serves as Co-Associate Director of Clinical Research in the Masonic Cancer Center and is charged with strengthening the research and regulatory expertise required in this rapidly developing field of clinical research. Cancer trials evaluating novel cell, gene and immunotherapies will be managed by the Cancer Center's Clinical Trials Office and aligned with ICGI.

Shernan Holtan, MD, Associate Professor of Medicine, Division of Hematology, Oncology and Transplantation and a Hematologist/Oncologist with M Health Fairview, was appointed as the Medical Director of the newly formed CGI team of the Masonic Cancer Center's Clinical Trials Office.

Holtan is a clinical/translational investigator whose research focuses on personalized immune monitoring, inflammation resolution, and the role of wound healing-associated growth factors



John Wagner, MD

in graft-versus-host disease. Her clinical trial portfolio, along with Dr. Wagner's, align well with the new ICGI research focus.

"These new cell-based treatments and immunotherapies are increasingly complex, often with complicated manufacturing schemes, and require new modes of delivery and patient care monitoring requirements" said Wagner. "To be leaders in this area, we need specialized teams managing the entire process from trial inception through conduct and reporting of results."

"Our goal in the CTO is to make novel therapies accessible for patients, to take these extraordinary new treatments and one day make them part of the standard of care for patients with life-threatening illnesses," Dr. Holtan said. "We have built a great team at the CTO-CGI to manage these ICGI trials."

"We touch almost every department within the Medical School, and the collaborative nature allows us to think outside of the box and hopefully bring the basic science studies from the ICGI to clinical trials within the CTO-CGI at a faster clip. We want to change people's lives for the better and break down walls in the research world," said Holtan.



Shernan Holtan, MD

# Tobacco Research: A Cancer Research Collaboration



Dorothy Hatsukami, PhD

**Tobacco research is one of the key research areas for both the University of Minnesota and the Masonic Cancer Center. It is a true testament to the collaborative nature of research at the Masonic Cancer Center. In fact, tobacco research touches nearly ten different disciplines and schools in the University.**

Tobacco use continues to claim a half a million lives in the U.S. annually, but a multidisciplinary team of investigators at the Masonic Cancer Center has been working for decades to combat the effects of tobacco products' burden on health. The researchers, spanning ten different disciplines and schools across the University of Minnesota, are examining cancer-causing chemicals and other toxicants in tobacco products including e-cigarettes, developing biological markers that can measure the uptake of these carcinogens and toxicants in humans, understanding how these toxic chemicals cause cancer, and finding ways to reduce tobacco use by either modifying tobacco products or by finding ways to help people quit smoking. Masonic Cancer Center members' research impact has led to policies,



Stephen Hecht, PhD

programs, and legislation locally, nationally, and internationally, including leading to the passage of the Freedom to Breathe Act restricting tobacco in public places.

To understand what is causing illness, researchers Stephen Hecht, PhD, the Wallin Land Grant Professor of Cancer Prevention in the Department of Laboratory Medicine and Pathology, and Irina Stepanov, PhD, Associate Professor in the School of Public Health, study the effects of different carcinogens in tobacco. Specifically, Hecht and Stepanov's research focuses on human exposure to the carcinogens in tobacco products.

"There is an enormous chemical diversity across tobacco products," Stepanov said. "It varies significantly both between different tobacco product groups, such as cigarettes and smokeless tobacco, and even within products and sometimes between individual brands."

Hecht's lab uses mass spectrometry to identify microscopic by-products of toxic chemicals that are produced by the body after tobacco

use. These by-products (metabolites) excreted in urine are referred to as biomarkers and reflect levels of different chemical exposures.

Hecht and other researchers examine whether biomarker levels change when people's tobacco behaviors change, such as stopping or reducing smoking. Their research has found that most biomarkers decrease when people stop smoking altogether, but biomarkers decrease at different rates for different people. However, when people reduce their smoking, their biomarkers decrease very little. This is because smokers adjust how they smoke to compensate for fewer cigarettes, such as inhaling more deeply, which keeps the total exposure level about as high as if they had continued smoking at their baseline level.

The research team has also used biomarkers to study different brands of smokeless tobacco, carcinogen uptake from secondhand and thirdhand smoke, and e-cigarettes. E-cigarettes have gained rapid popularity among teenagers in the last five years and have a misperception of being a safe, water-vapor product. Stepanov's team has several new projects analyzing the toxicants in e-cigarettes.

In one study, Stepanov examined e-cigarette users' biological samples, looking for the cancer-causing chemical N-nitrosornicotine (NNN). Stepanov measured NNN, a chemical linked to oral cavity and esophageal cancer, in study participants' urine and saliva. While e-cigarette participants' urine was free of NNN, 16 out of 20 e-cigarette users had NNN present in their saliva. Even though e-cigarette users' NNN levels were generally lower than in traditional cigarette smokers, some individuals had comparable levels. The presence of NNN in e-cigarette users points to the potential long-term risks of e-cigarette use, especially for young people who have never smoked.

"While e-cigarettes don't have the same levels of carcinogens or cancer risk as cigarettes, they are not completely harmless," Stepanov said. "We need to look at e-cigarettes as a unique product with their own toxic potential."

Although e-cigarettes are gaining popularity, traditional combustible cigarettes are still more widely smoked in the U.S. and globally, making them the top priority for tobacco research at the Masonic Cancer Center. Dorothy

Hatsukami, PhD, Associate Director of Cancer Prevention and Control and the Forster Family Professor in Cancer Prevention, has focused her career's research on reducing the harm and addictiveness of tobacco products, especially cigarettes.

Hatsukami's published research has found that cigarettes with very low nicotine content reduced dependence on cigarettes in study participants, thus making it easier for smokers to quit smoking. In September 2018, Hatsukami and her team published a follow-up study in the *New England Journal of Medicine* that looked at whether a gradual or immediate reduction in nicotine content is the best approach to quitting. The clinical trial enrolled 1,250 smokers across 10 sites nationwide. Smokers in the immediate reduction group who switched to low-nicotine cigarettes in one step reported smoking fewer cigarettes per day and more smoke-free days than those in the gradual reduction group.

Hatsukami's new study uses an experimental marketplace to observe smokers' behaviors when smokers are given access to only very low

nicotine cigarettes and other tobacco and nicotine products, reflecting a potential real world scenario that could exist if regulation of nicotine were to be put in place.

“This research study should help inform the U.S. Food and Drug Administration, an agency that has regulatory authority over tobacco products, of the effects from imposing a regulation for reducing nicotine in all cigarettes sold in the U.S. to prevent youth from becoming addicted to cigarettes and help smokers quit smoking,” Hatsukami said.

Another tobacco research collaborator of Hatsukami’s is Anne Joseph, MD, MPH, a Wexler Professor of Medicine at the Medical School and co-leader of the Screening, Prevention, Etiology and Cancer Survivorship program. Joseph’s research focuses on identifying the best methods for connecting participants with evidence-based treatment to quit smoking.

One of Joseph’s current studies examines proactive outreach. In this strategy, smoking cessation treatment is offered to participants identified as current smokers from their electronic health record, rather than waiting for patients to come in for a provider visit. Two independent clinical trials have found that proactive outreach leads to higher overall quit rates; one study was conducted among veterans and another among low income patients.

Another important, and perhaps unexpected, area of tobacco research at the Masonic Cancer Center is communications. Messaging is important to smoking cessation strategy success and requires messages be tailored to individual populations.

Dr. Joseph collaborated with ClearWay Minnesota and the American Indian Cancer Foundation to evaluate a campaign called Keep Tobacco Sacred. Tobacco is integral in American Indian culture and practices, so the smoking cessation methods or messaging typically used in other populations has not been effective and can be perceived as offensive to American Indians. This Keep Tobacco Sacred campaign encourages American Indians to keep tobacco as part of traditions while reducing and quitting commercial tobacco use.

Another leading figure in tobacco communication research is Sherri Jean Katz, PhD, an assistant professor at the Hubbard School of Journalism and Mass Communication. Katz is an expert in health communication and has worked extensively with the way tobacco products are marketed, particularly with warning labels and towards youth.

Katz’s research has focused on the messaging of warning labels on e-cigarettes to reduce use by adolescents. A recent study compared perceptions of different labeling conditions, such

as claims of reduced risk relative to cigarettes (which are allowed with FDA approval) and package elements, such as flavor images, among Twin Cities high school students.

The tobacco industry is constantly evolving to create new products, nicotine delivery systems, and marketing strategies. However, Masonic Cancer Center tobacco researchers will continue to collaborate to identify carcinogens, reduce the harm and addictiveness of tobacco, determine cessation methods, and push for regulation to improve public health in the U.S. and around the world.



**Sherri Jean Katz, PhD**

## Robert Turesky Named Masonic Chair in Cancer Causation

**Robert Turesky, PhD, Professor of Medicinal Chemistry in the College of Pharmacy at the University of Minnesota, has been appointed as the Masonic Chair in Cancer Causation.**

Turesky is well known for his participation in the World Health Organization’s (WHO) International Agency for Research on Cancer (IARC) report linking processed and grilled meats to increased incidence of colorectal cancer. His research focuses on hazardous chemicals found in food, tobacco smoke, and medicinal herbs which metabolize in our bodies and cause genetic damage that can lead to cancer.

“The way chemicals in our food and environment interact with our tissues has implications for our health,” said Douglas Yee, MD, Director of the Masonic Cancer Center. “Dr. Turesky’s work demonstrating the way certain chemicals could cause cancer will lead to new strategies to detect these substances and minimize human exposure to them to prevent cancers.”

Turesky is the Director of the Analytical Biochemistry shared resource at the Masonic Cancer Center. He has also served on the Scientific Advisory Board of the United States Environmental Protection Agency (EPA) and as Division Director of Chemistry at the National Center for Toxicological Research of the U.S. Food and Drug Administration (FDA).

Turesky’s research focuses on what happens in the body when people ingest heterocyclic aromatic amines (HAAs) and polycyclic aromatic hydrocarbons (PAHs). HAAs are chemicals which form from the reaction of biochemicals in muscle tissue during high temperature grilling and frying of meats. PAHs are chemicals that form when meat is smoked, charred, or cooked over an open flame. Some of these chemicals are also found in tobacco smoke. Turesky’s research shows that higher temperatures and longer cooking times lead to higher levels of HAAs and PAHs in meats. Upon ingestion, enzymes in our bodies then change these chemicals into reactive intermediates that can damage DNA.

“I am thrilled and honored to receive the appointment as the Masonic Chair in Cancer Causation. Minnesota Masonic Charities has been an important source of support to my research program during the past five years for which I am most grateful,” Turesky said. “This new appointment will enable my laboratory to further advance our research programs using cutting-edge mass spectrometry technology to investigate chemicals in the diet and environment, their uptake in the body, and capacity to damage the genome. Many of these chemicals are believed to contribute to the development of colorectal, bladder, prostate, and breast cancers.”

**Robert Turesky, PhD**



Turesky earned a Bachelor of Science in Biochemistry at the University of Massachusetts, and went on to receive his PhD in Nutrition and Food Science from the Massachusetts Institute of Technology (MIT). He was formerly on the faculty of the State University of New York at Albany, and prior to that worked at the Nestlé Research Center in Lausanne, Switzerland.

The Chair in Cancer Causation was funded by the Minnesota Masonic Charities’ transformational accelerated payment of \$25 million in 2018. This incredible infusion of funds is accelerating the pace of research into cancer prevention and precision care at the Masonic Cancer Center.

# Masonic Cancer Center, University of Minnesota, Receives 'Outstanding' Rating from the National Cancer Institute

MINNEAPOLIS/ST. PAUL (07/31/18)

**The Masonic Cancer Center, University of Minnesota has received an overall rating of 'Outstanding' from the National Cancer Institute (NCI), as well as a renewal of its five-year Cancer Center Support Grant and reconfirmation of its comprehensive status.**

"As the only NCI-designated comprehensive cancer center in the Twin Cities, our renewal of this designation acknowledges that we have the right people and research direction," said Douglas Yee, MD, breast cancer researcher, medical oncologist with M Health Fairview and director of the Masonic Cancer Center. "By building research teams, we aim to deliver the most advanced cancer care, prevention strategies, and survivorship initiatives from a deep bench of research and a strong collaborative relationship with M Health Fairview, our clinical partner."

Every five years, the Masonic Cancer Center must compete for its designation and funding, and in the newly released review, it not only succeeded,

but improved its overall score from 'Excellent' to 'Outstanding,' earning its highest score to date. The score improvement will drive additional funding which will further groundbreaking research in the causes of cancer, cancer prevention, survivorship, tobacco control research, and innovative strategies to treat cancer including immuno- and cellular therapies.

Since 1998, the Masonic Cancer Center has been recognized as an NCI-designated comprehensive cancer center, indicating its preeminent scientific leadership, resources, and the depth and breadth of their research in basic, clinical and population sciences.

"As cancer physicians and researchers, our goal is to change cancer in the same way tuberculosis was changed a generation ago," said Jakub Tolar, MD, PhD, vice president for Clinical Affairs and Masonic Cancer Center member. "We achieve this by combining innovation and care delivery in a way that improves the outcomes of the disease. The continued success of the Masonic Cancer Center shows the value of our work, as well as the skill and



expertise we offer in cancer research, prevention and treatment."

The Masonic Cancer Center will continue to lead the Minnesota Cancer Clinical Trials Network (MNCCTN), which provides even better access to cancer clinical trials for all Minnesotans, in collaboration with Essentia Health, M Health Fairview The Hormel Institute, Mayo Clinic Cancer Center, Metro-Minnesota Community Oncology Research Consortium and Sanford Health. By bringing cancer clinical trials to those living in Greater Minnesota, MNCCTN increases access to life-changing and potentially life saving therapies and treatments, strengthens healthcare systems, creates more equitable access to care and works to improve cancer outcomes throughout the state.

"We're thankful for all university and hospital staff, donors, legislators and our community for the phenomenal outpouring of support toward for the Masonic Cancer Center," said Dr. Yee.



## Dr. Anne Blaes Named Director of Cancer Survivorship Services and Translational Research



MAY 17, 2019

**There are more than 15 million cancer survivors in the world today, each living with the systemic impacts of their cancer treatments. Survivorship research focuses on the myriad of issues cancer treatments cause and seeks to maximize patient quality of life after the therapy.**

The Masonic Cancer Center is prioritizing survivorship research by appointing Anne Blaes, MD, Hematologist and Oncologist for M Health Fairview and Associate Professor of Medicine at the Medical School, to be the inaugural Director of Cancer Survivorship Services and Translational Research. In her new role, Blaes will bring multi-disciplinary researchers together to study cancer survivorship and translate the findings into better cancer care and after care.

“As a breast cancer oncologist, I’ve focused on ensuring that my patients live longer without having to worry about breast cancer again. But as we become more successful at achieving this

goal, many people switch from being a cancer fighter to a cancer survivor,” said Douglas Yee, MD, Director of the Masonic Cancer Center. “As more people are beating cancer, continuing to research survivorship and finding the best standards and practices is crucial to patient success. Dr. Blaes is the best doctor to lead our efforts.”

Cancer survivors may face complications long after cancer, including cardiac issues, chronic illnesses, accelerated aging, obesity, and secondary cancers. Blaes, who currently serves as the Director of the M Health Adult Long Term Follow-Up Clinic for Cancer Survivors, is researching methods of improving outcomes for cancer survivors and reducing the prevalence of post-treatment complications. In her new role, she’ll engage clinicians and clinical staff in survivorship education and lead their research involvement to improve the lives of current and future patients.

“There are pockets of survivorship research being done at the University of Minnesota, but

we need to bring it all together so we can find out where we are at, what we are missing, and how we can fill any gaps,” said Blaes.

Blaes has co-lead the Masonic Cancer Center’s annual Cancer Survivorship Conference for the past five years, bringing together cancer survivors and their friends and families from across the state for support and education from clinicians and researchers in the field. The 2019 conference welcomed nearly 400 attendees. “Our next step is to host a clinician-based survivorship conference,” said Blaes. “This would galvanize the survivorship research at the University of Minnesota and, by bringing in colleagues from across the country, would solidify our role as a national leader in cancer survivorship.”

Blaes received a Bachelor’s degree at the University of Notre Dame, and her MD degree from Loyola University of Chicago Stritch School of Medicine. She came to the University of Minnesota for her residency and was named

chief resident. She completed her fellowship and Master’s in Clinical Research in the Division of Hematology and Oncology before joining the faculty. Most recently, Blaes was appointed Section Head of Medical Oncology.

She is the Chairperson of the American Society of Clinical Oncology Cancer Survivorship Committee and serves on the Executive Board of the Global Cardio-Oncology Society. She also serves as the ALLIANCE for cancer clinical trials site PI and leads several national clinical trials to treat metastatic breast cancer. She is an Associate Editor for JACC CardioOncology and serves on the ACC Training in Cardio-Oncology Work Group.

Blaes was named a Top Doctor by both Mpls. St. Paul Magazine and Minnesota Monthly for numerous years and has received many teaching awards. Blaes’s research has been supported by the Minnesota Masonic Charities as an Eastern Star Scholar, a Masonic Scholar, and a BIRCWH Scholar. Her research interests

include quality of life, cardiac complications of chemotherapy, and the late effects of cancer therapy in cancer survivors, particularly breast and colorectal cancer survivors.

## Research Brief: Largest Study of Childhood Cancer after IVF - UMNNews

**In the past three decades, in vitro fertilization (IVF) has gone from an experimental procedure to being more common. Pregnancies enabled by IVF frequently have more difficulties, with children born earlier and smaller even among singleton births.**

University of Minnesota researchers conducted the largest study of childhood cancer after conception by IVF to date. This population-based cohort study had nearly 2.5 times the number of children conceived by IVF than prior studies of the subject in Scandinavia and the United Kingdom. The results were recently published in JAMA Pediatrics.

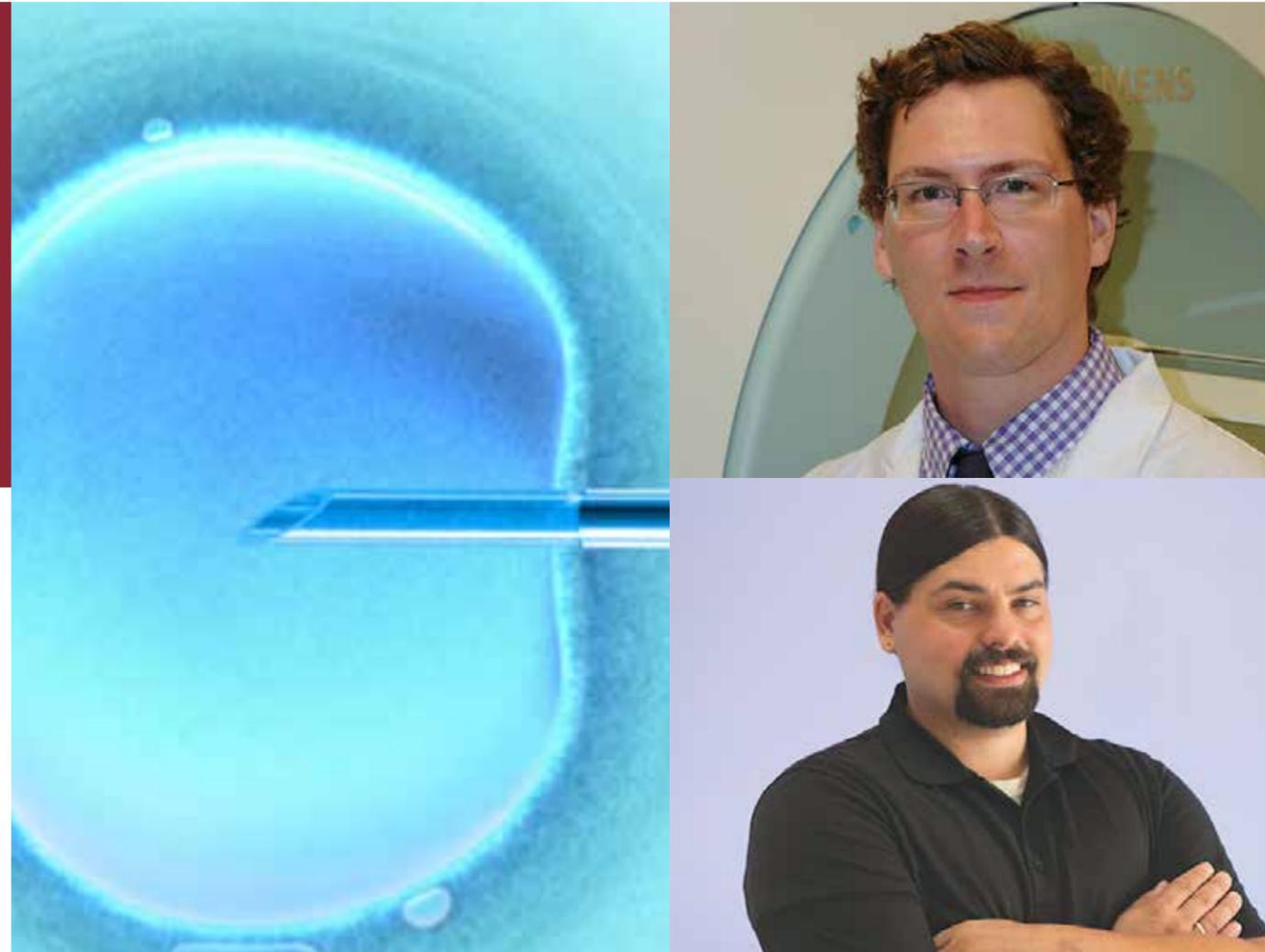
Researchers first linked records of live births reported to the Society for Assisted Reproductive Technology Clinic Outcome Reporting System between 2004 and 2013 to the birth and cancer registries of 14 states, comprising 66 percent of births in the United States and 75 percent of IVF-conceived births. These records were then linked to the cancer registries of the same states to find cancers diagnosed between 2013 and 2015. Researchers then randomly selected 10 children conceived naturally for each child conceived by IVF. The final dataset

### The study found:

- the overall cancer rate (per 1,000,000 children) of IVF children was about 17 percent higher than for non-IVF children;
- the rate of hepatic tumors was over 2.5 times higher among IVF children than non-IVF children;
- the rates of other specific cancers did not differ between the two groups;
- there were no associations of childhood cancer with specific IVF treatment techniques.

consisted of 275,686 IVF children and 2,266,847 naturally conceived children.

“The most important takeaway from our research is that most childhood cancers are not more frequent in children conceived by IVF,” said Logan Spector, a professor in the Medical School and Masonic Cancer Center member. “There may be an increased risk of one class of cancers in children; however, due to the nature of our study, we could not distinguish between IVF itself versus the parents’ underlying infertility. Overall, these results are reassuring to parents who’ve had children through IVF.”



Aaron LeBeau, PhD

Branden Moriarity, PhD

## University of Minnesota Medical School Researchers Discover New Therapy for Prostate Cancer Patients

JAN 28, 2019

**Masonic Cancer Center members Aaron LeBeau, PhD, Assistant Professor in the Department of Pharmacology and Branden Moriarity, PhD, Assistant Professor in the Department of Pediatrics at the University of Minnesota Medical School received the Prostate Cancer Foundation Challenge Award to further their work identifying new therapies for prostate cancer. This is the first Challenge Award in the history of the Prostate Cancer Foundation solely awarded to investigators at the University of Minnesota.**

LeBeau’s and Moriarity’s research focuses on using the patient’s own immune system to fight prostate cancer. Currently, cells known as T cells are used as a therapy to kill invading cancer cells and help give the patient’s immune system a boost. But LeBeau and Moriarity have developed a way to use Natural Killer (NK) cells which are found in the body and can kill tumor cells. Using a chimeric antigen receptor (CAR) for targeted activation, the CAR NK cells will hunt down and eliminate drug-resistant prostate cancer cells. NK cells don’t require the same

donor matching that T cells do, which could cut down the cost of CAR NK cell therapies compared to CAR T-cell therapies, making it a more accessible therapy.

“Using cutting-edge genome engineering technology, we have developed methods to generate CAR NK cells from NK cells in the blood,” said Moriarity.

“All of this innovative work is being done at the University of Minnesota. Our goal is to have a CAR NK cell therapy into the clinic for prostate cancer patients within a few years,” said LeBeau. “We believe that it will prolong the life expectancy of, or even cure, men with aggressive prostate cancer.”

The Challenge Award seeks to fund cross-disciplinary teams of investigators in strategic areas as they strive towards a solution of a significant problem in prostate cancer research. Other than skin cancer, prostate cancer is the most common cancer in American men, according to the American Cancer Society. Estimates for prostate cancer deaths in 2019 in the U.S. are more than 31,500.

# Research Brief: Developing a Blood Test to Screen for Ovarian Cancer - UMN News Release

**More than 16,000 women die from ovarian cancer each year in the United States. Ovarian cancer is often called the “silent killer” because the symptoms are so vague that women are often not diagnosed with ovarian cancer until the disease has progressed to advanced stages.**

Currently, no blood test exists that is adequately sensitive or specific enough to be used to screen women in the general population for ovarian cancer. Studies have shown that using just one protein biomarker at a time is not sufficient to screen women’s blood for ovarian cancer.

For this reason, Amy Skubitz, PhD, a professor in the University of Minnesota Medical School and Masonic Cancer Center member, and her team at the Ovarian Cancer Early Detection Program, have been using a new technology developed by the Swedish company Olink in which a patient’s blood can be tested for the presence of 92 proteins at once. Their findings were recently published in the journal *Cancer Prevention Research*.

In earlier studies using a small number of blood samples, Skubitz’s team had shown this technology worked well for the known ovarian cancer biomark-

er, CA125. Examining 150 blood samples from women with and without ovarian cancer, Skubitz’s team quantified the levels of 92 cancer-related proteins in each patient’s blood.

## The study found:

- dozens of the cancer-related proteins were present at significantly different levels in the blood of women with ovarian cancer compared to healthy women;
- when a panel consisting of CA125 and five additional proteins were tested, it was possible to tell whether the blood was from a woman with ovarian cancer or from a healthy woman;
- many of the proteins that were found to be differentially expressed between women with ovarian cancer versus healthy women had not been previously recognized as blood biomarkers for ovarian cancer.

“The results from this study take us one step closer to developing a blood-based test for ovarian cancer detection,” said Skubitz. “Ongoing studies in the Ovarian Cancer Early Detection Program

are focused on using blood samples from women with early stages of ovarian cancer, as well as from women with benign gynecological diseases.”

Due to the low prevalence of ovarian cancer in the general population, a screening test must be both highly sensitive and highly specific. Therefore, many more blood samples will need to be tested in this platform to determine whether it will hold up for early stages of ovarian cancer. This study focused on serous ovarian cancer, which is considered the most prevalent and the most deadly ovarian cancer. Thus, future studies will also need to include the various other major subtypes of ovarian cancer.

A customized platform that is comprised of ovarian cancer-specific proteins may enable this technology to identify early stages of the disease, which would mean less extensive surgery and less toxic chemotherapy for women diagnosed with ovarian cancer. Detecting ovarian cancer in its earliest stages will translate into a significant improvement in the survival of patients.

The study was funded by the Minnesota Ovarian Cancer Alliance.



## New Digital Pills Allow University of Minnesota Medical School Doctors to Monitor Patients at Home



Edward Greeno, MD

**There's an app for just about everything these days. Now thanks to a new treatment option offered at the University of Minnesota, there's even one for cancer.**

These new technologies, known as digital medicines are allowing doctors to monitor their patients, even after they leave the hospital. M Health Fairview is the first in the world to apply digital medicines to cancer care.

"When we give people chemotherapy in the clinic with an intravenous drug, we're able to assess the dose and timing and make sure they're well enough to continue getting the treatment," said University of Minnesota Physicians oncologist/hematologist Edward Greeno, MD, a professor at the University of Minnesota Medical School's Department of Medicine in an interview with the Washington Post. "But when you send them home with a bottle of pills, you don't know when they're taking them or if they're well enough to take them."

**Dr. Greeno, who also directs the oncology service line for University of Minnesota Health,** told the Star Tribune, "the technology could significantly improve cancer care because the timing and dosage of chemotherapy is critical."

Dr. Greeno, along with other doctors at the Masonic Cancer Clinic at the M Health Fairview Clinics and Surgery Center, have begun prescribing pills embedded with small, ingestible sensors. The sensors, designed by Proteus Digital Health, are only the size of a grain of sand, but can track a wealth of information that is helpful for doctors including heart rate, activity level and sleep cycle.

Once the pill is ingested, it sends the data to a small patch on the patient's abdomen, which then connects to a mobile app that both the patient and their doctor can access.

This new technology will allow doctors to ensure patients are taking their medications as prescribed. Physicians can automatically tell how many pills a patient has left in their prescription, which helps them better manage refills and potentially save money for the patient. The technology can also give a sense of comfort to some patients, helping them take a more active role in managing their medication.

Digital medicine technology has been used to help patients manage medications for a variety of diseases, including diabetes and hypertension, but never before in cancer.

## University of Minnesota First in U.S. to Offer New Targeted Therapy for Recurrent Brain Tumors

**M Health Fairview is the first health system in the United States to begin offering GammaTile Therapy, a new approach to treating recurrent brain tumors. GammaTile Therapy is an FDA-cleared, surgically targeted radiation therapy (STaRT™) that is designed to delay tumor regrowth for patients with brain tumors. The first patient was treated by University of Minnesota Physician, Clark C. Chen, MD, PhD, head of the Department of Neurosurgery at the University of Minnesota Medical School.**

"At M Health Fairview, our mission is to advance new, safe, and effective therapeutic options for the many brain tumor patients who did not respond to the standard-of-care therapies," Chen said. "Moreover, the University of Minnesota Medical School's Department of Neurosurgery has a long-standing history of contribution in radio-biologics. To be the first institution in the U.S. to offer the GammaTile Therapy is particularly satisfying in this context."

Aggressive brain tumors tend to be resistant to current treatments and nearly always recur. Outcomes for patients with brain tumors have improved very little over the past 30 years. GammaTile is FDA-cleared for patients with recurrent brain tumors. GammaTile consists of a bioresorbable, conform-



## CLINICAL CARE

able 3D-collagen tile embedded with a Cesium radiation source. GammaTile is placed at the time of surgery so that it immediately begins to target residual tumor cells with radiation while limiting the impact on healthy brain tissue.

“I am optimistic that GammaTile will impact the clinical outcome for our brain tumor patients, particularly when combined with appropriate medical therapy,” explained Chen.

GammaTile Therapy offers some advantages over other treatments for patients undergoing surgery for recurrent brain tumors. A course of External Beam Radiation Therapy (EBRT), for example, requires daily treatments for up to six weeks; in contrast, patients treated with GammaTile Therapy require no additional trips to the hospital or clinic. Additionally, many patients may not be candidates for EBRT at the time of tumor recurrence because the risk of additional EBRT outweighs the potential benefits. Finally, those patients who may be candidates for EBRT typically have to wait four weeks or more for surgical wound healing before beginning treatment, allowing residual, microscopic tumors to grow during this waiting period.

“With GammaTile, we apply radiation therapy exactly where it is needed, without harming surrounding tissue, and patients do not need to come back for ongoing radiation treatments,” said

Radiation Oncologist Margaret Reynolds, MD, assistant professor in the Department of Radiation Oncology at the University of Minnesota Medical School who was involved with the first patient case at the University of Minnesota Medical School. Dr. Chen has conducted research that supports the efficacy of radiation treatment immediately after resection. Published in the Journal of Neuro-Oncology, Chen’s study showed that patients with glioblastoma, the most common form of primary brain cancer in adults who received immediate postoperative radiation exhibited improved survival relative to those who did not.

“I am pleased to be able to offer a more targeted radiation therapy to my patients,” said Kathryn E. Dusenbery, MD, head of the Department of Radiation Oncology at the University of Minnesota Medical School. “This new targeted approach may help reduce the burden of ongoing radiation treatment and help my patients and their caregivers experience a better quality of life.”

Additional data supporting the efficacy and safety profile of the therapy for patients with recurrent, previously treated meningiomas **were published last month** in the Journal of Neurosurgery (JNS), the official journal of the American Association of Neurological Surgeons.

“We are honored to be working with the brain tumor specialists at the University of Minnesota –



given the health system’s deep expertise and leadership in brain tumor treatment and neurosurgery – to deploy GammaTile Therapy for the purpose of improving the lives of patients with brain tumors,” said Matt Likens, president and CEO of GT MedTech. “We are excited to begin expanding the availability of GammaTile Therapy to other leading brain tumor treatment centers across the U.S.”

## First in Human

**Three new cancer treatment therapies opened in 2019 and began testing for the first time in patients at the M Health Fairview University of Minnesota Medical Center.**

This trial is for patients with acute myeloid leukemia (AML) and B-cell lymphoma, and leverages groundbreaking research on stem cells and natural killer (NK) cells. The NK cell cancer immunotherapy, called FT516, is manufactured from a human induced pluripotent stem cell (iPSC) that has been genetically engineered to enhance its anti-tumor activity. In the US, it is the first-ever clinical trial of engineered iPSC-derived cell therapy for blood cancers.

The laboratories of Masonic Cancer Center member Bruce Walcheck, PhD, Professor and Jimmy Wu, DVM, PhD, Associate Professor, both in the Department of Veterinary and Biomedical Sciences, generated the receptor that is expressed in the engineered NK cells.

“The enhanced receptor binds to antitumor therapeutic antibodies in a more stable man-

ner,” said Walcheck. “In turn, the engineered NK cells more efficiently attach to antibody-coated tumor cells and kill them.”

“We potentially have an unlimited source of very similar, reproducible cancer fighters,” said Claudio Brunstein, MD, PhD, Professor of Medicine at the U of M Medical School, member of the Masonic Cancer Center, and lead researcher of this clinical trial. “This is opening a whole new door in cellular therapy.”

FT516 is the third first-in-human cancer treatment trial that has opened at the University of Minnesota in the last month.

A separate clinical trial, opened exclusively at the M Health Fairview University of Minnesota Medical Center, will evaluate GTB-3550 in patients with resistant or relapsing AML. GTB-3550 involves molecules referred to as a TriKE to activate the patient’s own NK cells to attack AML tumors.

“Building on over a decade of successful trials using NK cell infusions from related donors to

kill tumors, this new TriKE™ molecule, with its modification to target AML, doesn’t need a related donor’s cells to work,” said lead researcher Erica Warlick, MD, Associate Professor of Medicine in the Division of Hematology, Oncology and Transplantation at the U of M Medical School and a Masonic Cancer Center member. “The success of the Phase I trial could lead to the development of a broad pipeline of TriKE™ therapies that could be used against a variety of cancer targets.”

In addition, another clinical trial recently opened at the U of M and is a cell-based cancer immunotherapy for the treatment of advanced solid tumors. Run locally by Manish Patel, DO, Associate Professor of Medicine at the Medical School and a Masonic Cancer Center member, the trial is testing the safety and activity of an NK cell product called FT500.

“If this trial is successful, it will provide a novel form of therapy that we will be able to pull off the shelf for patients with cancer and it will serve as a useful platform for making more effective treatments in the future,” said Patel.

## Raising a Glass to Judy

**With little more than a box of Dixie cups and a few cases of wine in hand, a highly motivated group of women have raised their glasses to make a difference in breast cancer research.**

“If you’re in my age group,” says spokesperson Kate Bryant, “you’ve probably lost friends to breast can-

cer. We’re mad, sad, and frustrated. We don’t want any more of our wonderful friends and sisters to die from this disease.”

Team Judy—named in honor of the women’s friend Judy Erdahl, who passed away in August 2019 after a long battle with metastatic breast cancer—has raised more than \$210,000 since 2012. Every dollar

supports what Bryant calls “an amazing, world-class, star-studded research center right in our backyard”—the Masonic Cancer Center, University of Minnesota.

The group’s fundraising strategy is centered on fun and simplicity. They host a series of casual events, inviting friends to gather (typically in Bryant’s backyard) for a Dixie cup of wine. Everyone makes a donation to the Team Judy Fund for Metastatic Breast Cancer Research, which funds seed research grants at the Masonic Cancer Center.

“People think research programs are only looking for million-dollar donations,” Bryant says. “But small grants used to explore new therapies, new treatments, new ideas ... That’s how we can help.”

The friends intend to carry their mission forward in Erdahl’s honor.

“I feel fortunate to have known Judy,” says Masonic Cancer Center director Douglas Yee, MD “Judy was the rare individual who used her personal story to inspire and motivate others; she realized that what happened to her was unacceptable and we have to work so much harder to make sure we can eliminate metastatic breast cancer.”

Make a gift to the Team Judy Fund for Metastatic Breast Cancer Research at [give.umn.edu/giveto/teamjudy](https://give.umn.edu/giveto/teamjudy).



Team Judy

## Survive, then Thrive



(Photo courtesy of Scott Petinga)

### Scott Petinga was cured, but he wasn’t healed.

In 2004, Petinga was 31 and living outside of Philadelphia when he was treated for testicular cancer—a grueling regimen that included surgery and 10 rounds of radiation. His treatment was successful, and the cancer disappeared. Petinga’s doctors told him he was OK. “But I knew I wasn’t,” he says.

For years afterward, Petinga, who moved to the Twin Cities after his treatment, felt exhausted. Muscle weakness and memory loss affected him daily. He researched his symptoms and began to suspect his intense treatment may have severely affected his testosterone production—a hypothesis that proved to be correct.

Relieved to understand the reason for his lingering side effects, Petinga was determined to help other cancer survivors navigate life after treatment. That led him to Charles Ryan, MD, a physician-scientist

interested in understanding the effects of treatment on cancer survivors and holder of the B.J. Kennedy Chair in Clinical Medical Oncology at the Masonic Cancer Center, University of Minnesota. A successful entrepreneur, Petinga donated \$500,000 in early 2019 to accelerate research into the short- and long-term effects of cancer treatment.

“I hope my story can help minimize the severity of treatment for others and reduce their long-term side effects,” he says. “I hope that my being an advocate for survivors will allow them to live better lives.”

## Gut Check on Cancer

**Cracking the mysteries of the human microbiome—those teeming communities of bacteria, fungi, and viruses that live on and within each of us—remains one of medicine’s most exciting frontiers. At the Masonic Cancer Center a new series of studies funded by philanthropy delves deeper into the mystery, looking at the connection between the gut microbiome and cancer.**

Each person’s gut microbiome is an entirely unique environment influenced by genetics, diet, and life experiences. It’s even considered its own organ.

Scientists now know that a healthy microbiome can help promote digestion, ward off potentially harmful organisms that enter the body, and boost overall health. But how the microbiome influences cancer development and treatment is still unknown.

“It’s intuitive that microbes in the gut might have something to do with colon cancer, and that’s one area we’re studying more deeply,” says gastroenterologist and Masonic Cancer Center member Alexande Khoruts, MD “Patients receiving chemotherapy for leukemia are always also treated with potent antibiotics, and their microbiomes are

literally decimated, causing severe, life-threatening complications. What if we could repair the microbiome?”

Khoruts and colleague Timothy Starr, PhD, lead a team that’s hoping to answer several questions about the microbiome’s relationship with cancer.

Their research got a \$1.2 million lift from the inaugural Chainbreaker ride, a grassroots bike tour in Minnesota that raised money to support Masonic Cancer Center research. The Chainbreaker Breakthrough Cancer Research Grant funded seven studies falling into two main areas: the role of the microbiome in people who undergo intensive chemotherapy or blood or marrow transplant, and the relationship between the microbiome and colon cancer.

In a Chainbreaker-funded clinical trial, Khoruts’ team will try to normalize patients’ microbiomes as quickly as possible after blood or marrow transplant by giving them “microbiota transplant” capsules; another group of patients will receive placebo pills for comparison.

And in a Chainbreaker-funded lab study, Starr’s team will collect samples from human microbiomes—collections of gut microbes derived from stool samples—from both healthy people and people who have colorectal cancer.



They’ll place those microbiomes into mice, then test to discover whether the human microbiomes affect the growth of mouse cancer. If they find that the healthy microbiome is protective against cancer, they will then give the mice a form of restorative microbiome therapy.

While the Chainbreaker-funded work at the U is in early stages, Khoruts is 15 years into his microbiome research. His team is grateful to the Minnesota Colorectal Cancer Research Foundation, Mezin-Koats Colon Cancer Research Fund, and Achieving Cures Together, all of which have also supported his work. “We all need to understand that, like any other organ, the microbiome can become dysfunctional,” Khoruts says. “Our ultimate goal is to be able to diagnose that dysfunction and then offer a treatment. And with our comprehensive resources here at the U, we’re in a good position to move forward with that work.”

## Faith-Based Medicine

**Cracking the mysteries of the human microbiome—those teeming communities of bacteria, fungi, and viruses that live on and within each of us—remains one of medicine’s most exciting frontiers. At the Masonic Cancer Center a new series of studies funded by philanthropy delves deeper into the mystery, looking at the connection between the gut microbiome and cancer.**

Sharif Mohamed, the imam at the Dar Al-Hijrah Mosque in Minneapolis, and Masonic Cancer Center researcher Rebekah Pratt, PhD, have partnered on a number of health-related projects in Twin Cities’ Somali community. But their work took on a new focus when they learned of startling statistics for breast and cervical cancer screening among local Somali women.

Screening rates for both cancers among Somali women in the Cedar-Riverside area of Minneapolis are around 30 percent, according to Pratt, compared with 70 to 80 percent for the general population. And the rate for colorectal cancer screening among all Somali patients at one local clinic is only 8 percent.

Reasons for foregoing screenings are complex and varied. Lack of health literacy and knowledge about cancer can be obstacles, and first-genera-

tion immigrants especially aren’t in the habit of visiting doctors for preventive checkups or screenings. But Pratt and Mohamed are most interested in faith-based reasons for foregoing screenings. Misunderstandings about the Muslim faith prevent many women from getting screened for breast and cervical cancer, in particular. Some feel it’s inappropriate to show their bodies to medical providers. Others think that developing cancer is a matter of fate and that screening is an attempt to bypass Allah’s or God’s will.

With support from Minnesota Masonic Charities, Pratt and Mohamed tested the theory that religion can be an important asset, rather than a barrier, in promoting breast and cervical cancer screening among Somali women. Guided by Mohamed’s expertise as an Islamic scholar and faith leader, they developed messages based on the Muslim faith that offer support for preventive screening. Mohamed then shared those messages with a group of 30 local Somali women and 12 male religious leaders.

Both the women and men had overwhelmingly positive responses to the messages promoting breast and cervical cancer screening. Those who were already inclined to view screening positively said they felt more confident about it. Those who initially had reservations about screening indicated that the messages changed their view.

“Our initial assumption was that the participants would be hesitant and not ready to discuss topics like this,” Mohamed says. “But perhaps the atmosphere, the fact that we held these workshops in the mosque, helped people feel safe. Maybe they feel that if the mosque promotes this, it’s OK to talk.”



## Backed by a Generation of Research, Childhood Cancer Survivors are Living Well Decades After Treatment

Thanks to ongoing advances in cancer diagnosis and treatment, there are now an estimated 16.9 million cancer survivors in the United States, according to the National Cancer Institute. That number represents nearly 5 percent of the country's population—and it is steadily increasing. Today more than 80 percent of people with pediatric cancers (those diagnosed at age 19 or younger, generally speaking) survive.

That's good news, of course. The bad news is that all cancer treatments—chemotherapy, radiation, blood and marrow transplant, and surgery—can lead to late effects. The type and severity of such late effects can depend on the kind of cancer treatment(s), the patient's age at the time, and other individual factors. But typically, the younger a person is at the time of treatment, the more severe the late effects can be.

That underscores how critical the growing field of cancer survivorship care has become and how important the decades-old cancer survivorship program at the Masonic Cancer Cen-



(Photo courtesy of Michelle Vaith)

Brooklyn Vaith recently celebrated one year as a cancer-free kid. Her care team will keep a close watch for late effects and connect her family with any resources they should need.

(Photo courtesy of Michelle Vaith)

ter, University of Minnesota continues to be. Today Anne Blaes, M.D., director of Cancer Survivorship Services and Translational Research for the Masonic Cancer Center, and colleagues are not only treating cancer. They're looking far beyond restoring physical health to preventing or mitigating "late effects" of cancer treatment, which can include heart problems, new cancers, bone frailty, hormone imbalances, infertility, and memory or learning issues. The team is also helping survivors address common quality-of-life issues they may face after treatment, such as experiencing lasting depression and anxiety, coping with financial fallout, finishing school, beginning or resuming a career, confronting changes in family dynamics, and more.

Blaes and her team are working on a couple of mobile apps aimed at helping patients make the most of follow-up care and connect with

other survivors for support. They're also investigating how and why many survivors experience a multitude of chronic health conditions at earlier-than-expected ages.

These efforts are supported by the Minnesota Lions' new Lions Childhood Cancer Foundation, which has pledged to raise \$100,000 to advance survivorship research and care at M Health Fairview University of Minnesota Masonic Children's Hospital. Children's Cancer Research Fund and the University of Minnesota Foundation are matching the Lions' donation. Support this work at [give.umn.edu/giveto/lions](http://give.umn.edu/giveto/lions).

**Support this work at  
[give.umn.edu/giveto/lions](http://give.umn.edu/giveto/lions)**

## MNCCTN

**Since its launch in 2018, the Minnesota Cancer Clinical Trials Network (MNCCTN), has enrolled more than 400 Minnesotans on prevention, symptom management, and cancer treatment protocols near their homes in Greater Minnesota.**

The network, funded by the Minnesota legislature as part of the University of Minnesota's MnDRIVE Program, is a partnership between several of the state's largest healthcare systems to bring cutting-edge cancer clinical trials closer to home for more Minnesotans.

MNCCTN has helped 18 partner sites to establish and maintain the necessary infrastructure to offer cancer clinical trials to their patients. These partners include: Masonic Cancer Center, Mayo Clinic Cancer Center, M Health Fairview, Essentia Health, Metro-Minnesota Community Oncology Research Consortium, Sanford Health, and the Hormel Institute.

"The past two years of our program have been a great success and a learning experience," Marie L. Rahne, MBA, Senior Manager of MNCCTN, said.

"Our partners and sites have worked hard to bring clinical trial access to people across Minnesota. We all really believe in the value of clinical research and its positive impacts on people's lives by advancing cancer care and prevention."

In addition to improving access to the latest in clinical research, the MNCCTN has also supported economic growth initiatives by creating seven jobs at the administrative hub, engaged 24 physicians and investigators, supported some of the effort of 24 research coordinators and nurses, contracted with 2 laboratory and pharmacy staff, and funded part of the salaries of 31 regulatory and administrative staff. MNCCTN support has also included facilities upgrades, equipment purchases such as freezers and centrifuges, and training and mentoring of staff to learn how to conduct clinical research.

MNCCTN participants have enrolled onto 41 unique clinical trials. These trials include both MNCCTN managed trials from research partners, the Masonic Cancer Center, Mayo Clinic Cancer Center, M Health Fairview, and the Hormel Institute, as well as trials from National Community Oncology Research Programs, a National Cancer Institute-funded program deliv-

ering access to national trials. Actively enrolling sites include: Albert Lea, Aitkin, Austin, Cambridge, Deer River, Detroit Lakes, Fosston, Grand Rapids, Hibbing (2), Mankato, Monticello, Park Rapids, Princeton, Sandstone, Thief River Falls, Virginia, and Worthington. The 19th site, in Ortonville, is slated to open in early 2020 and sites 20 through 27 are planned to open by the end of 2021.

Another element of MNCCTN's success has been educating Minnesotans about clinical trials and the opportunities available to cancer patients in their local communities. MNCCTN staff and partner organizations have sought out opportunities to connect with Minnesotans, such as hosting interactive education tables at events such as FarmFest, the Minnesota State Fair, Clin-



ical Trials Day at the University of Minnesota, and health and wellness fairs statewide.

MNCCTN also collaborated with Twin Cities Public Television (TPT) to create a public service announcement educational video about clinical trials participation. The video was aired throughout Minnesota on public television stations and was viewed thousands of times on YouTube. The video has educated countless Minnesotans about research and what it's really like to participate in a clinical trial.

"Looking ahead, MNCCTN will continue to focus on opening up new sites and expanding access, as well as increasing the number and types of trials available at these sites," Rahne said. "We hope to further engage researchers at the University of Minnesota and other research partners to develop studies specifically tailored to challenges in Greater Minnesota and continue to help build a culture of comfort with research at sites and around the state."

**To learn more about the MNCCTN, visit [mncancertrials.umn.edu](http://mncancertrials.umn.edu).**

## PARTNER HIGHLIGHT

MNCCTN is a partnership with five of the largest healthcare providers in the state: Essentia Health, M Health Fairview, Mayo Clinic Health System, Sanford Health, and the focus of this feature, Metro-Minnesota Community Oncology Research Consortium (MMCORC).

MMCORC is a nonprofit research program sponsored by the National Cancer Institute (NCI) as well as participating hospitals and clinics. MMCORC's goal is to connect community cancer specialists, physicians, and other health care professionals to cancer clinical trials. This mission lines up perfectly with the MNCCTN's goals to reduce barriers to rural patients' participation in clinical trials and bring cancer clinical trials directly to Greater Minnesota.

MMCORC's MNCCTN sites include the Monticello Cancer Center and Cambridge Medical Center. By the end of 2019, MMCORC enrolled 30 Minnesotans onto clinical trials. These trials include three MNCCTN studies. MMCORC was the first MNCCTN partner to open MNCCTN's first therapeutic trial, Exemestane, in late 2019 [double check once actually open] at the Monticello Cancer Center.

"MMCORC, with the help of MNCCTN's support, has expanded patient access to oncology clinical trials that previously didn't exist," Michele Lacy, Administrative Director of MMCORC, said. "Seeing our sites' departments work together to keep forward motion going in clinical research has been very rewarding. We look forward to increasing the clinical trial awareness in this type of community and growing a more comprehensive program for all."

Looking ahead, MMCORC's goals include paying special attention to how clinical research could help the younger cancer patient population within rural Minnesota, recognized as AYA (adolescents and young adults, 15-39 years old). Often overlooked, this population experiences survival disparities and is considered a vulnerable population by the National Cancer Institute.

## CPSR

The Masonic Cancer Center's Comparative Pathology Shared Resource (CPSR), led by Dr. Gerry O'Sullivan, provides pathology support and expertise to Masonic Cancer Center members who use laboratory animals in their research. Comparative pathology involves the comparison of diseases in animals as they relate to those in humans, with the goal of better understanding human disease. Although many human diseases occur naturally in animals, disease in animals also may be induced to mimic human disease.

CPSR offers support from the initial stages of the experiment (study design and preparation of research grant) through the final stages (assisting with manuscript preparation after the results have been analyzed). They offer technical support for tissue collection, processing, and preparation of histological sections, as well as pathology support for interpretation and imaging of the tissues. CPSR is located on the University of Minnesota St. Paul Campus in the College of Veterinary Medicine.

For more information on the Comparative Pathology Shared Resource, please go to <https://www.cancer.umn.edu/for-researchers/shared-resources/comparative-pathology>



## Masonic Cancer Center Leadership

### Executive committee

- Douglas Yee, MD, Director
- Jeffrey Miller, MD, Deputy Director; co-leader, Immunology Program
- Anja Bielinsky, PhD, Associate Director, Basic Shared Resources; co-leader, Genetic Mechanisms Program
- Seanne Falconer, MBA, FACHE, Associate Director, Administration
- Dorothy Hatsukami, PhD, Associate, Director, Cancer Prevention and Control
- Badrinath Konety, MD, MBA, Associate Director, Clinical Affairs & Clinical Research
- David Largaespada, PhD, Associate Director, Basic Sciences
- Christopher Pennell, PhD, Associate Director, Education and Community Engagement
- Jill Siegfried, PhD, Associate Director, Translational Research
- Yoji Shimizu, PhD, co-leader, Immunology Program
- Masato Yamamoto, MD, PhD, co-leader, Genetic Mechanisms Program

- Lisa Peterson, PhD, co-leader, Genetic Mechanisms Program
- Frank Ondrey, MD, PhD, FACS, co-leader, Carcinogenesis and Chemoprevention Program
- Anne Joseph, MD, MPH, co-leader, SPECS (Screening, Prevention, Etiology, and Cancer Survivorship) Program
- Karen Kuntz, ScD, co-leader, SPECS (Screening, Prevention, Etiology, and Cancer Survivorship) Program
- Heather Nelson, PhD, co-leader, SPECS (Screening, Prevention, Etiology, and Cancer Survivorship) Program
- Carol Lange, PhD, co-leader, Cellular Mechanisms Program
- James McCarthy, PhD, co-leader, Cellular Mechanisms Program
- John Wagner, MD, co-leader, Transplant Biology and Therapy Program
- Daniel Weisdorf, MD, co-leader, Transplant Biology and Therapy Program
- Edward Greeno, MD, Director, Oncology Service Line
- Sarah Cooley, MD, MS, Director, Investigator Initiated Clinical Research; Director, Cancer Research Translational Initiatives (CRTI)
- Brenda Weigel, MD, MSc, Medical Director, Clinical Trials Office

### Shared resource leadership

- Jinhua Wang, PhD, Director, Cancer Informatics Shared Resource
- Timothy Hallstrom, PhD, Director, Mouse Genetics Laboratory Shared Resource
- Christopher Pennell, PhD, Director, Flow Cytometry Shared Resource
- Martin Felices, PhD, co-Director, Translational Therapy Shared Resource
- John Wagner, MD, co-Director, Translational Therapy Shared Resource
- Eric Hendrickson, PhD, co-Director, Genome Engineering Shared Resource
- Brandon Moriarity, PhD, co-Director, Genome Engineering Shared Resource
- Betsy Hirsch, PhD, co-Director, Cancer Genomics Shared Resource
- Mark Kirstein, PharmD, Director, Clinical Pharmacology, Shared Resource
- Chap Le, PhD, Biostatistics Shared Resource
- M. Gerard O'Sullivan, MVB, PhD, Diplomate ACVP & ECVP, Director, Comparative Pathology Shared Resource
- Robert Turesky, PhD, Director, Analytical Biochemistry Shared Resource

## External advisory board

Kevin Cullen, MD, Director, University of Maryland Greenebaum Cancer Center - Masonic Cancer Center External Advisory Board Chair

Alan Ashworth, PhD, FRS, Director, University of California - San Francisco, Helen Diller Family Comprehensive Cancer Center

David Beer, PhD, Professor of Surgery and Radiation Oncology, co-Director, Cancer Generics Program, University of Michigan Comprehensive Cancer Center

Smita Bhatia, MD, MPH, Chair and Professor, Population Sciences, City of Hope National Medical Center

Mary-Ann Bjornsti, PhD, Chair, Department of Pharmacology, Program Leader of Cancer Cell Biology, Associate Director for Translational Research, University of Alabama Birmingham Comprehensive Cancer Center

Melissa Bondy, PhD, Professor, Department of Epidemiology, MD Anderson Cancer Center

Michael Darling, MHA, Associate Director for Administration, Melvin and Bren Simon Cancer Center, Indiana University

Stan Gerson, MD, Director, Case Comprehensive Cancer Center, Cleveland

Thomas Kensler, PhD., Johns Hopkins Bloomberg School of Public Health

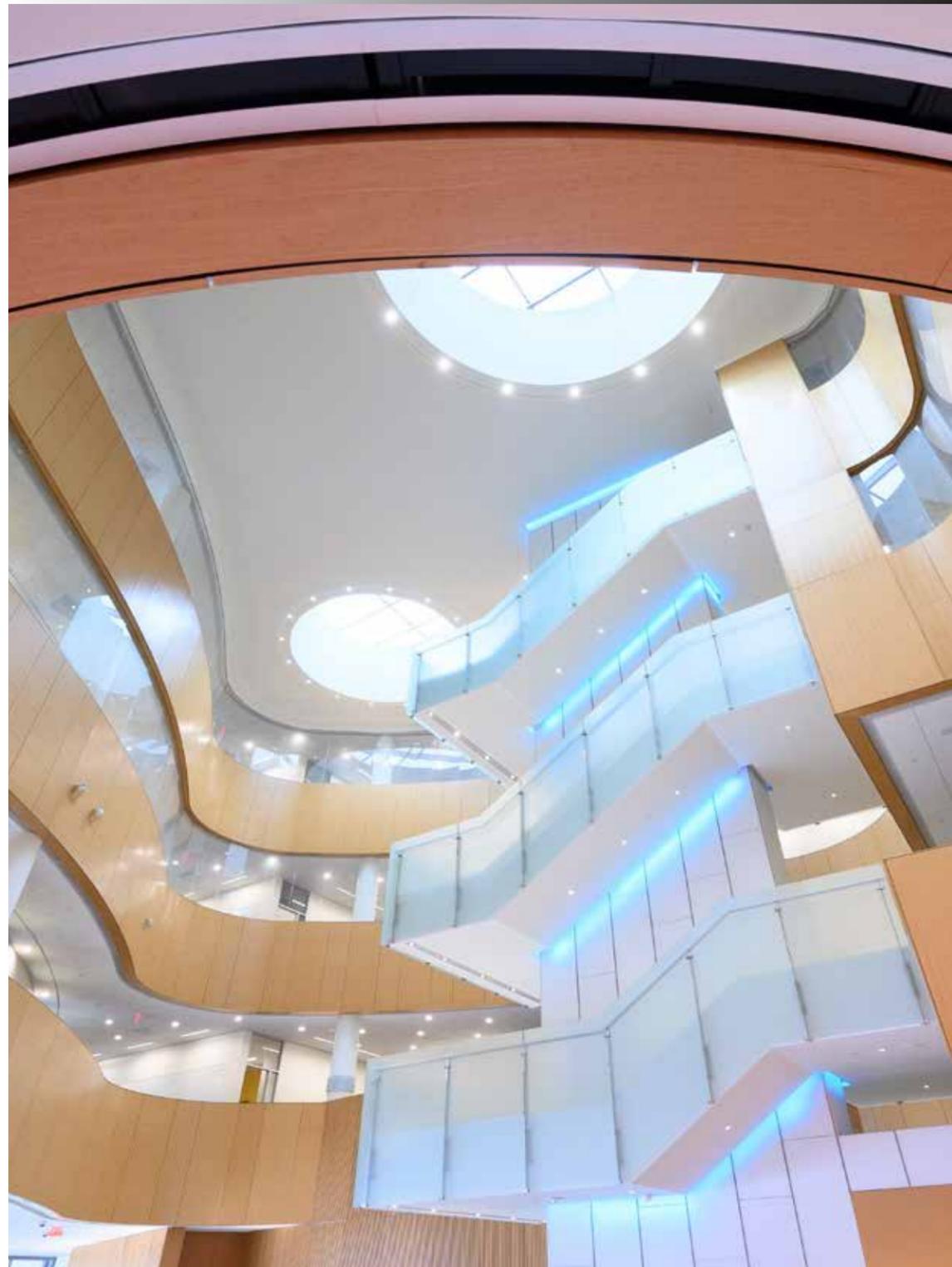
James Mulé, PhD, Associate Cancer Director, Translational Science & Technology Development, Moffitt Cancer Center

Vito Quaranta, MD, Professor of Cancer Biology, Vanderbilt-Ingram Cancer Center

Scott Ramsey, MD, PhD, Director, Cancer Outcomes Research, Fred Hutchinson Cancer Research Center

Thomas Sellers, PhD, MPH, Center Director and Executive Vice President, Moffitt Cancer Center

Louis Weiner, MD, Director, Georgetown Lombardi Comprehensive Cancer Center



# New Leaders

## Masonic Cancer Center welcomes new leadership

### Anja Bielinsky, PhD

Associate Director for Basic Shared Resources Dr. Bielinsky is a Professor in Biochemistry, Molecular Biology and Biophysics with a research focus in the regulation of DNA replication. She also co-leads the Genetic Mechanisms Program and was recently named Associate Dean for Foundational Science in the UMN Medical School.

### Christopher Pennell, PhD

Associate Cancer Center Director for Community Engagement and Education Dr. Pennell is an Associate Professor in Laboratory Medicine and Pathology with a research focus in immunology and a passion for connecting with the community - from energizing middle school students to follow a cancer research career path to bridging the town and gown divide with Minnesotans from all over the state.

### Masato Yamamoto, MD, PhD

Genetic Mechanisms Program co-leader Dr. Yamamoto is a Professor jointly appointed in the Division of Basic and Translational Research and the Division of Gastroenterology Hepatology and Nutrition and has a research interest in gene and viral therapy. He joins Dr. Bielinsky to co-lead the Genetic Mechanisms Program.

### Frank Ondrey, MD, PhD, FACS

Carcinogenesis and Chemoprevention Program

co-leader Dr. Ondrey is an Associate Professor in the Department of Otolaryngology, Head and Neck Surgery, with an active surgery practice and a research interest in Precancerous mouth and throat lesions. He joins Lisa Peterson, PhD, to co-lead the Carcinogenesis and Chemoprevention Program.

### Sarah Cooley, MD

Cancer Research Translational Initiatives Director Dr. Cooley is an Associate Professor of Medicine in the Division of Hematology, Oncology and Transplantation, with a research interest in Natural Killer (NK) cells. She leads the Cancer Research Translational Initiatives (CRTI) which supports researchers translating their work from bench to bedside by offering a comprehensive infrastructure and coordinated integration of services from MCC shared resources to quickly develop and implement highly complex Phase I clinical trials.

### Martin Felices, PhD

Translational Research Shared Resource co-leader Dr. Felices is an Assistant Professor of Medicine in the Division of Hematology, Oncology and Transplantation, with research interests in innate and adaptive immunology and signal transduction. He joins John Wagner, MD, to co-lead the Translational Research Shared Resource which includes the Translational Therapy Laboratory (TTL) and the Molecular and Cellular Therapeutics (MCT) cGMP-compliant production facility.

### Kenneth Beckman, PhD

Cancer Genomics Shared Resource co-leader Dr. Beckman is an Associate Professor, Genetics, Cell Biology,

& Development Biology and the Director of the Biomedical Genomics Center, with a research interest in genomic technology. He joins Betsy Hirsch, PhD to co-lead the Cancer Genomics Shared Resource.

### Branden Moriarity, PhD

Genome Engineering Shared Resource co-leader Dr. Moriarity, an Assistant Professor in the Division of Pediatric Hematology and Oncology with research interests in pediatric cancer genetics, gene editing, and immunotherapy. He joins Eric Hendrickson, PhD, to co-lead the Genome Engineering Shared Resource.

### Jinhua Wang, PhD

recruited to lead the Cancer Informatics Shared Resource Dr. Wang is a Professor in the Institute for Health Informatics with a research interest in computational analysis for high-throughput cancer genomics projects. He leads the Cancer Informatics Shared Resource with oversight for Cancer Bioinformatics as well as Clinical Informatics Shared Services.

### Timothy Hallstrom, PhD

Mouse Genetics Laboratory Shared Resource leader Dr. Hallstrom is an Assistant Professor in the Division of Pediatric Blood and Marrow Transplantation, with a research interest in the cellular mechanisms controlling the retinoblastoma (Rb) protein. He directs production of CRISPR/Cas9-altered mice with the Genome Engineering Shared Resource.

# Investigator-Initiated Clinical Trials

Protocol #2015LS057  
A Phase I Trial Testing NAM Expanded Haploidentical or Mismatched Related Donor Natural Killer (NK) Cells Followed by a Short Course of IL-2 for the Treatment of Relapsed/Refractory Multiple Myeloma and Relapsed/Refractory CD20+ Non-Hodgkin Lymphoma  
Veronika Bachanova, MD, PhD  
Heme/BMT

Protocol #2016LS132  
Autologous Stem Cell Transplant In Patients with Hodgkin Lymphoma (HL) and Non-Hodgkin Lymphomas (NHL)  
Veronika Bachanova, MD, PhD  
Heme/BMT

Protocol #2016LS092  
Reduced Intensity (RIC) Conditioning And Transplantation of HLA-Haploidentical Related Hematopoietic Cells (Haplo-HCT) For Patients With Hematologic Malignancies  
Nelli Bejanyan, MD  
Heme/BMT

Protocol #2013OC013  
Umbilical Cord Blood Transplantation Using a Myeloablative Preparative Regimen for the Treatment of Hematological Diseases  
Claudio Brunstein, MD, PhD  
Heme/BMT

Protocol #2015LS149  
Transplantation of Umbilical Cord Blood from Unrelated Donors in Patients With Hematological Diseases Using a Non-Myeloablative Preparative Regimen  
Claudio Brunstein, MD, PhD  
Heme/BMT

Protocol #2014LS005  
A Randomized Trial Comparing CD3/CD19 Depleted or CD3 Depleted/CD56 Selected Haploidentical Donor Natural Killer (NK) Cell Based Therapy for Adults With Acute Myelogenous Leukemia Who Have Failed 1 or 2 Induction Attempts  
Sarah Cooley, MD  
Heme/BMT

Protocol #2016LS056  
Haploidentical Donor Natural Killer (NK) Cell Infusion with Subcutaneous ALT-803 in Adults with Refractory or Relapsed Acute Myelogenous Leukemia  
Sarah Cooley, MD  
Heme/BMT

Protocol #2016LS153  
Open Label Dose Escalation Trial of an Adaptive Natural Killer (NK) Cell Infusion (FATE-NK100) with Subcutaneous IL-2 in Adults with Refractory or Relapsed Acute Myelogenous Leukemia (AML)  
Sarah Cooley, MD  
Heme/BMT

Protocol #2014LS020  
Phase I/II Study of Human Chorionic Gonadotropin and Epidermal Growth Factor Supplementation (Pregnyl®) to Support Tolerance and Repair As Adjunct Therapy in High-Risk or Refractory Acute Graft-Versus-Host Disease  
Shernan Holtan, MD  
Heme/BMT

Protocol #2015NTLS018  
Microbial, Graft and Host Interactions in Hematopoietic Cell Transplantation Reducing sepsis-related mortality in cancer patients through microbiome therapy  
Shernan Holtan, MD  
Heme/BMT

Protocol #2016NTLS119  
Physical Activity in Children Completing Treatment for Leukemia; How Does it Relate to Other Symptoms?  
Casey Hooke, PhD, APRN, CPON, PCNS-BC  
Heme/BMT

Protocol #2015LS136  
CliniMACS CD34 Reagent System as a Humanitarian Use Device (HUD) for the Processing of Allogeneic Hematopoietic Progenitor Cells to Obtain a CD34+ Cell-Enriched Product for Hematopoietic Reconstitution  
Margaret MacMillan, MD, MSc  
Heme/BMT

Protocol #2015NTLS002  
Defining Medical and Psychosocial Issues in the Fanconi Anemia Population  
Margaret MacMillan, MD, MSc  
Heme/BMT

Protocol #2016OC182  
Autologous Hematopoietic Cell Transplantation for Multiple Myelom  
Brian McClune, DO  
Heme/BMT

Protocol #2017NTLS044  
The Role of Gut Microbiota in Conditioning-Induced Intestinal Barrier Damage in Patients Undergoing Stem Cell Transplantation  
Armin Rashidi, MD, PhD  
Heme/BMT  
Protocol #2016LS058  
Relapse Prophylaxis with IL-15 Super Agonist ALT-803 in Patients with Acute Myelogenous Leukemia and Myelodysplastic Syndrome Following Allogeneic Stem Cell Transplantation

Celalettin Ustun, MD  
Heme/BMT  
Protocol #2016NTLS038  
Immune Monitoring During ASP2215 Therapy in Relapsed/Refractory Acute Myeloid Leukemia (AML)  
Erica Warlick, MD  
Heme/BMT

Protocol #2015LS152  
Allogeneic Hematopoietic Stem Cell Transplantation Using Reduced Intensity Conditioning (RIC) for the Treatment of Hematological Diseases  
Heather Stefanski, MD, PhD  
Pediatric Heme/BMT

Protocol #2015LS108  
Tandem Myeloablative Consolidation Therapy and Autologous Stem Cell Rescue for High-Risk Neuroblastoma  
Jakub Tolar, MD, PhD  
Pediatric Heme/BMT

Protocol #2015LS076  
Biochemical Correction of Severe Epidermolysis Bullosa by Allogeneic Cell Transplantation and Serial Donor Mesenchymal Cell Infusions  
Jakub Tolar, MD, PhD  
Pediatric Heme/BMT

Protocol #2015LS154  
Study of Epidermal Grafting Using the CelluTome Epidermal Harvesting System

for the Treatment of Individual Lesions in persons with Epidermolysis Bullosa  
Karim Sadak, MD, MPH, MSE  
Pediatric Oncology

Protocol #2016NTLS144  
The Development of Data Capture Methodologies in Pediatric Cancer Patients Treated with Targeted Agents and Immunotherapies: Leveraging the Research Infrastructure of a Childhood Cancer Survivor Program  
Carrie Earthman, PhD  
Solid Tumor

Protocol #2016NTLS046  
Determination of Protein Requirements Using a Stable Isotope Multi-Step Feeding Protocol and Evaluation of an Innovative Ultrasound Device and other Bedside Technologies for Lean Tissue Assessment in Individuals with Head and Neck Cancer  
Naomi Fujioka, MD  
Solid Tumor



# Masonic Scholars

The Masonic Cancer Center is grateful for the philanthropic support from Minnesota Masonic Charities.



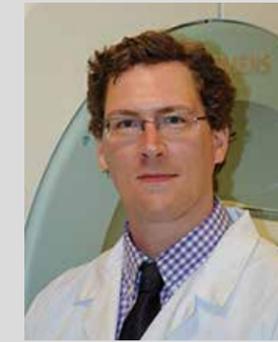
Heather Beckwith, MD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Evidio Domingo-Musibay, MD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Peter Gordon, MD, PhD, Medical School - Department of Pediatrics - Division of Pediatric Hematology/Oncology



Aaron LeBeau, PhD, Medical School - Department of Pharmacology



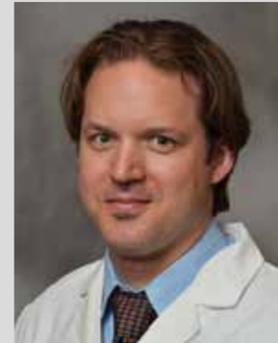
Julie Ostrander, PhD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Silvia Balbo, PhD, Carniogenesis and Chemoprevention School of Public Health - Division of Environmental Health Sciences



Anja Bielinsky, PhD, College of Biological Sciences - Biochemistry, Molecular Biology, and Biophysics



Craig Eckfeldt, MD, PhD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Sherman Holtan, MD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Emil Lou, MD, PhD, FACP, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Anna Prizement, MPH, PhD, School of Public Health - Division of Epidemiology and Community Health



Vivian Bardwell, PhD, College of Biological Sciences - Genetics, Cell Biology, and Development



Anne Blaes, MD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Martin Felices, PhD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Rachel Isaksson Vogel, PhD, Department of Obstetrics, Gynecology, and Women's Health



Andrew Nelson, MD, PhD, Medical School - Department of Laboratory Medicine and Pathology



Zohar Sachs, MD, PhD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



Surbhi Shah, MD, Medical School - Department of Medicine - Division of Hematology, Oncology, and Transplantation



David Stenehjem, PharmD, BCOP, College of Pharmacy - Department of Pharmacy Practice and Pharmaceutical Sciences

# New Researchers

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**Emily Greengard, MD**  
Pediatrics

**Clark Chen, MD, PhD**  
Neurosurgery

**Kenneth Beckman, PhD**  
Biomedical Genomics Center

**Susan M. Wolf, JD**  
Medicine

**Constantin Aliferis, MD, MS, PhD, FAC-MI,**  
Institute for Health Informatics

**Aaron Sarver, PhD**  
Institute for Health Informatics

**Hangbo Pang, PhD**  
Pharmaceutics

**Alessio Giubellino, MD PhD**  
Laboratory Medicine and Pathology

**Dorraya El-Ashry, PhD**  
Laboratory Medicine and Pathology

**Ingunn Stromnes, PhD**  
Microbiology and Immunology

**Jinhua Wang, PhD**  
Institute for Health Informatics

**Britt Erickson, MD**  
Obstetrics, Gynecology, and Women's Health

**Alexander Khoruts, MD**  
Gastroenterology, Hepatology, and Nutrition

**Boris Winterhoff, MD, MS**  
Obstetrics, Gynecology, and Women's Health

**Armin Rashidi, MD**  
Hematology, Oncology, and Transplantation

**Frank Cichocki, PhD**  
Hematology, Oncology, and Transplantation

**Shernan Holtan, MD**  
Hematology, Oncology, and Transplantation

**Rita Perlingiero, PhD**  
Medicine, Cardiovascular Division

# Honors

**Masonic Cancer Center researchers are frequently recognized for their advances and expertise. Some examples include:**

**Kenny Beckman**, PhD, received an Innovation Award from the Office of Technology Commercialization

**Abbie Begnaud**, MD, appointed to the American College of Chest Physicians Thoracic Oncology Steering Committee

**Tanya Freedman**, PhD, received the Dean's First-R01 Recognition, R01 AR073966 from NIH / NIAMS, and the Travel Award at the Immunoreceptors and Immunotherapy FASEB Science Research Conference

**Melissa Geller**, MD, MS, FACOG, gave the Dean's Distinguished Lectureship for 2019

**Gunda Georg**, PhD, appointed Regents Professor in 2018

**Stephen Hecht**, PhD, Keynote Lecture, International Conference on Frontiers in

Environmental and Occupational Medicine, Kaohsiung Medical University, Taiwan, Listed in AACR Landmarks in Cancer Research 2017: Tobacco-Specific Nitrosamines, JNCI 60: 819-824 (1978), was University of Minnesota Medical School Dean's Distinguished Research Lectureship, 2017, awarded American Chemical Society Minnesota Section, Minnesota Award,

**Pamala Jacobson**, PharmD, FCCP awarded the Sara Evans Faculty Woman Scholar Leader award

**Ryan Langlois**, PhD, received the Cesar Milstein Young Investigator Award from the International Cytokine and Interferon Society

**Michael Linden**, MD, PhD, elected to the position of "Senior Councilor for Advocacy" for the International Clinical Cytometry Society

**Michael McAlpine**, PhD, Made Kuhrmeyer Family Chair Professor, featured in PC Magazine's 5 Amazing Projects That Will Change the Future of Healthcare and Na-

tional Geographic 12 Innovations that will Revolutionize the Future of Medicine, was the Henry Maso Award Keynote, received the George W. Taylor Award for Distinguished Research, was in the Guinness World Records for 3D Printed Bionic Ear (2018)

**David McKenna**, MD, awarded the 2017 AABB President's Award for advancing cellular therapies

**Bradley S. Miller**, MD, PhD, was awarded the Clinical Care Award at the University of Minnesota Medical Center in 2018

**Branden Moriarity**, PhD, received the Innovator in Translational Research Award, University of Minnesota, Department of Pediatrics, received the Mid-West TRIO Program's TRIO Achiever Award, as well as the University of Minnesota's Early Innovator Award

**Vicki Morrison**, MD, appointed as a chair of on the Board of Directors and Publications Committee for International Society of

Geriatric Oncology (SIOG), became member of American Society of Clinical Oncology (ASCO): Appropriate Chemotherapy Dosing for Obese Adult Patients with Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update

**Laura J. Niedernhofer**, MD, PhD, was awarded the Vincent Cristofalo Rising Star Award in Aging Research from the American Federation for Aging Research

**David Odde**, PhD, Medtronic Endowed Professor for Engineering in Medicine, made the Associate Director for Strategic Research Initiatives, Institute for Engineering in Medicine, UMN, Elected Fellow for the International Academy for Medical and Biological Engineering, Elected Fellow for the American Association for the Advancement of Science, was a Page Morton Hunter Distinguished Lecturer, Dept. of Bioengineering, Clemson U.

**Chris Pennell**, PhD, received Leaders for a Cure Award from the Vince Lombardi Cancer Foundation

**David Potter**, MD, PhD, Invited speaker sixth Mexican college for the investigation of cancer, in Puebla, Mexico

**Arpit Rao**, MD, received the 2020 Alliance Scholar Award for his research on "response-adaptive imaging strategy in metastatic castration-resistant prostate cancer" from the Alliance in Clinical Trials in Oncology. He is the first UofM/MCC faculty to have received this award

**Nelson Rhodus**, DMD, MPH, inducted into the Royal College of Surgeons of Edinburg, received the Lifetime Achievement Award for Research from the American Academy of Oral Medicine

**Logan Spector**, PhD, Made Chair of the Childhood Leukemia International Consortium Rachel Vogel, PhD, awarded the American Cancer Society Research Scholar Award, awarded the CTSI Biostatistics and Bioinformatics Mentor of the Year Award

# 2018/2019 Top Doctors

The following Masonic Cancer Members were named among the Twin Cities' "Top Doctors" or "Rising Stars" in Mpls. St. Paul Magazine and Minnesota Monthly

## 2018 Mpls. St. Paul Magazine

**Cardiac Surgery**  
Rosemary Kelly, MD

**Cardiology**  
Julia Steinberger, MD, MS  
Chetan Shenoy, MBBS\*

**Colon and Rectal Surgery**  
Robert Madoff, MD  
Genevieve Melton-Meaux, MD, PhD

**Dermatology**  
Kimberly Bohjanen, MD, FAAD  
Maria Hordinsky, MD, FAAD  
Christina Boull, MD\*

**Endocrinology**  
Lynn Burmeister, MD  
Bradley Miller, MD, PhD

**Gynecologic Oncology**  
Peter Argenta, MD  
Levi Downs, Jr., MD, MS, FACOG

Melissa Geller, MD  
Rahel Ghebre, M  
Britt Erickson, MD\*  
Colleen Rivard Hunt, MD\*

**Hematology**  
Sarah Cooley, MD  
Philip McGlave, MD  
Mark Reding, MD  
Marie Steiner, MD, MS  
Gregory Vercellotti, MD, FACP

**Hematology/Oncology**  
Anne Blaes, MD  
Naomi Fujioka, MD  
Edward Greeno, MD  
Joseph Neglia, MD, MPH  
Paul Orchard, MD  
Jakub Tolar, MD, PhD  
John Wagner, Jr., MD  
Brenda Weigel, MD, MSc  
Douglas Yee, MD

**Infectious Disease**  
Shane McAllister, MD, PhD\*

**Internal Medicine**  
Bradley Benson, MD

**Neurosurgery**  
Clark C. Chen, MD, PhD

**Neuro-Oncology**  
Christopher Moertel, MD

**Orthopaedic Surgery**  
Edward Cheng, MD  
Denis Clohisy, MD

**Otolaryngology**  
Samir Khariwala, MD  
Bevan Yueh, MD, MPH

**Pediatric Surgery**  
Daniel Saltzman, MD, PhD

**Radiation Oncology**  
Kathryn Dusenbery, MD

**Radiology**  
Tina Sanghvi, MD\*

**Surgical Oncology**  
Maria Evasovich, MD  
Eric Jensen, MD  
Todd Tuttle, MD, MS

**Transplant Surgery**  
Timothy Pruett, MD

**Urology**  
J. Kyle Anderson, MD  
Sean Elliott, MD  
Badrinath Konety, MD

## 2019 Mpls. St. Paul Magazine

**Blood and Marrow Transplant**  
Bruce Blazar, MD  
Paul Orchard, MD  
Angela Smith, MD, MS  
Jakub Tolar, MD, PhD  
John Wagner, Jr., MD

**Cardiology**  
Julia Steinberger, MD, MS

**Cardiothoracic Surgery**  
Rosemary Kelly, MD

**Colon and Rectal Surgery**  
Robert Madoff, MD  
Genevieve Melton-Meaux, MD,

**Dermatology**  
Kimberly Bohjanen, MD, FAAD  
Rehana Ahmed-Saucedo, MD, PhD\*  
Christina Boull, MD\*

**Endocrinology**  
Lynn Burmeister, MD  
Bradley Miller, MD, PhD

**Gynecologic Oncology**  
Peter Argenta, MD  
Levi Downs, Jr., MD, MS, FACOG  
Melissa Geller, MD  
Rahel Ghebre, MD  
Britt Erickson, MD\*  
Colleen Rivard, MD\*

**Hematology**  
Sarah Cooley, MD  
Philip McGlave, MD  
Mark Reding, MD  
Marie Steiner, MD, MS  
Gregory Vercellotti, MD, FACP

**Hematology/Oncology**  
Anne Blaes, MD  
Naomi Fujioka, MD  
Edward Greeno, MD  
Joseph Neglia, MD, MPH  
Paul Orchard, MD  
Jakub Tolar, MD, PhD  
John Wagner, Jr., MD  
Brenda Weigel, MD, MSc  
Douglas Yess, MD

**Internal Medicine**  
Bradley Benson, MD

**Neurosurgery**  
Clark C. Chen, MD, PhD

**Neuro-Oncology**  
Christopher Moertel, MD

**Neurosurgery**  
Clark C. Chen, MD, PhD

**Neuro-Oncology**  
Christopher Moertel, MD

**Orthopaedic Surgery**  
Edward Cheng, MD  
Denis Clohisy, MD

**Otolaryngology**  
Samir Khariwala, MD  
Bevan Yueh, MD, MPH

**Pathology**  
Michael Linden, MD\*  
Paari Murugan, MD\*

**Pediatric Surgery**  
Daniel Saltzman, MD, PhD

**Radiation Oncology**  
Kathryn Dusenbery, MD  
Christopher Wilke, MD\*

**Radiology**  
Shamar Young, MD\*  
**Surgical Oncology**  
Maria Evasovich, MD  
Eric Jensen, MD  
Todd Tuttle, MD, MS

**Thoracic Surgery**  
Madhuri Rao, MD\*

**Transplant Surgery**  
Timothy Pruett, MD

**Urology**  
J. Kyle Anderson, MD  
Sean Elliott, MD  
Badrinath Konety, MD

## 2018 Minnesota Monthly's

**Cardiology**  
Julia Steinberger, MD, MS

**Colon and Rectal Surgery**  
Robert Madoff, MD  
Genevieve Melton-Meaux, MD, PhD

**Critical Care Medicine**  
Marie Steiner, MD, MS

**Dermatology**  
Kimberly Bohjanen, MD  
Christina Boull, MD, FAAD  
Maria Hordinsky, MD

**Diagnostic Radiology**  
Eric Hoggard, MD

**Endocrinology and Metabolism**  
Lynn Burmeister, MD  
Bradley Miller, MD, PhD

**General Surgery**  
Daniel Saltzman, MD, PhD

**Gynecologic Oncology**  
Peter Argenta, MD  
Linda Carson, MD, FACOG  
Levi Downs, Jr., MD, MS, FACOG  
Britt Erickson, MD  
Melissa Geller, MD  
Colleen Rivard Hunt, MD  
Rahel Ghebre, MD

**Hematology**  
Mark Reding, MD  
Gregory Vercellotti, MD, FACP

Daniel Weisdorf, MD

**Hematology/Oncology**  
Anne Blaes, MD  
Emily Greengard, MD  
Edward Greeno, MD  
Emil Lou, MD, PhD, FACP  
Christopher Moertel, MD  
Joseph Neglia, MD, MPH  
Karim Sadak, MD, MPH, MSE  
Lucie Turcotte, MD, MHP  
Erica Warlick, MD  
Brenda Weigel, MD, MSc

**Hospice and Palliative Medicine**  
Drew Rosielle, MD

**Internal Medicine**  
Bradley Benson, MD

**Neurosurgery**  
Matthew Hunt, MD

**Nuclear Medicine**  
Jerry Froelich, MD

**Orthopaedics and Orthopaedic Surgery**  
Denis Clohisy, MD

**Otolaryngology**  
Samir Khariwala, MD  
Stephanie Misono, MD, MPH  
Bevan Tueh, MD, MPH

**Radiation Oncology**  
Kathryn Dusenbery, MD  
Jianling Yuan, MD, PhD

**Radiology**  
Tara Holm, MD

**Thoracic and Cardiothoracic Surgery**  
Rafael Andrade, MD  
Rosemary Kelly, MD  
Madhuri, Rao, MD

**Urology**  
J. Kyle Anderson, MD  
Sean Elliott, MD  
Badrinath Konety, MD  
Christopher Warlick, MD, PhD  
Christopher Weight, MD

## 2019 Minnesota Monthly's

**Colon and Rectal Surgery**  
Robert Madoff, MD  
Genevieve Melton-Meaux, MD, PhD

**Dermatology**  
Rehana Ahmed-Saucedo, MD, PhD  
Kimberly Bohjanen, MD, PhD  
Christina Boull, MD, FAAD  
Maria Hordinsky, MD, FAAD

**Diagnostic Radiology**  
Tara Holm, MD

**Endocrinology and Metabolism**  
Lynn Burmeister, MD  
Bradley Miller, MD, PhD

**General Surgery**  
Maria Evasovich, MD  
Daniel Saltzman, MD, PhD

**Gynecologic Oncology**  
Peter Argenta, MD

Britt Erickson, MD  
Melissa Geller, MD  
Colleen Rivard Hunt, MD  
Deanna Teoh, MD

**Hematology**  
Mark Reding, MD  
Gregory Vercellotti, MD, FACP

**Hematology/Oncology**  
Anne Blaes, MD  
Emily Greengard, MD  
Naomi Fujioka, MD  
Emil Lou, MD, PhD, FACP  
Christopher Moertel, MD  
Joseph Neglia, MD, MPH  
Manish Patel, DO  
Karim Sadak, MD, MPH, MSE  
Heather Stefanski, MD, PhD  
Lucie Turcotte, MD, MHP  
Brenda Weigel, MD, MSc

**Hospice and Palliative Medicine**  
Drew Rosielle, MD

**Internal Medicine**  
Bradley Benson, MD

**Neurosurgery**  
Matthew Hunt, MD

**Nuclear Medicine**  
Jerry Froelich, MD

**Otolaryngology**  
Samir Khariwala, MD  
Stephanie Misono, MD, MPH  
Bevan Yueh, MD, MPH

**Pathology**  
Mahmoud Khalifa, MD, PhD

**Radiation Oncology**  
Kathryn Dusenbery, MD  
Christopher Wilke, MD, PhD  
Jianling Yuan, MD, PhD

**Thoracic Surgery**  
Rafael Andrade, MD  
Rosemary Kelly, MD

**Urology**  
J. Kyle Anderson, MD  
Sean Elliott, MD  
Badrinath Konety, MD  
Christopher Warlick, MD, PhD  
Christopher Weight, MD

# Noteworthy Research Grants

Sharon Allen, MD, PhD, was awarded a \$3M R01 from NIDA for her research study entitled “Bupropion for the prevention of postpartum smoking relapse.”

Silvia Balbo, PhD, in collaboration with Peter Villalta, PhD, Director, MCC’s Analytical Biochemistry Shared Resource, was awarded a \$1.7M R01 from the NCI entitled “The DNA adductome of lung carcinogenesis.”

Anja Bielinsky, PhD, was awarded a \$1.8M R01 from NIGMS for her study entitled “The role of DNA damage tolerance pathways in human cells.”

Wei Chen, PhD was awarded a new \$2.6M R01 from the NCI entitled “Development of Quantitative Deuterium MRS Imaging for Human Brain Tumor Application at Ultra-high Field.”

Yibin Deng, PhD, was awarded a new \$1.75M R01 from the NCI entitled “Targeting eIF4A1-dependent HK2 translation axis for prevention of castration-resistant prostate cancer.”

Yibin Deng, PhD, and Scott Dehm, PhD, were awarded a DOD grant for \$857,600 over 3 years, representing a collaboration between the MCC and Hormel Institute on this research.

Justin Drake, PhD, was awarded \$770K from the DOD for his research project entitled “RET Kinase Signaling as a Key Switch Toward the Neuroendocrine Phenotype.”

Reuben Harris, PhD, and his team was awarded a new P01 grant for \$8.3M from the NCI entitled “APOBEC mutagenesis in breast cancer.”

Stephen Hecht, PhD, was awarded a \$3M grant from the NCI for his study entitled “Clinical Trial of Watercress in Detoxification of Environmental Toxicants and Carcinogens.”

Stephen Jameson, PhD, was awarded two new R01s from NIAID totaling \$5.3M R01 for two different research projects studying the factors that regulate the survival and activation of mature T-cells in the peripheral lymphoid system that engage in immune responses.

Fekadu Kassie, PhD, was awarded a \$1.8M R01 from the NCI entitled “Lung cancer prevention and treatment by targeting ALDH1 and CD44 expressing putative lung cancer stem cells.”

Carol Lange, PhD, Julie Ostrander, PhD, and Kaylee Schwertfeger, PhD were awarded a new \$2.5M R01 from the NCI entitled “SRC-3/PELPI complexes drive stem-like phenotypes in luminal breast cancer.”

David Largaespada, PhD, was awarded \$1.5M from NCI Moonshot funding for his study entitled “Recurrent tumor-specific transcripts as a source of neoantigens for NFI-associated malignant peripheral nerve sheath tumor immunoprevention.”

Aaron LeBeau, PhD, was awarded \$1.75M from the NCI for his study entitled “Targeting CD133 for imaging and therapy in prostate cancer.”

David Masopust, PhD, was awarded a new \$1.6M R01 from the NCI entitled “Repurposing TRM for tumor immunotherapy”, collaborating with to study peptide alarm therapy, a new strategy of immunotherapy.

Jaime Modiano, VMD, PhD, was awarded a \$600K translational grant from the V Foundation entitled “Novel Immunotherapy for Sarcomas using Combination Oncolytic VSV and IL-18 Superkine.”

Lisa Peterson, PhD and her team of researchers was awarded \$4.0M over 5 years from the NIEHS to establish a Human Health Exposure Analysis Resource (HHEAR) bringing together highly talented scientists from the University of Minnesota and the Minnesota Department of Health to provide a national resource for exploring environmental, lifestyle, and related factors that can affect human health.

Lucie Turcotte, MD, MPH, was awarded an \$890K NCI Career Development Award (K08) for her research project entitled “Treatment Modifications, Outcomes and Provider Decision Making in the Management of Subsequent Breast Cancers Among Survivors of Childhood Cancer.”

Robert Turesky, PhD, was awarded a \$2.3M R01 from NCI for his study entitled “DNA adductome of human bladder from the tobacco exposome.”

Rachel Vogel, PhD, was awarded a \$792K grant from the American Cancer Society entitled “Wearable Device Intervention to Improve Sun Behaviors in Melanoma Survivors.”

Masato Yamamoto, MD, PhD, and Julia Davydova, MD, PhD, were awarded a \$1.8M NCI R01 entitled “Combination therapy with IFN expressing oncolytic adenovirus for pancreatic cancer.”

# Community Impact Board

The MCC Community Impact Board advises and supports the leadership in mission, programmatic direction, community interactions, outreach, public relations, and advocacy

Ruth Bachman (Chair)

Andy Arsham, PhD

Melissa Buffalo

Marshall “Marty” Davis

Jo DeBruycker

Charlton Dietz

Kathleen Gavin

Art Lingo

Roger McNear

Adair Mosely

Burton Schwartz, MD

Tsega Tamene

Douglas Yee, MD

Seanne Falconer, MBA, FACHE

Christopher Pennell, PhD

Kiara Ellis, MSW

Emeritus Members

Carla Bender

Idelle Bjelland

Marva Bohlen

Lois Brown

Kate Bryant

Marilyn Bryant

Martin Chorzempa

Barbara Forster

Bob Griffin

Mark Gaasedelen

Jane Gregerson

Roben Hunter

Rep. Phyllis Khan

Matt Kramer

Roger Ledding

Irving Lerner, MD

Don Mertz

Kris Rhodes

George “Skip” Thaler

Joel Theisen

# Publications

**Gomez-Pastor R**, Burchfiel ET, Thiele DJ. Regulation of heat shock transcription factors and their roles in physiology and disease. *Nat. Rev. Mol. Cell Biol.*. 2018 JAN 01; 19(1):4-19. DOI: 10.1038/nrm.2017.73. 2017 Aug 30. PubMed PMID: 28852220; PMCID: PMC5794010.

Naber SK, **Kuntz KM**, Henrikson NB, Williams MS, Calonge N, Goddard KAB, Zallen DT, Ganiats TG, Webber EM, Janssens ACJW, van Ballegooijen M, Zauber AG, Lansdorp-Vogelaar I. Cost Effectiveness of Age-Specific Screening Intervals for People With Family Histories of Colorectal Cancer. *Gastroenterology*. 2018 JAN 01; 154(1):105-116.e20. DOI: 10.1053/j.gastro.2017.09.021. 2017 Sep 28. PubMed PMID: 28964749.

Hadjilidiadis D, **Khoruts A**, Zauber AG, Hempstead SE, Maisonneuve P, Lowenfels AB. Cystic Fibrosis Colorectal Cancer Screening Consensus Recommendations. *Gastroenterology*. 2018 FEB 01; 154(3):736-745.e14. DOI: 10.1053/j.gastro.2017.12.012. 2017 Dec 29. PubMed PMID: 29289528.

Maude SL, Laetsch TW, Buechner J, Rives S, Boyer M, Bittencourt H, Bader P, Verneris MR, **Stefanski HE**, Myers GD, Qayed M, De Moerloose B, Hiramatsu H, Schlis K, Davis KL, Martin PL, Nemecek ER, Yanik GA, Peters C, Baruchel A, Boissel N, Mechinaud F, Balduzzi A, Krueger J, June CH, et al. Tisagenlecleucel in Children and Young Adults with B-Cell Lymphoblastic Leukemia. *N. Engl. J. Med.*. 2018 FEB 01; 378(5):439-448. DOI: 10.1056/NEJMoa1709866. PubMed PMID: 29385370; PMCID: PMC5996391.

Beura LK, Mitchell JS, Thompson EA, Schenkel JM, Mohammed J, Wijeyesinghe S, Fonseca R, Burbach BJ, Hickman HD, **Vezyz V, Fife BT, Masopust D**. Intravital mucosal imaging of CD8+ resident memory T cells shows tissue-autonomous recall responses that amplify secondary memory. *Nat. Immunol.*. 2018 FEB 01; 19(2):173-182. DOI: 10.1038/s41590-017-0029-3. 2018 Jan 8. PubMed PMID: 29311694; PMCID: PMC5896323.

Zeiser Robert, **Blazar Bruce R**. Acute Graft-versus-Host Disease. *N. Engl. J. Med.*. 2018 FEB 08; 378(6):586. DOI: 10.1056/NEJMcl1716969. PubMed PMID: 29414273.

Mathew NR, Baumgartner F, Braun L, O'Sullivan D, Thomas S, Waterhouse M, Müller TA, Hanke K, Taromi S, Apostolova P, Illert AL, Melchinger W, Duquesne S, Schmitt-Graeff A, Osswald L, Yan KL, Weber A, Tugues S, Spath S, Pfeifer D, Follo M, Claus R, Lübbert M, Rummelt C, Bertz H, et al. Sorafenib promotes graft-versus-leukemia activity in mice and humans through IL-15 production in FLT3-ITD-mutant leukemia cells. *Nat. Med.*. 2018 MAR 01; 24(3):282-291. DOI: 10.1038/nm.4484. 2018 Feb 12. PubMed PMID: 29431743; PMCID: PMC6029618.

KL, Weber A, Tugues S, Spath S, Pfeifer D, Follo M, Claus R, Lübbert M, Rummelt C, Bertz H, et al. Sorafenib promotes graft-versus-leukemia activity in mice and humans through IL-15 production in FLT3-ITD-mutant leukemia cells. *Nat. Med.*. 2018 MAR 01; 24(3):282-291. DOI: 10.1038/nm.4484. 2018 Feb 12. PubMed PMID: 29431743; PMCID: PMC6029618.

Kayatekin C, Amasino A, Gaglia G, Flannick J, Bonner JM, Fanning S, Narayan P, Barrasa MI, Pincus D, Landgraf D, Nelson J, Hesse WR, Costanzo M, **Myers CL**, Boone C, Florez JC, Lindquist S. Translocon Declogger Ste24 Protects against IAPP Oligomer-Induced Proteotoxicity. *Cell*. 2018 MAR 22; 173(1):62-73.e9. DOI: 10.1016/j.cell.2018.02.026. 2018 Mar 8. PubMed PMID: 29526462; PMCID: PMC5945206.

Kozhimannil KB, Hung P, **Henning-Smith C**, Casey MM, Prasad S. Association Between Loss of Hospital-Based Obstetric Services and Birth Outcomes in Rural Counties in the United States. *JAMA*. 2018 MAR 27; 319(12):1239-1247. DOI: 10.1001/jama.2018.1830. PubMed PMID: 29522161; PMCID: PMC5885848.

Almassi N, Reichard C, Li J, Russell C, Perry J, **Ryan CJ**, Friedlander T, Sharifi N. HSD3B1 and Response to a Nonsteroidal CYP17A1 Inhibitor in Castration-Resistant Prostate Cancer. *JAMA Oncol*. 2018 APR 01; 4(4):554-557. DOI: 10.1001/jamaoncol.2017.3159. PubMed PMID: 29049452; PMCID: PMC5933361.

Mathew NR, Baumgartner F, Braun L, O'Sullivan D, Thomas S, Waterhouse M, Müller TA, Hanke K, Taromi S, Apostolova P, Illert AL, Melchinger W, Duquesne S, Schmitt-Graeff A, Osswald L, Yan KL, Weber A, Tugues S, Spath S, Pfeifer D, Follo M, Claus R, Lübbert M, Rummelt C, Bertz H, et al. Erratum: Sorafenib promotes graft-versus-leukemia activity in mice and humans through IL-15 production in FLT3-ITD-mutant leukemia cells. *Nat. Med.*. 2018 APR 10; 24(4):526. DOI: 10.1038/nm0418-526c. PubMed PMID: 29634689.

Kuzmin E, VanderSluis B, Wang W, Tan G, Deshpande R, Chen Y, Usaj M, Balint A, Mattiazzi Usaj M, van Leeuwen J, Koch EN, Pons C, Dagilis AJ, Pryszyk M, Wang JZY, Hanchard J, Riggi M, Xu K, Heydari H, San Luis BJ, Shuteriqi E, Zhu H, Van Dyk N, Sharifpoor S, Costanzo M, et al. Systematic analysis of complex genetic interactions. *Science*. 2018 APR 20; 360(6386). DOI: 10.1126/science.aao1729. PubMed PMID: 29674565.

**Niedernhofer LJ, Robbins PD**. Senotherapeutics for healthy ageing. *Nat Rev Drug Discov*. 2018 MAY 01; 17(5):377. DOI: 10.1038/nrd.2018.44. 2018 Apr 13. PubMed PMID: 29651106.

Wrangle JM, Velcheti V, **Patel MR**, Garrett-Mayer E, Hill EG, Ravenel JG, **Miller JS**, Farhad M, Anderton K, Lindsey K, Taffaro-Neskey M, Sherman C, Suriano S, Swiderska-Syn M, Sion A, Harris J, Edwards AR, Rytlewski JA, Sanders CM, Yusko EC, Robinson MD, Krieg C, Redmond WL, Egan JO, Rhode PR, et al. ALT-803, an IL-15 superagonist, in combination with nivolumab in patients with metastatic non-small cell lung cancer: a non-randomised, open-label, phase 1b trial. *Lancet Oncol.*. 2018 MAY 01; 19(5):694-704. DOI: 10.1016/S1470-2045(18)30148-7. 2018 Apr 5. PubMed PMID: 29628312; PMCID: PMC6089612.

Taraseviciute A, Tkachev V, Ponce R, Turtle CJ, Snyder JM, Liggitt HD, Myerson D, Gonzalez-Cuyar L, Baldessari A, English C, Yu A, Zheng H, Furlan SN, Hunt DJ, Hoglund V, Finney O, Brakke H, **Blazar BR**, Berger C, Riddell SR, Gardner R, Kean LS, Jensen MC. Chimeric Antigen Receptor T Cell-Mediated Neurotoxicity in Non-human Primates. *Cancer Discov*. 2018 JUN 01; 8(6):750-763. DOI: 10.1158/2159-8290.CD-17-1368. 2018 Mar 21. PubMed PMID: 29563103; PMCID: PMC6058704.

Hadjilidiadis D, **Khoruts A**, Zauber AG, Hempstead SE, Maisonneuve P, Lowenfels AB. Reply. *Gastroenterology*. 2018 JUN 01; 154(8):2283-2284. DOI: 10.1053/j.gastro.2018.05.017. 2018 May 8. PubMed PMID: 29750906.

Weil BR, Madenci AL, Liu Q, Howell RM, Gibson TM, Yasui Y, **Neglia JP**, Leisenring WM, Smith SA, Tonorezos ES, Friedman DN, Constine LS, Tinkle CL, Diller LR, Armstrong GT, Oeffinger KC, Weldon CB. Late Infection-Related Mortality in Asplenic Survivors of Childhood Cancer: A Report From the Childhood Cancer Survivor Study. *J. Clin. Oncol.*. 2018 JUN 01; 36(16):1571-1578. DOI: 10.1200/JCO.2017.76.1643. 2018 Apr 17. PubMed PMID: 29664715; PMCID: PMC5978467.

Zhu Z, Guo SZ, Hirdler T, Eide C, Fan X, **Tolar J**, McAlpine MC. 3D Printed Functional and Biological Materials on Moving Freeform Surfaces. *Adv. Mater. Weinheim*. 2018 JUN 01; 30(23):e1707495. DOI: 10.1002/adma.201707495. 2018 Apr 25. PubMed PMID: 29691902.

**Niedernhofer LJ**, Gurkar AU, Wang Y, Vijg J, Hoeijmakers JHJ,

**Robbins PD**. Nuclear Genomic Instability and Aging. *Annu. Rev. Biochem.*. 2018 JUN 20; 87:295-322. DOI: 10.1146/annurev-biochem-062917-012239. PubMed  
**Gomez-Pastor R**, Burchfiel ET, Thiele DJ. Regulation of heat shock transcription factors and their roles in physiology and disease. *Nat. Rev. Mol. Cell Biol.*. 2018 JAN 01; 19(1):4-19. DOI: 10.1038/nrm.2017.73. 2017 Aug 30. PubMed PMID: 28852220; PMCID: PMC5794010.

Naber SK, **Kuntz KM**, Henrikson NB, Williams MS, Calonge N, Goddard KAB, Zallen DT, Ganiats TG, Webber EM, Janssens ACJW, van Ballegooijen M, Zauber AG, Lansdorp-Vogelaar I. Cost Effectiveness of Age-Specific Screening Intervals for People With Family Histories of Colorectal Cancer. *Gastroenterology*. 2018 JAN 01; 154(1):105-116.e20. DOI: 10.1053/j.gastro.2017.09.021. 2017 Sep 28. PubMed PMID: 28964749.

Hadjilidiadis D, **Khoruts A**, Zauber AG, Hempstead SE, Maisonneuve P, Lowenfels AB. Cystic Fibrosis Colorectal Cancer Screening Consensus Recommendations. *Gastroenterology*. 2018 FEB 01; 154(3):736-745.e14. DOI: 10.1053/j.gastro.2017.12.012. 2017 Dec 29. PubMed PMID: 29289528.

Maude SL, Laetsch TW, Buechner J, Rives S, Boyer M, Bittencourt H, Bader P, Verneris MR, **Stefanski HE**, Myers GD, Qayed M, De Moerloose B, Hiramatsu H, Schlis K, Davis KL, Martin PL, Nemecek ER, Yanik GA, Peters C, Baruchel A, Boissel N, Mechinaud F, Balduzzi A, Krueger J, June CH, et al. Tisagenlecleucel in Children and Young Adults with B-Cell Lymphoblastic Leukemia. *N. Engl. J. Med.*. 2018 FEB 01; 378(5):439-448. DOI: 10.1056/NEJMoa1709866. PubMed PMID: 29385370; PMCID: PMC5996391.

Beura LK, Mitchell JS, Thompson EA, Schenkel JM, Mohammed J, Wijeyesinghe S, Fonseca R, Burbach BJ, Hickman HD, **Vezyz V, Fife BT, Masopust D**. Intravital mucosal imaging of CD8+ resident memory T cells shows tissue-autonomous recall responses that amplify secondary memory. *Nat. Immunol.*. 2018 FEB 01; 19(2):173-182. DOI: 10.1038/s41590-017-0029-3. 2018 Jan 8. PubMed PMID: 29311694; PMCID: PMC5896323.

Zeiser Robert, **Blazar Bruce R**. Acute Graft-versus-Host Disease. *N. Engl. J. Med.*. 2018 FEB 08; 378(6):586. DOI: 10.1056/NEJMcl1716969. PubMed PMID: 29414273.

Mathew NR, Baumgartner F, Braun L, O'Sullivan D, Thomas S, Waterhouse M, Müller TA, Hanke K, Taromi S, Apostolova P, Illert AL, Melchinger W, Duquesne S, Schmitt-Graeff A, Osswald L, Yan KL, Weber A, Tugues S, Spath S, Pfeifer D, Follo M, Claus R, Lübbert M, Rummelt C, Bertz H, et al. Sorafenib promotes graft-versus-leukemia activity in mice and humans through IL-15 production in FLT3-ITD-mutant leukemia cells. *Nat. Med.*. 2018 MAR 01; 24(3):282-291. DOI: 10.1038/nm.4484. 2018 Feb 12. PubMed PMID: 29431743; PMCID: PMC6029618.

Kayatekin C, Amasino A, Gaglia G, Flannick J, Bonner JM, Fanning S, Narayan P, Barrasa MI, Pincus D, Landgraf D, Nelson J, Hesse WR, Costanzo M, **Myers CL**, Boone C, Florez JC, Lindquist S. Translocon Declogger Ste24 Protects against IAPP Oligomer-Induced Proteotoxicity. *Cell*. 2018 MAR 22; 173(1):62-73.e9. DOI: 10.1016/j.cell.2018.02.026. 2018 Mar 8. PubMed PMID: 29526462; PMCID: PMC5945206.

Kozhimannil KB, Hung P, **Henning-Smith C**, Casey MM, Prasad S. Association Between Loss of Hospital-Based Obstetric Services and Birth Outcomes in Rural Counties in the United States. *JAMA*. 2018 MAR 27; 319(12):1239-1247. DOI: 10.1001/jama.2018.1830. PubMed PMID: 29522161; PMCID: PMC5885848.

Almassi N, Reichard C, Li J, Russell C, Perry J, **Ryan CJ**, Friedlander T, Sharifi N. HSD3B1 and Response to a Nonsteroidal CYP17A1 Inhibitor in Castration-Resistant Prostate Cancer. *JAMA Oncol*. 2018 APR 01; 4(4):554-557. DOI: 10.1001/jamaoncol.2017.3159. PubMed PMID: 29049452; PMCID: PMC5933361.

Mathew NR, Baumgartner F, Braun L, O'Sullivan D, Thomas S, Waterhouse M, Müller TA, Hanke K, Taromi S, Apostolova P, Illert AL, Melchinger W, Duquesne S, Schmitt-Graeff A, Osswald L, Yan KL, Weber A, Tugues S, Spath S, Pfeifer D, Follo M, Claus R, Lübbert M, Rummelt C, Bertz H, et al. Erratum: Sorafenib promotes graft-versus-leukemia activity in mice and humans through IL-15 production in FLT3-ITD-mutant leukemia cells. *Nat. Med.*. 2018 APR 10; 24(4):526. DOI: 10.1038/nm0418-526c. PubMed PMID: 29634689.

Kuzmin E, VanderSluis B, Wang W, Tan G, Deshpande R, Chen Y, Usaj M, Balint A, Mattiazzi Usaj M, van Leeuwen J, Koch EN, Pons C, Dagilis AJ, Pryszyk M, Wang JZY, Hanchard J, Riggi M, Xu K, Heydari H, San Luis BJ, Shuteriqi E, Zhu H, Van Dyk N,

Sharifpoor S, Costanzo M, et al. Systematic analysis of complex genetic interactions. *Science*. 2018 APR 20; 360(6386). DOI: 10.1126/science.aao1729. PubMed PMID: 29674565.

**Niedernhofer LJ, Robbins PD**. Senotherapeutics for healthy ageing. *Nat Rev Drug Discov*. 2018 MAY 01; 17(5):377. DOI: 10.1038/nrd.2018.44. 2018 Apr 13. PubMed PMID: 29651106.

Wrangle JM, Velcheti V, **Patel MR**, Garrett-Mayer E, Hill EG, Ravenel JG, **Miller JS**, Farhad M, Anderton K, Lindsey K, Taffaro-Neskey M, Sherman C, Suriano S, Swiderska-Syn M, Sion A, Harris J, Edwards AR, Rytlewski JA, Sanders CM, Yusko EC, Robinson MD, Krieg C, Redmond WL, Egan JO, Rhode PR, et al. ALT-803, an IL-15 superagonist, in combination with nivolumab in patients with metastatic non-small cell lung cancer: a non-randomised, open-label, phase 1b trial. *Lancet Oncol.*. 2018 MAY 01; 19(5):694-704. DOI: 10.1016/S1470-2045(18)30148-7. 2018 Apr 5. PubMed PMID: 29628312; PMCID: PMC6089612.

Taraseviciute A, Tkachev V, Ponce R, Turtle CJ, Snyder JM, Liggitt HD, Myerson D, Gonzalez-Cuyar L, Baldessari A, English C, Yu A, Zheng H, Furlan SN, Hunt DJ, Hoglund V, Finney O, Brakke H, **Blazar BR**, Berger C, Riddell SR, Gardner R, Kean LS, Jensen MC. Chimeric Antigen Receptor T Cell-Mediated Neurotoxicity in Non-human Primates. *Cancer Discov*. 2018 JUN 01; 8(6):750-763. DOI: 10.1158/2159-8290.CD-17-1368. 2018 Mar 21. PubMed PMID: 29563103; PMCID: PMC6058704.

Hadjilidiadis D, **Khoruts A**, Zauber AG, Hempstead SE, Maisonneuve P, Lowenfels AB. Reply. *Gastroenterology*. 2018 JUN 01; 154(8):2283-2284. DOI: 10.1053/j.gastro.2018.05.017. 2018 May 8. PubMed PMID: 29750906.

Weil BR, Madenci AL, Liu Q, Howell RM, Gibson TM, Yasui Y, **Neglia JP**, Leisenring WM, Smith SA, Tonorezos ES, Friedman DN, Constine LS, Tinkle CL, Diller LR, Armstrong GT, Oeffinger KC, Weldon CB. Late Infection-Related Mortality in Asplenic Survivors of Childhood Cancer: A Report From the Childhood Cancer Survivor Study. *J. Clin. Oncol.*. 2018 JUN 01; 36(16):1571-1578. DOI: 10.1200/JCO.2017.76.1643. 2018 Apr 17. PubMed PMID: 29664715; PMCID: PMC5978467.

Zhu Z, Guo SZ, Hirdler T, Eide C, Fan X, **Tolar J**, McAlpine MC. 3D Printed Functional and Biological Materials on Moving Freeform Surfaces. *Adv. Mater. Weinheim*. 2018 JUN 01; 30(23):e1707495.

## PUBLICATIONS

DOI: 10.1002/adma.201707495. 2018 Apr 25. PubMed PMID: 29691902.

**Niedernhofer LJ**, Gurkar AU, Wang Y, Vijg J, Hoeijmakers JHJ, **Robbins PD**. Nuclear Genomic Instability and Aging. *Annu. Rev. Biochem.*. 2018 JUN 20; 87:295-322. DOI: 10.1146/annurev-biochem-062917-012239. PubMed PMID: 29925262.

**Hogquist KA, Hamilton SE**. For T Cells, the Child Is Father of the Man. *Cell*. 2018 JUN 28; 174(1):16-18. DOI: 10.1016/j.cell.2018.06.015. PubMed PMID: 29958105.

Wolf AMD, Fontham ETH, **Church TR**, Flowers CR, Guerra CE, LaMonte SJ, Etzioni R, McKenna MT, Oeffinger KC, Shih YT, Walter LC, Andrews KS, Brawley OW, Brooks D, Fedewa SA, Manassaram-Baptiste D, Siegel RL, Wender RC, Smith RA. Colorectal cancer screening for average-risk adults: 2018 guideline update from the American Cancer Society. *CA Cancer J Clin*. 2018 JUL 01; 68(4):250-281. DOI: 10.3322/caac.21457. 2018 May 30. PubMed PMID: 29846947.

Borges da Silva H, Beura LK, Wang H, Hanse EA, Gore R, Scott MC, Walsh DA, Block KE, Fonseca R, Yan Y, **Hippen KL, Blazar BR, Masopust D, Kelekar A**, Vulchanova L, **Hogquist KA, Jameson SC**. The purinergic receptor P2RX7 directs metabolic fitness of long-lived memory CD8+ T cells. *Nature*. 2018 JUL 01; 559(7713):264-268. DOI: 10.1038/s41586-018-0282-0. 2018 Jul 4. PubMed PMID: 29973721; PMCID: PMC6054485.

Miller CN, Proekt I, von Moltke J, Wells KL, Rajpurkar AR, Wang H, Rattay K, Khan IS, Metzger TC, Pollack JL, Fries AC, Lwin WW, Wigton EJ, Parent AV, Kyewski B, Erle DJ, **Hogquist KA**, Steinmetz LM, Locksley RM, Anderson MS. Thymic tuft cells promote an IL-4-enriched medulla and shape thymocyte development. *Nature*. 2018 JUL 01; 559(7715):627-631. DOI: 10.1038/s41586-018-0345-2. 2018 Jul 18. PubMed PMID: 30022164; PMCID: PMC6062473.

Chan SS, Arpke RW, Filareto A, Xie N, Pappas MP, Penalzoza JS, **Perlingeiro RCR, Kyba M**. Skeletal Muscle Stem Cells from PSC-Derived Teratomas Have Functional Regenerative Capacity.

*Cell Stem Cell*. 2018 JUL 05; 23(1):74-85.e6. DOI: 10.1016/j.stem.2018.06.010. PubMed PMID: 29979993.

Newton RH, Shrestha S, Sullivan JM, Yates KB, Compeer EB, Ron-Harel N, Blazar BR, Bensinger SJ, Haining WN, Dustin ML, Campbell DJ, Chi H, Turka LA. Maintenance of CD4 T cell fitness through regulation of Foxo1. *Nat. Immunol.*. 2018 JUL 09; . DOI: 10.1038/s41590-018-0157-4. 2018 Jul 9. PubMed PMID: 29988091.

Viswanathan SR, Ha G, Hoff AM, Wala JA, Carrot-Zhang J, Whelan CW, Haradhvala NJ, Freeman SS, Reed SC, Rhoades J, Polak P, Cipicchio M, Wankowicz SA, Wong A, Kamath T, Zhang Z, Gydush GJ, Rotem D, Love JC, Getz G, Gabriel S, Zhang CZ, **Dehm SM**, Nelson PS, et al. Structural Alterations Driving Castration-Resistant Prostate Cancer Revealed by Linked-Read Genome Sequencing. *Cell*. 2018 JUL 12; 174(2):433-447.e19. DOI: 10.1016/j.cell.2018.05.036. 2018 Jun 18. PubMed PMID: 29909985; PMCID: PMC6046279.

Cheung YT, Khan RB, Liu W, Brinkman TM, Edelmann MN, Reddick WE, Pei D, **Panoskaltis-Mortari A**, Srivastava D, Cheng C, Robison LL, Hudson MM, Pui CH, Krull KR. Association of Cerebrospinal Fluid Biomarkers of Central Nervous System Injury With Neurocognitive and Brain Imaging Outcomes in Children Receiving Chemotherapy for Acute Lymphoblastic Leukemia. *JAMA Oncol*. 2018 JUL 12; 4(7):e180089. DOI: 10.1001/jamaoncol.2018.0089. 2018 Jul 12. PubMed PMID: 29596541; PMCID: PMC5885182.

**Turcotte LM, Neglia JP**, Reulen RC, Ronckers CM, van Leeuwen FE, Morton LM, Hodgson DC, Yasui Y, Oeffinger KC, Henderson TO. Risk, Risk Factors, and Surveillance of Subsequent Malignant Neoplasms in Survivors of Childhood Cancer: A Review. *J. Clin. Oncol.*. 2018 JUL 20; 36(21):2145-2152. DOI: 10.1200/JCO.2017.76.7764. 2018 Jun 6. PubMed PMID: 29874133; PMCID: PMC6075849.

Quigley DA, Dang HX, Zhao SG, Lloyd P, Aggarwal R, Alumkal JJ, Foye A, Kothari V, Perry MD, Bailey AM, Playdle D, Barnard TJ, Zhang L, Zhang J, Youngren JF, Cieslik MP, Parolia A, Beer TM, Thomas G, Chi KN, Gleave M, Lack NA, Zoubeidi A, Reiter RE, Rettig MB, et al. Genomic Hallmarks and Structural Variation in Metastatic Prostate Cancer. *Cell*. 2018 JUL 26; 174(3):758-769.e9. DOI: 10.1016/j.cell.2018.06.039. 2018 Jul

19. PubMed PMID: 30033370.

Maisonneuve P, Lowenfels AB, Hadjiliadis D, **Khoruts A**, Marshall BC. Gastrointestinal cancers in patients with cystic fibrosis. *Lancet Oncol.*. 2018 AUG 01; 19(8):e368. DOI: 10.1016/S1470-2045(18)30485-6. PubMed PMID: 30102218.

Xu M, Pirtskhalava T, Farr JN, Weigand BM, Palmer AK, Weivoda MM, Inman CL, Ogrodnik MB, Hachfeld CM, Fraser DG, Onken JL, Johnson KO, Verzosa GC, Langhi LGP, Weigl M, Giorgadze N, LeBrasseur NK, Miller JD, Jurk D, Singh RJ, Allison DB, Ejima K, Hubbard GB, Ikeno Y, Cubro H, et al. Senolytics improve physical function and increase lifespan in old age. *Nat. Med.*. 2018 AUG 01; 24(8):1246-1256. DOI: 10.1038/s41591-018-0092-9. 2018 Jul 9. PubMed PMID: 29988130; PMCID: PMC6082705.

Li Y, Hermanson DL, **Moriarity BS**, Kaufman DS. Human iPSC-Derived Natural Killer Cells Engineered with Chimeric Antigen Receptors Enhance Anti-tumor Activity. *Cell Stem Cell*. 2018 AUG 02; 23(2):181-192.e5. DOI: 10.1016/j.stem.2018.06.002. 2018 Jun 28. PubMed PMID: 30082067; PMCID: PMC6084450.

Habtetsion T, Ding ZC, Pi W, Li T, Lu C, Chen T, Xi C, Spartz H, Liu K, Hao Z, Mivechi N, Huo Y, **Blazar BR**, Munn DH, Zhou G. Alteration of Tumor Metabolism by CD4+ T Cells Leads to TNF- $\alpha$ -Dependent Intensification of Oxidative Stress and Tumor Cell Death. *Cell Metab.*. 2018 AUG 07; 28(2):228-242.e6. DOI: 10.1016/j.cmet.2018.05.012. 2018 Jun 7. PubMed PMID: 29887396; PMCID: PMC6082691.

Devarakonda S, Rotolo F, Tsao MS, Lanc I, Brambilla E, Masood A, Olausson KA, Fulton R, Sakashita S, McLeer-Florin A, Ding K, Le Teuff G, Shepherd FA, Pignon JP, Graziano SL, **Kratzke R**, Soria JC, Seymour L, Govindan R, Michiels S. Tumor Mutation Burden as a Biomarker in Resected Non-Small-Cell Lung Cancer. *J. Clin. Oncol.*. 2018 AUG 14; :jco2018781963. DOI: 10.1200/JCO.2018.78.1963. 2018 Aug 14. PubMed PMID: 30106638.

Aggarwal R, Huang J, Alumkal JJ, Zhang L, Feng FY, Thomas GV, Weinstein AS, Friedl V, Zhang C, Witte ON, Lloyd P, Gleave M, Evans CP, Youngren J, Beer TM, Rettig M, Wong CK, True L, Foye A, Playdle D, **Ryan CJ**, Lara P, Chi KN, Uzunangelov V, Sokolov A, et al. Clinical and Genomic Characterization of Treatment-Emergent Small-Cell Neuroendocrine Prostate Cancer: A Multi-institutional Prospective Study. *J. Clin. Oncol.*. 2018 AUG 20; 36(24):2492-2503. DOI: 10.1200/JCO.2017.77.6880. 2018 Jul 9. PubMed PMID: 29985747; PMCID: PMC6366813.

Cole PD, McCarten KM, Pei Q, Spira M, Metzger ML, Drachtman RA, Hor-

ton TM, Bush R, Blaney SM, **Weigel BJ**, Kelly KM. Brentuximab vedotin with gemcitabine for paediatric and young adult patients with relapsed or refractory Hodgkin's lymphoma (AHOD1221): a Children's Oncology Group, multicentre single-arm, phase 1-2 trial. *Lancet Oncol.*. 2018 SEP 01; 19(9):1229-1238. DOI: 10.1016/S1470-2045(18)30426-1. 2018 Aug 16. PubMed PMID: 30122620.

**Hatsukami DK**, Luo X, Jensen JA, **al'Absi M, Allen SS**, Carmella SG, Chen M, Cinciripini PM, Denlinger-Apte R, Drobos DJ, **Koopmeiners JS**, Lane T, **Le CT**, Leischow S, Luo K, McClernon FJ, **Murphy SE**, Paiano V, Robinson JD, Severson H, Sipe C, Strasser AA, Strayer LG, Tang MK, Vandrey R, et al. Effect of Immediate vs Gradual Reduction in Nicotine Content of Cigarettes on Biomarkers of Smoke Exposure: A Randomized Clinical Trial. *JAMA*. 2018 SEP 04; 320(9):880-891. DOI: 10.1001/jama.2018.11473. PubMed PMID: 30193275; PMCID: PMC6372240.

Autio KA, Dreicer R, Anderson J, Garcia JA, Alva A, Hart LL, Milowsky MI, Posadas EM, **Ryan CJ**, Graf RP, Dittamore R, Schreiber NA, Summa JM, Youssoufian H, Morris MJ, Scher HI. Safety and Efficacy of BIND-014, a Docetaxel Nanoparticle Targeting Prostate-Specific Membrane Antigen for Patients With Metastatic Castration-Resistant Prostate Cancer: A Phase 2 Clinical Trial. *JAMA Oncol*. 2018 OCT 01; 4(10):1344-1351. DOI: 10.1001/jamaoncol.2018.2168. PubMed PMID: 29978216; PMCID: PMC6233779

Liang PS, Allison J, Ladabaum U, Martinez ME, Murphy CC, Schoen RE, **Shaukat A**, Tinmouth J, Gupta S. Potential Intended and Unintended Consequences of Recommending Initiation of Colorectal Cancer Screening at Age 45 Years. *Gastroenterology*. 2018 OCT 01; 155(4):950-954. DOI: 10.1053/j.gastro.2018.08.019. 2018 Aug 21. PubMed PMID: 30138614.

**Wolf SM**, Evans BJ. Return of results and data to study participants. *Science*. 2018 OCT 12; 362(6411):159-160. DOI: 10.1126/science.aav0005. PubMed PMID: 30309935.

Quigley DA, Dang HX, Zhao SG, Lloyd P, Aggarwal R, Alumkal JJ, Foye A, Kothari V, Perry MD, Bailey AM, Playdle D, Barnard TJ, Zhang L, Zhang J, Youngren JF, Cieslik MP, Parolia A, Beer TM, Thomas G, Chi KN, Gleave M, Lack NA, Zoubeidi A, Reiter RE, Rettig MB, et al. Genomic Hallmarks and Structural Variation in Metastatic Prostate Cancer. *Cell*. 2018 OCT 18; 175(3):889. DOI: 10.1016/j.cell.2018.10.019. PubMed PMID: 30340047.

Adelman ZN, Albritton LM, **Boris-Lawrie K**, Buchmeier MJ, Cannon P, Cho M, DiGiusto D, Donahue JK, Federoff HJ, Hammarskjöld ML, Hardison AD, Hearing P, Lee B, Lee DA, Porteus MH, Ross LF, Ross SR, Wooley DP, Zoloth L. Protect NIH's DNA advisory committee. *Science*. 2018 OCT 26; 362(6413):409-410. DOI: 10.1126/science.aav2483. PubMed PMID: 30361364.

Vangay P, Johnson AJ, Ward TL, Al-Ghalith GA, Shields-Cutler RR, Hillmann BM, Lucas SK, Beura LK, Thompson EA, Till LM, Batres R, Paw B, Pergament SL, Saenyakul P, Xiong M, Kim AD, Kim G, **Masopust D**, Martens EC, Angkurawaranon C, McGready R, Kashyap PC, Culhane-Pera KA, **Knights D**. US Immigration Westernizes the Human Gut Microbiome. *Cell*. 2018 NOV 01; 175(4):962-972.e10. DOI: 10.1016/j.cell.2018.10.029. PubMed PMID: 30388453.

Hao J, Zhang Y, Yan X, Yan F, Sun Y, Zeng J, Waigel S, Yin Y, Fraig MM, Egilmez NK, Suttles J, Kong M, **Liu S**, Cleary MP, Sauter E, Li B. Circulating Adipose Fatty Acid Binding Protein Is a New Link Underlying Obesity-Associated Breast/Mammary Tumor Development. *Cell Metab.*. 2018 NOV 06; 28(5):689-705.e5. DOI: 10.1016/j.cmet.2018.07.006. 2018 Aug 9. PubMed PMID: 30100196; PMCID: PMC6221972.

Malagón T, **Kulasingam S**, Mayrand MH, Ogilvie G, Smith L, Bouchard C, Gotlieb W, Franco EL. Age at last screening and remaining lifetime risk of cervical cancer in older, unvaccinated, HPV-negative women: a modelling study. *Lancet Oncol.*. 2018 DEC 01; 19(12):1569-1578. DOI: 10.1016/S1470-2045(18)30536-9. 2018 Nov 1. PubMed PMID: 30392810.

Holmqvist AS, Chen Y, Wu J, Battles K, Bhatia R, Francisco L, Hageman L, Kung M, Ness E, Parman M, Salzman D, Wadhwa A, Winther JF, Rosenthal J, Forman SJ, **Weisdorf DJ**, Armenian SH, **Arora M**, Bhatia S. Assessment of Late Mortality Risk After Allogeneic Blood or Marrow Transplantation Performed in Childhood. *JAMA Oncol*. 2018 DEC 01; 4(12):e182453. DOI: 10.1001/jamaoncol.2018.2453. 2018 Dec 13. PubMed PMID: 30054602.

Johnson MO, Wolf MM, Madden MZ, Andrejeva G, Sugiura A, Contreras DC, Maseda D, Liberti MV, Paz K, Kishton RJ, Johnson ME, de Cubas AA, Wu P, Li G, Zhang Y, Newcomb DC, Wells AD, Restifo NP, Rathmell WK, Locasale JW, Davila ML, **Blazar BR**, Rathmell JC. Distinct Regulation of Th17 and Th1 Cell Differentiation by Glutaminase-Dependent Metabolism. *Cell*. 2018 DEC 13; 175(7):1780-1795.e19. DOI: 10.1016/j.cell.2018.10.001. 2018 Nov 1. PubMed PMID: 30392958; PMCID: PMC6361668.

**Wolf SM**, Evans BJ. Defending the return of results and data. *Science*. 2018 DEC 14; 362(6420):1255-1256. DOI: 10.1126/science.aaw1851. 2018 Dec 13. PubMed PMID: 30545879.

Wang Z, Aguilar EG, Luna JJ, Dunai C, Khuat LT, Le CT, Mirsoian A, Minnar CM, Stoffel KM, Sturgill IR, Grossenbacher SK, Withers SS, Rebhun RB, Hartigan-O'Connor DJ, Méndez-Lagares G, Tarantal AF, Isseroff RR, **Griffith TS**, Schalper KA, Merleev A, Saha A, Maverakis E, Kelly K, Aljumaily R, Ibrahim S, et al. Paradoxical effects of obesity on T cell function during tumor progression and PD-1 checkpoint blockade. *Nat. Med.*. 2019 JAN 01; 25(1):141-151. DOI: 10.1038/s41591-018-0221-5. 2018 Nov 12. PubMed PMID: 30420753; PMCID: PMC6324991.

Schuster SJ, Bishop MR, Tam CS, Waller EK, Borchmann P, McGuirk JP, Jäger U, Jaglowski S, Andreadis C, Westin JR, Fleury I, **Bachanova V**, Foley SR, Ho PJ, Mielke S, Magenau JM, Holte H, Pantano S, Pacaud LB, Awasthi R, Chu J, Anak Ö, Salles G, Maziarz RT. Tisagenlecleucel in Adult Relapsed or Refractory Diffuse Large B-Cell Lymphoma. *N. Engl. J. Med.*. 2019 JAN 03; 380(1):45-56. DOI: 10.1056/NEJMoal804980. 2018 Dec 1. PubMed PMID: 30501490.

Owen DL, Mahmud SA, Sjaastad LE, Williams JB, Spanier JA, Simeonov DR, Ruscher R, Huang W, Proekt I, Miller CN, Hekim C, Jeschke JC, Aggarwal P, Broeckel U, LaRue RS, Henzler CM, Alegre ML, Anderson MS, August A, Marson A, Zheng Y, Williams CB, **Farrar MA**. Thymic regulatory T cells arise via two distinct developmental programs. *Nat. Immunol.*. 2019 FEB 01; 20(2):195-205. DOI: 10.1038/s41590-018-0289-6. 2019 Jan 14. PubMed PMID: 30643267.

Malagón T, **Kulasingam S**, Franco EL. Limitations of simulation models for cervical cancer screening - Authors' reply. *Lancet Oncol.*. 2019 FEB 01; 20(2):e69. DOI: 10.1016/S1470-2045(19)30012-9. PubMed PMID: 30712802.

**Shaukat A**, Gravelly AA, Kim AS, Rank J, **Church TR**, Allen JI. Rates of Detection of Adenoma, Sessile Serrated Adenoma, and Advanced Adenoma Are Stable Over Time and Modifiable. *Gastroenterology*. 2019 FEB 01; 156(3):816-817. DOI: 10.1053/j.

gastro.2018.10.052. 2018 Nov 4. PubMed PMID: 30404025.

Telen MJ, Malik P, **Vercellotti GM**. Therapeutic strategies for sickle cell disease: towards a multi-agent approach. *Nat Rev Drug Discov*. 2019 FEB 01; 18(2):139-158. DOI: 10.1038/s41573-018-0003-2. PubMed PMID: 30514970.

Puchalska P, Martin SE, Huang X, Lengfeld JE, Daniel B, Graham MJ, Han X, Nagy L, Patti GJ, **Crawford PA**. Hepatocyte-Macrophage Acetoacetate Shuttle Protects against Tissue Fibrosis. *Cell Metab*.. 2019 FEB 05; 29(2):383-398.e7. DOI: 10.1016/j.cmet.2018.10.015. 2018 Nov 15. PubMed PMID: 30449686; PMCID: PMC6559243.

Horwitz ME, Wease S, Blackwell B, Valcarcel D, Frassoni F, Boelens JJ, Nierkens S, Jagasia M, **Wagner JE**, Kuball J, Koh LP, Majhail NS, Stiff PJ, Hanna R, Hwang WYK, Kurtzberg J, Cilloni D, Freedman LS, Montesinos P, Sanz G. Phase I/II Study of Stem-Cell Transplantation Using a Single Cord Blood Unit Expanded Ex Vivo With Nicotinamide. *J. Clin. Oncol*.. 2019 FEB 10; 37(5):367-374. DOI: 10.1200/JCO.18.00053. 2018 Dec 4. PubMed PMID: 30523748; PMCID: PMC6368416.

Wilson MR, Jiang Y, **Villalta PW**, Stornetta A, Boudreau PD, Carrá A, Brennan CA, Chun E, Ngo L, Samson LD, Engelward BP, Garrett WS, **Balbo S**, Balskus EP. The human gut bacterial genotoxin colibactin alkylates DNA. *Science*. 2019 FEB 15; 363(6428). DOI: 10.1126/science.aar7785. PubMed PMID: 30765538; PMCID: PMC6407708.

Gerson JN, Handorf E, Villa D, Gerrie AS, Chapani P, Li S, Medeiros LJ, Wang MI, Cohen JB, Calzada O, Churnetski MC, Hill BT, Sawalha Y, Hernandez-Ilizaliturri FJ, Kothari S, Vose JM, Bast MA, Fenske TS, Narayana Rao Gari S, Maddocks KJ, Bond D, **Bachanova V**, Kolla B, Chavez J, Shah B, et al. Survival Outcomes of Younger Patients With Mantle Cell Lymphoma Treated in the Rituximab Era. *J. Clin. Oncol*.. 2019 FEB 20; 37(6):471-480. DOI: 10.1200/JCO.18.00690. 2019 Jan 7. PubMed PMID: 30615550

Stadtmauer EA, Pasquini MC, Blackwell B, Hari P, Bashey A, Devine S, Efebera Y, Ganguly S, Gasparetto C, Geller N, Horowitz MM, Koreth J, Knust K, Landau H, **Brunstein C**, McCarthy P, Nelson C, Qazilbash MH, Shah N, Vesole DH, Vij R, Vogl DT, Giral S, Somlo G, Krishnan A. Autologous Transplantation, Consolidation, and Maintenance Therapy in Multiple Myeloma: Results of the BMT CTN 0702 Trial. *J. Clin. Oncol*.. 2019 MAR 01; 37(7):589-597. DOI: 10.1200/JCO.18.00685. 2019 Jan 17. PubMed

PMID: 30653422; PMCID: PMC6553842.

Burns ZT, Bitterman DS, Liu KX, **Terezakis SA**, Neira PM, Haas-Kogan DA. Towards a standard of care in oncology for transgender patients. *Lancet Oncol*.. 2019 MAR 01; 20(3):331-333. DOI: 10.1016/S1470-2045(18)30942-2. PubMed PMID: 30842045.

Meng F, Meyer CM, Joung D, **Vallera DA**, McAlpine MC, **Panoskaltis-Mortari A**. 3D Bioprinted In Vitro Metastatic Models via Reconstruction of Tumor Microenvironments. *Adv. Mater. Weinheim*. 2019 MAR 01; 31(10):e1806899. DOI: 10.1002/adma.201806899. 2019 Jan 21. PubMed PMID: 30663123.

Ma J, Benitez JA, Li J, Miki S, Ponte de Albuquerque C, Galatro T, Orellana L, Zanca C, Reed R, Boyer A, **Koga T**, Varki NM, Fenton TR, Nagahashi Marie SK, Lindahl E, Gahman TC, Shiao AK, Zhou H, DeGroot J, Sulman EP, Cavenee WK, Kolodner RD, **Chen CC**, Furnari FB. Inhibition of Nuclear PTEN Tyrosine Phosphorylation Enhances Glioma Radiation Sensitivity through Attenuated DNA Repair. *Cancer Cell*. 2019 MAR 18; 35(3):504-518.e7. DOI: 10.1016/j.ccell.2019.01.020. 2019 Feb 28. PubMed PMID: 30827889; PMCID: PMC6424615.

Mehrotra R, Yadav A, Sinha DN, Parascandola M, John RM, Ayo-Yusuf O, Nargis N, **Hatsukami DK**, Warnakulasuriya S, Straif K, Siddiqi K, Gupta PC. Smokeless tobacco control in 180 countries across the globe: call to action for full implementation of WHO FCTC measures. *Lancet Oncol*.. 2019 APR 01; 20(4):e208-e217. DOI: 10.1016/S1470-2045(19)30084-1. PubMed PMID: 30942182.

Moore KN, Secord AA, **Geller MA**, Miller DS, Cloven N, Fleming GF, Wahner Hendrickson AE, Azodi M, DiSilvestro P, Oza AM, Cristea M, Berek JS, Chan JK, Rimel BJ, Matei DE, Li Y, Sun K, Luptakova K, Matulonis UA, Monk BJ. Niraparib monotherapy for late-line treatment of ovarian cancer (QUADRA): a multicentre, open-label, single-arm, phase 2 trial. *Lancet Oncol*.. 2019 MAY 01; 20(5):636-648. DOI: 10.1016/S1470-2045(19)30029-4. 2019 Apr 1. PubMed PMID: 30948273.

Ma J, Benitez JA, Li J, Miki S, Ponte de Albuquerque C, Galatro T, Orellana L, Zanca C, Reed R, Boyer A, **Koga T**, Varki NM, Fenton TR, Nagahashi Marie SK, Lindahl E, Gahman TC, Shiao AK, Zhou H, DeGroot J, Sulman EP, Cavenee WK, Kolodner RD, **Chen CC**, Furnari FB. Inhibition of Nuclear PTEN Tyrosine

Phosphorylation Enhances Glioma Radiation Sensitivity through Attenuated DNA Repair. *Cancer Cell*. 2019 MAY 13; 35(5):816. DOI: 10.1016/j.ccell.2019.04.011. PubMed PMID: 31085179.

Flannick J, Mercader JM, Fuchsberger C, Udler MS, Mahajan A, Wessel J, Teslovich TM, Caulkins L, Koesterer R, Barajas-Olmos F, Blackwell TW, Boerwinkle E, Brody JA, Centeno-Cruz F, Chen L, Chen S, Contreras-Cubas C, Córdova E, Correa A, Cortes M, DeFronzo RA, Dolan L, Drews KL, Elliott A, Floyd JS, et al. Exome sequencing of 20,791 cases of type 2 diabetes and 24,440 controls. *Nature*. 2019 JUN 01; 570(7759):71-76. DOI: 10.1038/s41586-019-1231-2. 2019 May 22. PubMed PMID: 31118516.

**Lou E, Vogel RI**, Hoostal S, Klein M, Linden MA, **Teoh D, Geller MA**. Tumor-Stroma Proportion as a Predictive Biomarker of Resistance to Platinum-Based Chemotherapy in Patients With Ovarian Cancer. *JAMA Oncol*. 2019 JUN 01; . DOI: 10.1001/jamaoncol.2019.1943. 2019 Jun 1. PubMed PMID: 31152668; PMCID: PMC6547254.

**Spector LG**, Olshan AF. Birth Defects and Cancer in Childhood-Dual Diseases of Development. *JAMA Oncol*. 2019 JUN 20; . DOI: 10.1001/jamaoncol.2019.1207. 2019 Jun 20. PubMed PMID: 31219505.

Hemann EA, Green R, Turnbull JB, **Langlois RA**, Savan R, Gale M. Interferon- $\gamma$  modulates dendritic cells to facilitate T cell immunity during infection with influenza A virus. *Nat. Immunol*.. 2019 AUG 01; 20(8):1035-1045. DOI: 10.1038/s41590-019-0408-z. 2019 Jun 24. PubMed PMID: 31235953; PMCID: PMC6642690.

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