

A large rectangular area of the page is filled with a microscopic image of cells, likely cancer cells, showing various shapes and internal structures. The image is in shades of teal and blue, with the text overlaid in white.

# FUNDING BRAVE AND BOLD

THE NEXT 75 YEARS

A microscopic image of cells, likely cancer cells, is shown in a teal color. The cells are irregular in shape and size, with some showing prominent nuclei. The background is a solid teal color.

THE NEXT 75 YEARS: FUNDING BRAVE AND BOLD

# WHAT DOES THE FUTURE OF CANCER RESEARCH LOOK LIKE?

ANNUAL REPORT 2022

Twenty years ago, phrases like “living drug” and “cancer vaccine” belonged in science fiction. Now, they belong in the pages of *Nature*.

Since the early 2000s, the study of the human immune system has undergone a Cambrian explosion, sparked by the availability of gene sequencing tools and computational power that make large-scale, high-resolution datasets possible. In the fields of virology, immunology, and gut microbiome research, the observations of previous generations are coalescing and sharpening at an astonishing rate, ushering in a new wave of therapeutic strategies for cancer patients.

These breakthroughs do not belong to a far-off future. In our lifetimes, we may be able to use cutting-edge vaccine technology to train the immune system against currently intractable cancers, dissolve solid tumors with CAR T therapies, and optimize the gut microbiome to prevent cancer and improve treatment outcomes.

At the Damon Runyon Cancer Research Foundation, we support scientists at the forefront of these fields, just as we supported their mentors who blazed the trail twenty years ago and their predecessors before that.

We may not know exactly what the future will bring—but we fund those who will shape it.

**T**he history of cancer research is intertwined with the history of virology. **Ludwik Gross, MD,**

a Damon Runyon Grantee from 1951 to 1952, was the first scientist to demonstrate that viruses can cause cancer in laboratory mice.

**“You don’t always know what the impact of something will be when you’re doing it.”**

We now know that multiple viruses are linked to cancer, including Epstein Barr virus, discovered as a cause of lymphoma by **George Klein, MD, PhD** (Damon Runyon Fellow, 1974-76); human papillomavirus, first conclusively linked to head and neck cancers by **Maura L. Gillison, MD, PhD** (Damon Runyon Clinical Investigator, 2000-05); and Kaposi’s sarcoma-related herpesvirus, investigated as a cancer driver by **Mandy M. Muller, PhD** (Damon Runyon Fellow, 2014-17).

The FDA approval, in 2020, of the HPV vaccine for the prevention of head and neck cancers marked a milestone in the twinned trajectories of virology and cancer research.

“The brilliance of the HPV story is that HPV was identified as causing cervical cancer in the early 1980s, and by the early 2000s, there were already preventative vaccines entering clinical trials,” Dr. Gillison said, adding, “You don’t always know what the impact of something will be when you’re doing it.”

Indeed, thanks to this deep understanding of viral behavior, Damon Runyon scientists have now identified numerous ways to harness the immune system’s anti-viral responses against cancer. **Dmitriy Zamarin, MD, PhD** (Damon Runyon Fellow, 2013-16), and **Jedd D. Wolchok, MD, PhD** (Damon Runyon Clinical Investigator, 2003-08), for example, are genetically engineering existing viruses to induce tumor-fighting processes within the

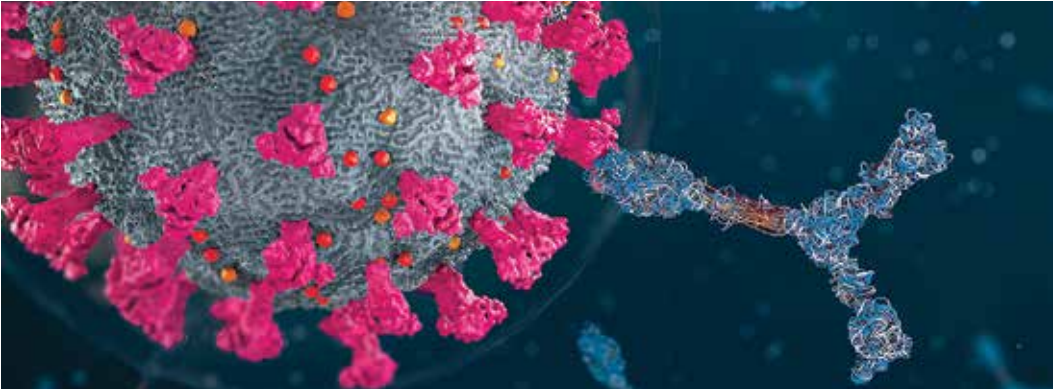
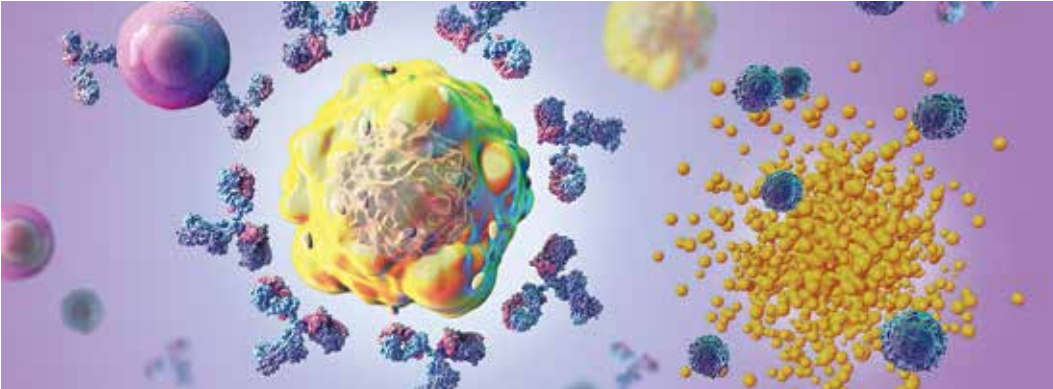
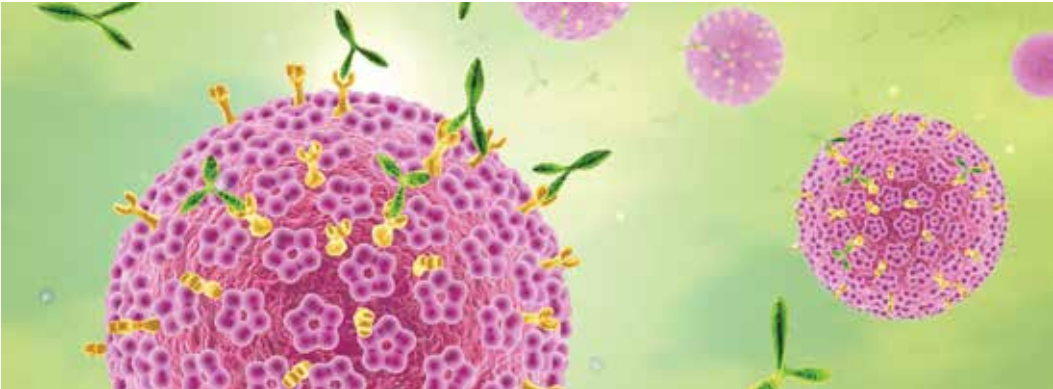
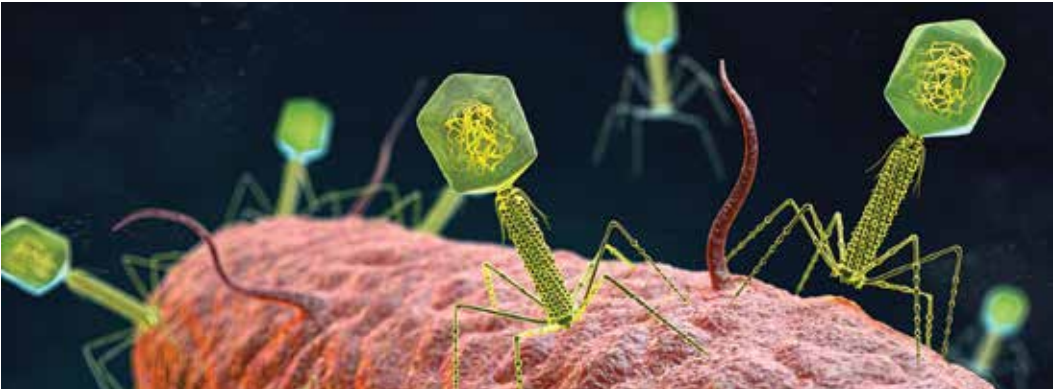


The background of the entire image is a teal-colored field filled with numerous microscopic, virus-like particles. These particles are roughly spherical with a textured, bumpy surface and a distinct circular indentation in the center of each. They are scattered across the frame, creating a dense, organic pattern.

THE NEXT 75 YEARS: VIROLOGY

**“WE HAVE  
DISCOVERED  
A LONG LIST  
OF ANTIVIRAL  
DEFENSE  
SYSTEMS, FAR  
LARGER THAN  
EXPECTED.”**

- Senén D. Mendoza, PhD  
Damon Runyon-HHMI Fellow



immune system. In 2018, the pair showed that injecting a modified version of Newcastle Disease Virus into a tumor triggers a powerful, widespread immune response that kills cancer cells not only in the tumor, but also outside the virus-infected region.

“Nowadays, you can do one thousand experiments at the speed that you used to be able to do one.”

“I study one of the oldest and newest areas of oncology at the same time,” Dr. Zamarin has said of his research. “I’m characterizing the immune response induced by these viruses, and also using some of the newer genetic engineering tools to develop novel therapeutics.”

Meanwhile, current **Damon Runyon Clinical Investigator Vinod P. Balachandran, MD**, is working to design a vaccine for pancreatic cancer using the mRNA technology

that made Covid-19 vaccines possible. For years, his team has searched for the neoantigens—molecules on the surface of cancer cells and viruses that trigger an immune reaction—that are present in pancreatic cancer survivors, as these are the ones that have elicited a sufficient immune defense.

“We now have more evidence that the immune system recognizes neoantigens in pancreatic cancer and that we are on the right track in picking these neoantigens,” Dr. Balachandran says. “This could be useful for personalized vaccines for pancreatic cancer, which urgently needs better treatments, and other cancers as well.”

Having observed these novel classes of cancer therapy emerge from virus research of decades past, some of the newest **Damon Runyon Awardees** are using cutting-edge research methods to further our understanding of viruses and the immune system. **Damon Runyon Fellow Senén D. Mendoza, PhD**, for example, is studying bacterial defenses against

From top to bottom:  
Bacteriophage viruses infect a bacterium  
Human papillomavirus attacked by antibodies  
B-cell displaying antibodies recognizes a colorectal cancer cell  
Antibody attacks a coronavirus pathogen

viruses, as many cellular defenses are now known to be shared between mammals and bacteria.

In the past decade, Dr. Mendoza explains, “there has been an explosion of interest in bacteria and how they interact with the viruses that infect them.” But these studies have mainly focused on DNA-based viruses, and most human pathogenic viruses are based in RNA. By identifying the genes that help bacteria fight RNA-based viruses, Dr. Mendoza hopes to uncover counterparts in the human genome. “If we can discover a new part of the immune system that’s able to counteract an oncogenic virus, that would be a very attractive candidate for a drug design.”

**As decades of collaboration between virologists and cancer researchers show, this kind of alliance is crucial for medical breakthroughs.**

Likewise, **Damon Runyon Quantitative Biology Fellow Tal Einav, PhD**, has developed a mathematical model to predict how a known antibody will react to a new pathogen, such as a virus or cancer cell, based on existing data. This approach can be used to anticipate the body’s immune response and identify how a patient’s antibody repertoire might be bolstered to better combat an oncogenic virus or cancer.

“Nowadays, you can do one thousand experiments at the speed that you used to be able to do one,” he says. “My goal is, for every one thousand, to extrapolate to a million or a billion different experiments. So everybody works together—not only to do experiments faster, but also to understand them better.”

As decades of collaboration between virologists and cancer researchers show, this kind of alliance is crucial for medical breakthroughs. “No dataset should exist in isolation,” Dr. Einav concludes. “By leveraging the experiments everyone before us has done, we not only expand our own datasets but expand everyone else’s in return.”





# CONTRIBUTIONS BY



## Ludwik Gross, MD

**Institution**  
Bronx V.A. Hospital

**Award Program**  
Grantee

**Field of Study**  
Retrovirology



## George Klein, MD, PhD

**Institution**  
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**Award Program**  
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**Field of Study**  
Tumor biology



## Maura L. Gillison, MD, PhD

**Current Institution**  
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**Award Program**  
Clinical Investigator

**Project Title**  
“Establishing a causal association between  
HPV and HNSCC”



## Mandy M. Muller, PhD

**Current Institution**  
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**Award Program**  
Fellow

**Project Title**  
“Widespread RNA destruction and selective  
preservation during viral infection”



## Dmitriy Zamarin, MD, PhD

**Current Institution**  
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Cancer Center

**Award Program**  
Fellow

**Project Title**  
“Immunotherapeutic approach to cancer  
treatment integrating oncolytic virotherapy  
and immune checkpoint regulation”



## Jedd D. Wolchok, MD, PhD

**Current Institution**  
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**Award Program**  
Clinical Investigator

**Project Title**  
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## Vinod P. Balachandran, MD

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**Award Program**  
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**Project Title**  
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for pancreatic cancer”



## Senén D. Mendoza, PhD

**Current Institution**  
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**Award Program**  
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**Project Title**  
“Discovery and characterization of bacterial  
immunity against RNA phages”



## Tal Einav, PhD

**Current Institution**  
Fred Hutchinson Cancer  
Research Center

**Award Program**  
Quantitative Biology Fellow

**Project Title**  
“Quantifying a polyclonal immune  
repertoire’s ability to bind influenza”

# “IT IS NO THAT A NEW BRA THERAPEUTI

Microscopic view of breast cancer cells

**C**himeric antigen receptor (CAR) T cell therapy, in which a patient’s own immune cells are genetically engineered to target and kill their tumor cells, has revolutionized the field of cancer immunotherapy.

**Most excitingly, those first patients have been declared “cured” of leukemia after a decade in remission.**

Since the first patients received CAR T cells in 2011, research efforts aimed at better understanding T cell function and developing novel CAR T therapies have skyrocketed. In the past five years, seven new CAR T therapies have received FDA approval, and many more are in the pipeline. Most excitingly, those first patients have been declared “cured” of leukemia after a decade in remission.

For **Marcela V. Maus, MD, PhD** (Damon Runyon-Rachleff Innovator, 2017-20),

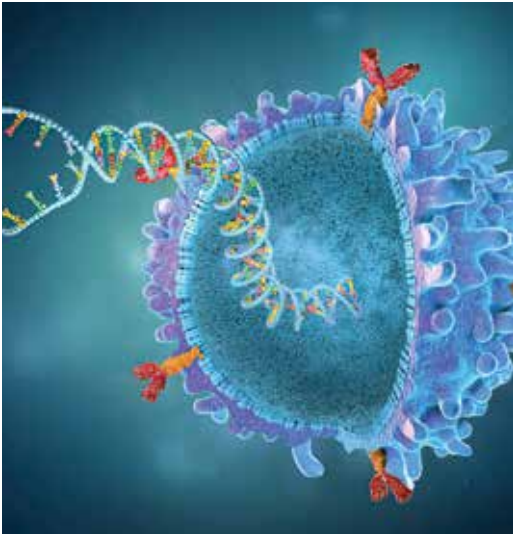
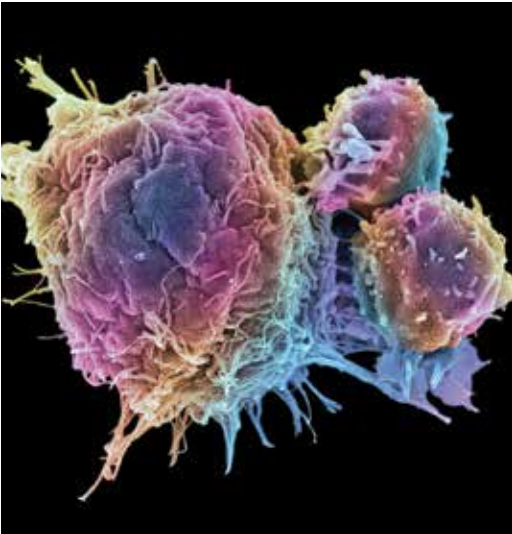
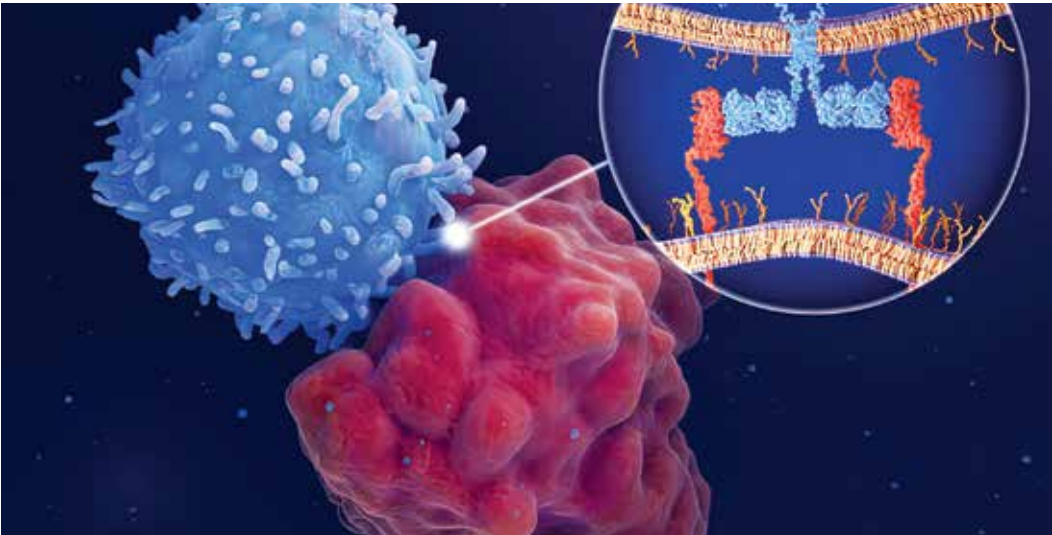
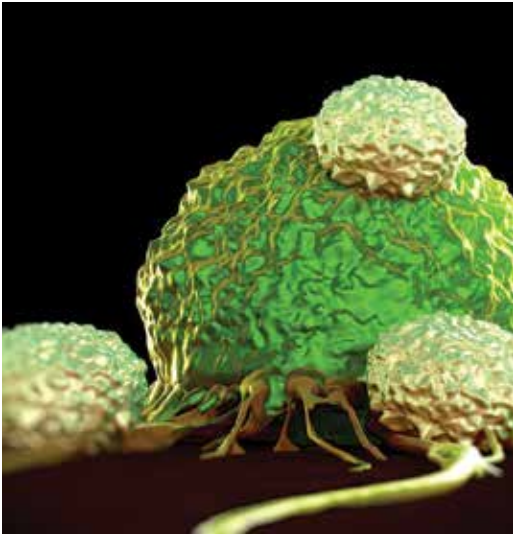
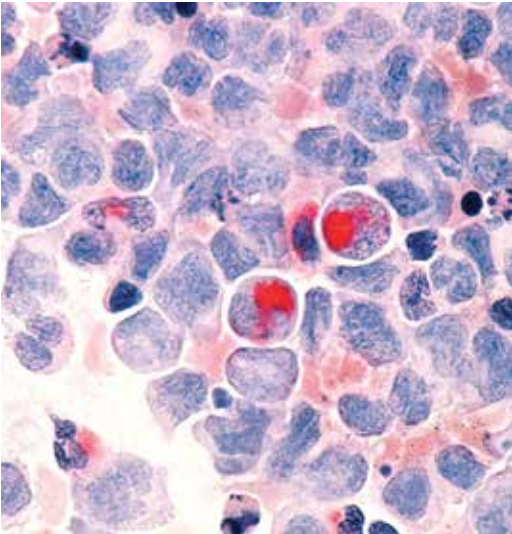
# T OFTEN NCH OF MEDICAL CS IS BORN.”

- Mark B. Leick, MD  
Damon Runyon-The Mark Foundation for  
Cancer Research Physician-Scientist

the rise of CAR T therapies has paralleled her own research trajectory. “When I was a [postdoctoral] fellow,” she recalls, “CARs were starting to have these incredible responses and generate a lot of excitement in our field, which was very niche. A lot of empty rooms, very tiny groups of people. And then it all kind of exploded in 2011 and 2012.”

A trainee of CAR T pioneers such as **Renier J. Brentjens, MD, PhD** (Damon Runyon Clinical Investigator, 2006-11), Dr. Maus is now a leader of the “F1

generation” working to design CAR T cells that can treat solid cancers as well as leukemias. In 2015, the Maus lab demonstrated for the first time that CAR T cells could safely cross the blood-brain barrier to reach brain tumors. When these T cells alone proved insufficient, her lab began engineering a new kind of CAR T cell, one that could target multiple cancer antigens and survive in the immunosuppressive environment of the tumor. This project, funded by Damon Runyon, remains ongoing—the team is now working to open





a clinical trial based on promising results published in 2019.

“I’m very optimistic that we’re going to get a win in a solid tumor,” Dr. Maus says. “There’s such motivation, enthusiasm, rigor, and drive to get this figured out. And I think the T cell will cooperate with us. It will take some iteration, but we’re going to crack that nut.”

“It is a gift to be a part of the clinical and basic research Cambrian explosion of cellular therapeutics that have already begun to transform cancer therapy and medicine as a whole.”

In addition to the challenge posed by solid tumors, however, other hurdles remain. Nearly two-thirds of

patients receiving CAR T therapy for blood cancer eventually experience relapse, and up to 80% of patients experience serious side effects. Further, because of the cost and time frame for developing these custom-made therapies, CAR T cells remain out of reach for many patients, even those who might otherwise be good candidates.

This is where the newest cohort of Damon Runyon scientists comes in. Many of our current awardees are carrying forward the work of their trailblazing mentors, working to develop next-generation CAR T therapies that are safer, less costly, and effective for more patients. Dr. Maus’ own mentee, **Damon Runyon Physician-Scientist Mark B. Leick, MD**, stands at the forefront of these efforts. He is designing CAR T cells that target a gene overexpressed in leukemia cells but not in normal cells, making this therapy less toxic than previous versions.

From top to bottom:  
Microscopic view of acute myeloid leukemia  
T cells attacking a cancer cell  
CAR T cell attacks a leukemia cell  
T cells attacking a cancer cell  
Genetically modified CAR T cell

“It is a gift to be a part of the clinical and basic research Cambrian explosion of cellular therapeutics that have already begun to transform cancer therapy and medicine as a whole,” Dr. Leick says. “Advances in molecular biology, sequencing, and computational biology have allowed rapid turnaround of high-quality clinical trial data that are informing, in real time, the development of next generation CAR T cells on a timescale that would have been unimaginable 30 years ago.”

Among those leveraging vast datasets to improve CAR T cell design is **Damon Runyon**

**Quantitative Biology Fellow Yapeng Su, PhD**, who studies mechanisms of treatment resistance in pancreatic cancer. Big data could also reduce the cost of CAR T therapy, Dr. Su explains, by identifying the fraction of T cells doing the “heavy lifting”; producing just these T cells would require less time and fewer resources.

“We have so many technologies now... to give patients’ T cells different superpowers.”

From where he stands at the intersection of computational science and cell biology, Dr. Su is

## CONTRIBUTIONS BY



**Marcela V. Maus, MD, PhD**

**Current Institution**  
Massachusetts General Hospital

**Award Program**  
Innovator

**Project Title**

“Next-generation CAR T cells for EGFRvIII-positive glioblastoma”



**Renier J. Brentjens, MD, PhD**

**Current Institution**  
Roswell Park Comprehensive Cancer Center

**Award Program**  
Clinical Investigator

**Project Title**

“Adoptive therapy of B cell leukemias with genetically modified autologous T cells”

excited to see what the next 10 years bring. “We have so many technologies now—between CRISPR, protein engineering, synthetic biology, and data science—to give patients’ T cells different superpowers. We’re hopeful those superpowers will be enough to dissolve the hardest-to-treat tumors.”

Dr. Maus notes the high degree of overlap between CAR T innovators and Damon Runyon Awardees. “Damon Runyon has been in it from the beginning, when it was very difficult to get traction on this kind of research,” she recalls. “And that funding was transformative. There

are now seven FDA-approved CAR T cells, thousands of publications, and hundreds or even thousands of clinical trials listed. I don’t think any of it would have happened without the steadfast commitment of the Foundation. I mean, the fact that you’re funding Mark—it’s almost like you’re funding the F2, the next generation, right?”



**Mark B. Leick, MD**  
**Current Institution**  
Massachusetts General Hospital  
**Award Program**  
Physician-Scientist

**Project Title**  
“Engineering novel CAR T cells for AML: translating lessons from correlative studies and other diseases”



**Yapeng Su, PhD**  
**Current Institution**  
Fred Hutchinson Cancer Research Center  
**Award Program**  
Quantitative Biology Fellow

**Project Title**  
“Quantitative analysis to elucidate spatial-temporal heterogeneity of therapeutic T cell dysfunction mechanisms in the context of adoptive cell therapy against pancreatic cancer”

A full-page background image showing a dense, microscopic view of the gut microbiome, with various shapes of bacteria and cells in shades of teal and blue.

THE NEXT 75 YEARS: THE GUT MICROBIOME

“WE’RE  
HOPING TO  
ENGINEER GUT  
MICROBES  
AS AN  
ADDITIONAL  
WAY OF  
TREATING  
CANCER.”

- Elizabeth R. Hughes, PhD  
Damon Runyon-Robert Black Fellow



**W**hile the study of the gut microbiome—the vast collection of bacteria and other microorganisms that live in the digestive tract—dates back to the 1800s, only recently have we gained the tools to explore our intestinal worlds on a cellular level. Advances in live cell microscopy and genetic sequencing since the early 2000s have revealed a complex interplay between gut bacteria and the rest of the body, including, most significantly for cancer research, the immune system.

**Damon Runyon Awardees have steadily uncovered more links between the gut microbiome and cancer treatment response.**

**Raphael H. Valdivia, PhD** (Damon Runyon Fellow, 1998-2001), was instrumental in developing these new approaches to study the microbiome. Dr. Valdivia was the first to develop, optimize, and use fluorescent proteins to identify and track virulence factors, the molecules that bacterial pathogens use to colonize the host from within the cell. His innovative methods paved the way for further investigation of how bacteria interact with human cells in ways that are both helpful and harmful.

In the years since, Damon Runyon Awardees have steadily uncovered more links between the gut microbiome and cancer treatment response.

In her lab, **Damon Runyon Clinical Investigator Melody Smith, MD**, is investigating how “good” gut bacteria improve patients’ response to CAR T therapy, a type of immunotherapy that involves genetically engineering immune

cells. Her team has found that antibiotic use prior to cancer treatment results in worse survival rates, while the presence of certain gut bacteria in patient stool samples is associated with better outcomes. These findings point to specific clinical interventions, such as adjusted antibiotic use or fecal transplants, that may improve the effectiveness of CAR T therapy and decrease its harmful side effects.

The idea that specific gut bacteria might enhance anti-tumor immunity suggests a new approach to treating colon cancer.

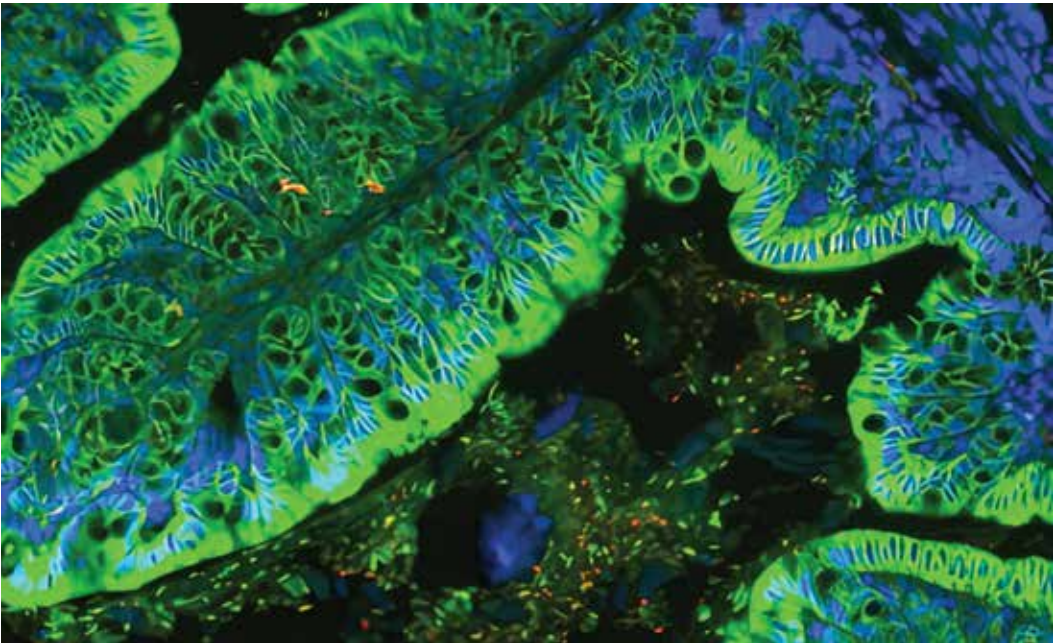
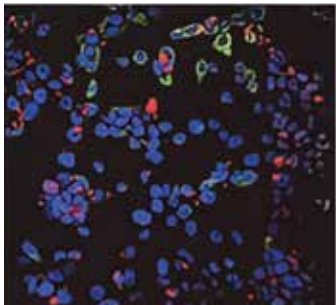
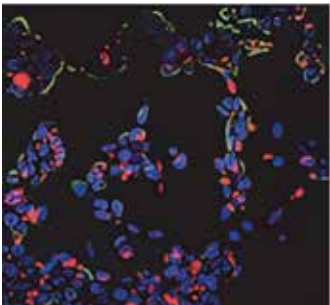
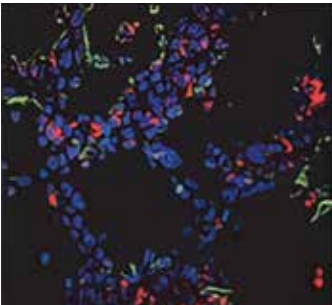
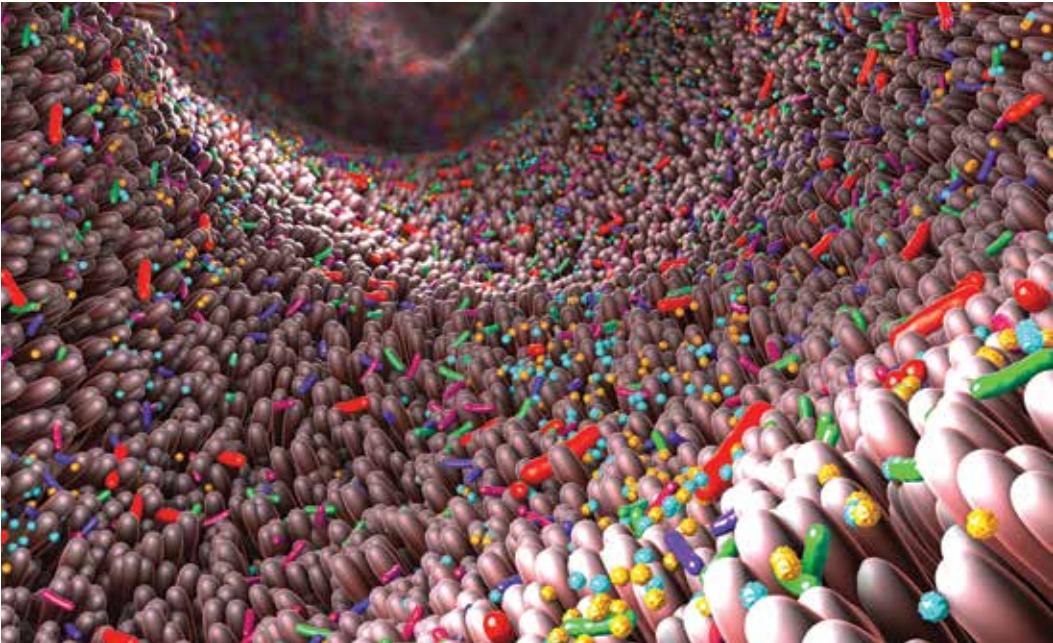
Likewise, **Abigail E. Overacre-Delgoffe, PhD** (Damon Runyon Fellow, 2019-22), and her lab are exploring therapeutic strategies to modify the gut microbiome of patients whose cancers do not respond to immunotherapy.

Recently, her team found that infecting mice with the bacterium *Helicobacter hepaticus*, rather than sickening the mice, actually shrank their colon tumors and lengthened their lifespans. The idea that specific gut bacteria might enhance anti-tumor immunity suggests a new potential approach to treating therapy-resistant colon cancer.

Clinical interventions such as fecal transplants may increase the effectiveness of CAR T therapy.

Back in Dr. Valdivia’s lab, **Damon Runyon Fellow Elizabeth R. Hughes, PhD**, is also studying how a specific gut bacterium, *Akkermansia muciniphila*, improves response to immunotherapies. The presence of this bacterium in patient samples has been shown to correlate with better treatment outcomes, but it is not yet clear why. Dr. Hughes aims to

From top to bottom:  
Illustration of gut microbiome  
Fluorescent images of infected cells and immunotherapy drugs  
*Akkermansia muciniphila*



# CONTRIBUTIONS BY



## Raphael H. Valdivia, PhD

**Current Institution**  
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Medicine

**Award Program**  
Fellow

**Field of Study**  
Microbiology



## Melody Smith, MD

**Current Institution**  
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**Award Program**  
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Clinical Investigator

**Project Title**  
“Regulatory mechanisms of the intestinal  
microbiome on chimeric antigen receptor T cells”



## Abigail E. Overacre- Delgoffe, PhD

**Current Institution**  
University of Pittsburgh

**Award Program**  
Fellow

**Project Title**  
“Microbiome control of the tumor  
microenvironment: harnessing  
immunosuppression and exhaustion”



## Elizabeth R. Hughes, PhD

**Current Institution**  
Duke University School of  
Medicine

**Award Program**  
Fellow

**Project Title**  
“Mechanisms of microbial modulation of cancer  
immunotherapy”



## Peter J. Turnbaugh, PhD

**Current Institution**  
University of California, San  
Francisco

**Award Program**  
Innovator

**Project Title**  
“The gut microbiome: an unexpected  
contributor to cancer drug resistance”



discover how *A. muciniphila* bolsters immune response and to design microbe-based therapeutics for use in combination with immunotherapy.

“We have learned just how integral the gut microbiome is to cancer and response to immune-based therapies.”

“These two fields have advanced in parallel,” she explains. “The first immune checkpoint inhibitor was approved by the FDA about a decade ago, and while we knew gut microbes were important for nutrition, it’s only in the past few decades that we’ve learned they’re also important for immunity. So you can see how we’ve now arrived at the point where we’re realizing that the gut microbiome has a big impact on cancer treatment.”

Cancer treatment, it should be noted, also impacts the gut microbiome. As **Peter J. Turnbaugh, PhD** (Damon Runyon-Rachleff Innovator, 2016-20) recently showed, certain chemotherapy drugs inhibit the growth of intestinal bacteria, raising questions about the consequences of this disruption on both the drug’s efficacy and gastrointestinal function.

But if the exponential progress of the past 20 years is any indication, the future of gut microbiome research is looking bright.

“We have learned just how integral the gut microbiome is to cancer and response to immune-based therapies,” says Dr. Overacre-Delgoffe. “My hope is that we can dig deeper and understand how the gut microbiome and the immune system collaborate to fight cancer, and ultimately that we can welcome a new wave of therapies for cancer patients.”

In 1946 when the Damon Runyon Cancer Research Foundation was established, the treatments that would become the gold standard of cancer care—chemotherapy, radiation, precise surgical interventions—were not yet a reality.

**Damon Runyon's focused and strategic funding quickly transformed the options available to treat cancer, offering patients hope.**

In the following years, continued funding yielded more discoveries, a better understanding of how cancer hijacks cellular processes, and more refined therapies and treatment approaches. Thanks to Damon Runyon scientists, cancer patients of the early 2000s had much better prognoses than the cancer patients of the 1970s, who in turn had far more options than the patients of the early 1940s.

Patients in the 2030s may benefit from cancer vaccines, gut microbes engineered to boost anti-tumor immunity, and new generations of the CAR T-cell therapies that have already revolutionized cancer care. Even a decade ago, any one of these might have sounded impossible. Now, we are knocking at the door.

Imagine the discoveries that will prove transformative for patients of the 2040s, 2050s, and beyond. We will not be satisfied until every cancer diagnosis is a survivable one.

**Thank you for everything your support has made possible in these past 75 years, and everything it will make possible in the future.**



# 100% OF YOUR DONATIONS GO DIRECTLY TO BRAVE AND BOLD CANCER RESEARCH.

Since its founding in 1946, in partnership with donors across the nation, the Damon Runyon Cancer Research Foundation has invested over \$430 million and funded nearly 3,950 scientists.

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GE Asset Management  
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**James A. Wells, PhD\***  
Professor, Department of  
Pharmaceutical Chemistry  
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San Francisco  
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*\*Indicates member is  
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President, Melissa Cohn Group  
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Head, Client Engagement  
Hirtle, Callaghan & Co.  
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President and Chief  
Executive Officer  
Netrality Data Centers  
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Director, Molecular Imaging  
Innovations Institute  
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New York-Presbyterian/  
Weill Cornell Medicine  
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Managing Director  
William Raveis New York City  
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also a Board Member*

# IN MEMORIAM



**SIDNEY ALTMAN, PhD**  
1939 – 2022

Sidney Altman, PhD, a molecular biologist at Yale, shared the 1989 Nobel Prize in Chemistry with Thomas R. Cech, PhD, for their discovery that RNA molecules are able to catalyze chemical reactions within the cell. The purported existence of these protein-like “ribozymes” stirred much controversy in the scientific community at the time, as RNA molecules were then understood to be solely carriers of genetic information. For many years, Dr. Altman had difficulty getting invited to conferences or publishing his work. Eventually, supporting evidence emerged from other labs. Ribozymes are now a major research focus in the field of molecular biology.

Dr. Altman received a Damon Runyon Fellowship in 1967, which allowed him to pursue a research career at Harvard under the mentorship of noted geneticist Matthew Meselson, PhD. He went on to serve on the Foundation’s Board of Directors from 1990 to 1996. An out-of-the-box thinker and a steadfast supporter of young scientists, Dr. Altman embodied the Damon Runyon mission all his life.

# AWARD PROGRAMS

In fiscal year 2022, we awarded nearly **\$17.2 million** in new grants to **58 exceptional scientists**, and provided an additional **\$1.6 million** in stipend increases, extension funding for pandemic-related research delays, and other support.

## **DAMON RUNYON FELLOWSHIP AWARD**

Supports the training of the brightest postdoctoral scientists as they embark upon their research careers. This funding enables them to be mentored by established investigators in leading research laboratories across the country.

### **FOUR-YEAR AWARD: \$260,000**

plus up to \$100,000 for medical school loan repayment

## **DAMON RUNYON QUANTITATIVE BIOLOGY FELLOWSHIP AWARD**

Supports quantitative scientists (trained in fields such as mathematics, computer science, physics, engineering, or related) to pursue research careers in computational biology.

### **THREE-YEAR AWARD: \$240,000**

plus up to \$100,000 for medical school loan repayment

## **DAMON RUNYON-DALE F. FREY AWARD FOR BREAKTHROUGH SCIENTISTS**

Supports a select few Damon Runyon Fellows who have exceeded the Foundation's highest expectations. This additional investment in these exceptional individuals catapults their research careers and their impact on cancer.

### **TWO-YEAR AWARD: \$100,000**

## **DAMON RUNYON PHYSICIAN-SCIENTIST TRAINING AWARD**

Supports and encourages outstanding recent medical school graduates to pursue cancer research careers by funding a protected research training experience under the guidance of a highly qualified and gifted mentor.

### **FOUR-YEAR AWARD: \$460,000**

plus up to \$100,000 for medical school loan repayment

## **DAMON RUNYON CLINICAL INVESTIGATOR AWARD**

Supports early career physician-scientists conducting patient-oriented research. This innovative program aims to increase the number of physicians who can seamlessly move between the laboratory and the patient's bedside in search of breakthrough treatments.

### **THREE-YEAR AWARD: \$600,000**

plus up to \$100,000 for medical school loan repayment and the possibility of an additional \$400,000 extension over two years

## **DAMON RUNYON-RACHLEFF INNOVATION AWARD**

Supports the next generation of exceptionally creative thinkers with high-risk, high-reward ideas that have the potential to significantly impact our understanding of and approaches to the prevention, diagnosis, or treatment of cancer.

### **TWO-YEAR AWARD: \$400,000**

with the possibility of an additional \$400,000 extension over two years

# FELLOWSHIP AWARD COMMITTEE

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Nuffield Department of Medicine  
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Associate Professor  
Department of Molecular Biology  
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Professor, Cell Biology  
and Pathology  
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Biomolecular Medicine  
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NEW YORK, NEW YORK

**David Bilder, PhD**  
Professor of Cell Biology,  
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Department of Molecular  
and Cell Biology  
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May and Ving Lee Professor  
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Professor, Chemistry  
University of Illinois at  
Urbana-Champaign  
Professor of Biomedical  
and Translational Sciences  
Carle Illinois College of Medicine  
URBANA, ILLINOIS

**Xinwei Cao, PhD**  
Associate Member  
Developmental Neurobiology  
Comprehensive Cancer Center  
St. Jude Children's  
Research Hospital  
MEMPHIS, TENNESSEE

**Jayanta Chaudhuri, PhD**  
Professor, Immunology Program  
Memorial Sloan Kettering  
Cancer Center  
NEW YORK, NEW YORK

**Jason M. Crawford, PhD**  
Maxine F. Singer '57 PhD  
Associate Professor  
Departments of Chemistry  
and Microbial Pathogenesis  
Director and Member of the  
Institute of Biomolecular  
Design and Discovery  
Yale University  
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**Gianna E. Hammer, PhD**  
Associate Professor  
Department of Pathology  
University of Utah Health  
School of Medicine  
SALT LAKE CITY, UTAH

**Howard C. Hang, PhD**  
Professor, Immunology and  
Microbiology and Chemistry  
Scripps Research  
LA JOLLA, CALIFORNIA

**Jay Hesselberth, PhD**  
Associate Professor,  
Biochemistry and  
Molecular Genetics  
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**Jonathan C. Kagan, PhD**  
Marian R. Neutra, PhD  
Professor of Pediatrics  
Harvard Medical School  
Director of Basic Research  
and Shwachman Chair in  
Gastroenterology  
Boston Children's Hospital  
BOSTON, MASSACHUSETTS

**Katrin Karbstein, PhD**  
Howard Hughes Medical Institute  
Faculty Scholar  
Professor, Department of  
Integrative Structural and  
Computational Biology  
Scripps Research  
JUPITER, FLORIDA

**Martin McMahon, PhD**  
Cumming-Presidential Chair  
of Cancer Biology  
Professor, Department  
of Dermatology  
Senior Director for  
Preclinical Translation  
Huntsman Cancer Institute  
University of Utah Health  
School of Medicine  
SALT LAKE CITY, UTAH

**Alfonso Mondragón, PhD**  
Ethel and John Lindgren Professor  
Director of the Structural  
Biology Facility  
Department of Molecular  
Biosciences  
Northwestern University  
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**Akinyemi I. Ojesina, MD, PhD**  
Assistant Professor,  
Obstetrics and Gynecology  
Medical College of Wisconsin  
MILWAUKEE, WISCONSIN

**Emmanuelle Passequé, PhD**  
Alumni Professor, Genetics  
and Development  
Director, Columbia Stem Cell  
Initiative  
Columbia University  
Irving Medical Center  
NEW YORK, NEW YORK

**Rajat Rohatgi, MD, PhD**  
Associate Professor of Biochemistry  
and Medicine (Oncology)  
Stanford University School  
of Medicine  
STANFORD, CALIFORNIA

**Carla Rothlin, PhD**  
Howard Hughes Medical Institute  
Faculty Scholar  
Dorothy McConnell Duberg  
Professor of Immunobiology  
and Professor of Pharmacology  
Yale Cancer Center  
Yale School of Medicine  
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Institute Investigator  
Dee Glen and Ida Smith Endowed  
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Distinguished Professor  
of Biochemistry  
University of Utah Health  
School of Medicine  
SALT LAKE CITY, UTAH

**Susan R. Schwab, PhD**  
Associate Professor, Pathology  
Skirball Institute of  
Biomolecular Medicine  
New York University  
Grossman School of Medicine  
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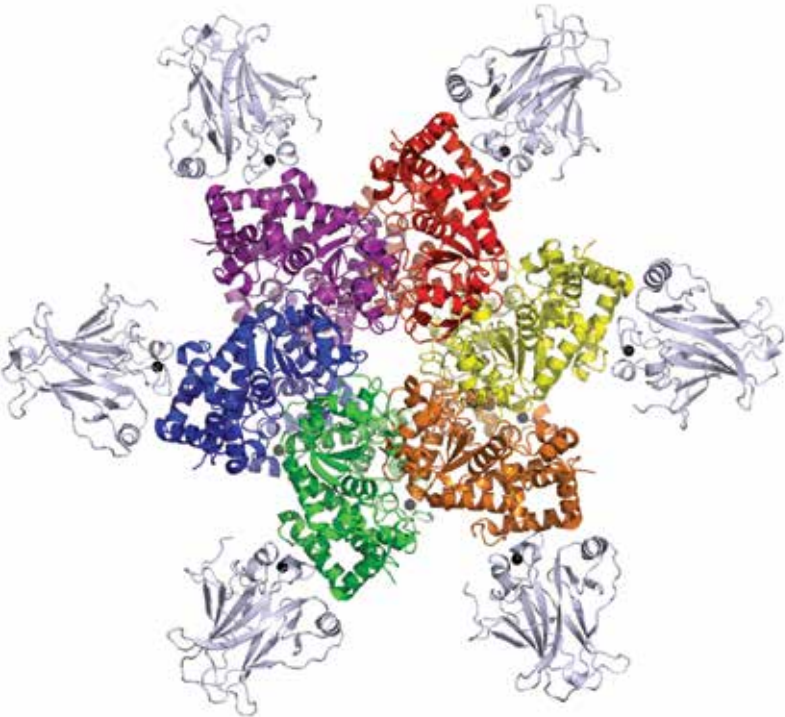
**Agnel Sfeir, PhD**  
Member, Molecular Biology Program  
Sloan Kettering Institute  
Memorial Sloan Kettering  
Cancer Center  
NEW YORK, NEW YORK

**David R. Sherwood, PhD**  
Jerry G. and Patricia Crawford  
Professor and Professor  
of Biology  
Co-Director Regeneration  
Next Initiative  
Department of Biology  
Duke University  
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**Nancy A. Speck, PhD**  
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Cancer Research Institute  
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Regenerative Medicine  
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Malignancies Program,  
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Protein structure, Viral LTag.

# FELLOWSHIP AWARD

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California Institute of Technology

**Zibo Chen, PhD**  
Combinatorial signal classification with a protein-based synthetic neural network with Michael B. Elowitz, PhD

**Bo Gu, PhD**  
**Fraternal Order of Eagles Fellow**  
Understanding and engineering combinatorial gene regulation in mammalian cells with Michael B. Elowitz, PhD

**Georgia R. Squyres, PhD**  
**National Mah Jongg League Fellow**  
Spatiotemporal regulation of eDNA release in *Pseudomonas aeruginosa* biofilms with Dianne K. Newman, PhD

Ludwig Institute for Cancer Research

**Julia Su Zhou Li, PhD**  
Spatial regulation of the inheritance of genomic abnormalities in cancer cells with Don W. Cleveland, PhD

Salk Institute

**Hokyung K. Chung, PhD**  
Next generation adoptive cell therapy: SMARTER T cells for enhanced and durable anti-tumor immunity with Susan M. Kaech, PhD

**Thomas H. Mann, PhD**  
Calcium signaling and the molecular clock of T cell exhaustion with Susan M. Kaech, PhD

**Wen Mai Wong, PhD\***  
**Kenneth G. and Elaine A. Langone Fellow**  
Modulation of neuronal circuitry using sonogenetics with Sreekanth H. Chalasani, PhD

Stanford University

**Debadrita Bhattacharya, PhD\***  
**Robert Black Fellow**  
Investigating molecular and cellular mechanisms of intra-tumoral heterogeneity in small-cell lung cancer with Julien Sage, PhD

**Felix C. Boos, PhD\***  
Inter-organ communication of protein homeostasis stress responses in vertebrate aging with Anne Brunet, PhD

**Yiming Chen, PhD**  
Optical interrogation of neuro-peptide and peptide hormones with Karl Deisseroth, MD, PhD

**Lauren E. Cote, PhD**  
Constructing one continuous digestive tract, cell by cell with Jessica L. Feldman, PhD

**Shuo Han, PhD**  
**Fayez Sarofim Fellow**  
Spatiotemporally precise manipulation of Hedgehog signaling for tissue regeneration and repair with Philip A. Beachy, PhD

**Christina L. Hueschen, PhD**  
Molecular basis and regulation of apicomplexan parasite motility with Alex Dunn, PhD

**Seungsoo Kim, PhD**  
**HHMI Fellow**  
Transcription factor cooperation shaping TWIST1 multifunctionality across craniofacial development and cancer metastasis with Joanna K. Wysocka, PhD

**Ali Lashkaripour, PhD\***  
High-throughput biomimetic screening of T cell activation in large sequence landscapes with Polly M. Fordyce, PhD

**Conor J. McClune, PhD**  
**HHMI Fellow**  
Resolving plant biosynthesis of therapeutic compounds by systematic perturbation, measurement, and metabolic phenotyping at single-cell scale with Elizabeth S. Sattely, PhD, and Polly M. Fordyce, PhD

**Colleen N. McLaughlin, PhD**  
**HHMI Fellow**  
Cell surface mechanisms of neural circuit assembly with Liqun Luo, PhD

**Xiaowei Yan, PhD\***  
**Connie and Bob Lurie Fellow**  
Spatial organization and inheritance regulation of oncogenic extrachromosomal DNA (ecDNA) with Howard Y. Chang, MD, PhD

Scripps Research

**Haoxin Li, PhD**  
**The Mark Foundation for Cancer Research Fellow**  
Cysteine-modification screening to identify functional and druggable sites in cancer dependencies with Benjamin F. Cravatt, PhD

**Yunxiao Zhang, PhD**  
**Merck Fellow**  
Sensory innervation of the pancreas with Ardem Patapoutian, PhD

University of California, Berkeley

**Steven W. M. Crossley, PhD**  
**AGBT-Elaine R. Mardis Fellow**  
Mapping targets for cancer therapeutics via methionine-selective warheads with Christopher J. Chang, PhD, and Daniel K. Nomura, PhD

**Timothy J. Eisen, PhD**  
**David Ryland Fellow**  
Mechanistic dissection of Tec kinases in immune-cell signaling with John Kuriyan, PhD

DAMON RUNYON FELLOWSHIP AWARD CONTINUED

**Katy Ong, PhD**  
**The Mark Foundation for Cancer Research Fellow**  
Long-range tumor-host signaling mechanisms driving paraneoplastic syndromes with David Bilder, PhD

**Jiao Sima, PhD**  
**HHMI Fellow**  
Cellular mechanisms linking sleep disturbance and cancer development with Yang Dan, PhD

**Akanksha Thawani, PhD**  
**Merck Fellow**  
Targeted genetic supplementation by harnessing transposable elements with Eva Nogales, PhD, and Kathleen Collins, PhD

[University of California, Los Angeles](#)

**Yajing Gao, PhD**  
**The Mark Foundation for Cancer Research Fellow**  
Characterize the role of non-vesicular cholesterol transport in CD8+ T cell function with Peter Tontonoz, MD, PhD

[University of California, San Diego](#)

**Digvijay Singh, PhD**  
Cryo-electron tomography of phase-separated compartments and nuclear pore complexes involved in gene regulation with Elizabeth Villa, PhD

[University of California, San Francisco](#)

**Keelan Z. Guiley, PhD**  
**HHMI Fellow**  
Chemical probing of mutant p53 with Kevan M. Shokat, PhD

**Benjamin G. H. Guthrie, PhD**  
**Connie and Bob Lurie Fellow**  
Fluoropyrimidine bioactivation and metabolism by the gut microbiome with Peter J. Turnbaugh, PhD

**Fangyu Liu, PhD**  
Discovery of novel ligands that treat metabolic disorders with Brian K. Shoichet, PhD

**Tadashi Manabe, MD, PhD\***  
**Connie and Bob Lurie Fellow**  
Characterization of oncogenic kinase signaling by membraneless cytoplasmic protein granules with Trevor G. Bivona, MD, PhD

**Tristan Wold Owens, PhD**  
**Suzanne and Bob Wright Fellow**  
Molecular mechanisms of heat shock transcription factor 1 in cancer with David A. Agard, PhD

**Cristina Puchades, PhD**  
Deciphering the molecular basis for modulation of TMEM16A activity with Yifan Cheng, PhD, and Lily Jan, PhD

**Sukrit Silas, PhD**  
Discovery and characterization of virally-encoded proteins of unknown function with Joseph Bondy-Denomy, PhD, and Carol A. Gross, PhD

**Adam J. Stevens, PhD**  
Synthetic adhesion molecules: redirecting cell infiltration and organization with Wendell A. Lim, PhD

**Erron W. Titus, MD, PhD\*s**  
**Connie and Bob Lurie Fellow**  
Engineered cellular fusogens for novel immune effector functions with Matthew F. Krummel, PhD

**Kouki Touhara, PhD**  
**Robert A. Swanson Family Fellow**  
Investigating chemical signaling between gut enteroendocrine cells and intrinsic primary afferent neurons with David J. Julius, PhD

**Qinheng Zheng, PhD**  
**Connie and Bob Lurie Fellow**  
Drugging K-Ras(G12D) with targeted covalent inhibitors with Kevan M. Shokat, PhD

COLORADO

[University of Colorado Boulder](#)

**Edward M. C. Courvan, PhD\***  
**HHMI Fellow**  
Functional analysis of post-transcriptional RNA regulation in hypoxic macrophages with Roy R. Parker, PhD

**Dylan M. Parker, PhD\***  
**HHMI Fellow**  
Stress granule regulators and their roles in cancer progression with Roy R. Parker, PhD

CONNECTICUT

[Yale University](#)

**Elizabeth J. Culp, PhD**  
**The Mark Foundation for Cancer Research Fellow**  
Mechanisms and consequences of microbial transformation of dietary xenobiotics in cancer risk with Andrew L. Goodman, PhD

**Jung-Shen Tai, PhD**  
From form to function: Cell shape, cell ordering, and gene regulation in bacterial biofilm with Jing Yan, PhD (Yale University), and Christopher Waters, PhD (Michigan State University)

MARYLAND

[The Johns Hopkins University School of Medicine](#)

**Marco A. Catipovic, PhD**  
**HHMI Fellow**  
The role of ribosome biogenesis in recycling damaged ribosomes with Rachel Green, PhD

**Cayla E. Jewett, PhD\***  
**Merck Fellow**  
Mechanisms of centriole number control in multiciliated cells with Andrew J. Holland, PhD

MASSACHUSETTS

Boston Children’s Hospital

**Liudmila Andreeva, PhD**  
Making an inflammasome:  
Structural and biochemical  
elucidation of NLRP3 inflammasome  
activation with Hao Wu, PhD

**Aaron L. Moye, PhD**  
Role of Lgr6-expressing  
mesenchymal cells in lung  
cancer initiation and progression  
with Carla F. Kim, PhD

**Esteban A. Orellana Vinueza, PhD**  
Role of METTL1-WDR4 tRNA  
methyltransferase complex in  
cancer with Richard I. Gregory, PhD

**Ge Zheng, PhD**  
Novel approaches to targeting  
zinc-finger domain of the  
transcription repressor BCL11A  
with Stuart H. Orkin, MD

Boston University

**Heidi E. Klumpe, PhD\***  
**Merck Fellow**  
The design principles of stable  
aggregation with Ahmad S. Khalil,  
PhD, and Mary Dunlop, PhD

Brigham and Women’s Hospital

**Kunitoshi Chiba, PhD**  
Elucidating tissue specificity  
of cancer with Stephen J.  
Elledge, PhD

**Ge Zhu, PhD\***  
**HHMI Fellow**  
Charting the tumor antigen  
landscape of breast cancer  
with Stephen J. Elledge, PhD

Broad Institute

**Veronika Shoba, PhD**  
Phosphorylation-inducing  
chimeric small molecules with  
Amit Choudhary, PhD, and  
Stuart L. Schreiber, PhD

Dana-Farber Cancer Institute

**Parker L. Sulkowski, PhD**  
**HHMI Fellow**  
Investigation of histone  
secretion in cancer with  
William G. Kaelin, Jr., MD

**David M. Walter, PhD**  
Identifying the selective mechanism  
behind U2AF1 mutations in lung  
adenocarcinoma with  
Matthew L. Meyerson, MD, PhD

**Jingyi Wu, PhD**  
Epigenetic clonal evolution  
in gliomas with Bradley E.  
Bernstein, MD, PhD

Harvard Medical School

**Erin E. Duffy, PhD**  
Activity-dependent changes  
in RNA stability as a mechanism  
for synaptic plasticity with  
Michael E. Greenberg, PhD

**Yuan Gao, PhD**  
Mechanism of protein import  
into peroxisomes with  
Tom A. Rapoport, PhD

**Pragya Goel, PhD**  
**Dale F. and Betty Ann Frey Fellow**  
Signaling structure for  
neuromodulatory coding  
in the vertebrate striatum  
with Pascal Kaeser, MD

**Rachel S. Greenberg, PhD**  
**HHMI Fellow**  
Developing functional diversity  
in interoceptive circuits with  
Stephen D. Liberles, PhD

**Hannah A. Grunwald, PhD**  
**Lallage Feazel Wall Fellow**  
Unraveling the role of molecular  
capacitors that obscure cryptic  
genetic variants in fish with  
Clifford J. Tabin, PhD

**Xin Gu, PhD\***  
Characterization of a novel pathway  
regulating the protein degradation  
of immediate-early genes with  
Michael E. Greenberg, PhD

**Manuel Osorio Valeriano, PhD\***  
**Philip O’Bryan Montgomery, Jr., MD,  
Fellow**  
Molecular and structural basis  
of gene expression regulation  
by the nucleosome remodeling and  
deacetylase (NuRD) complex in  
human cancer with Lucas Farnung,  
PhD, and Danesh Moazed, PhD

**Jonathan G. Van Vranken, PhD**  
**The Mark Foundation for  
Cancer Research Fellow**  
Systematic identification of  
metabolite-protein interactions in  
human cells with Steven P. Gygi, PhD

Harvard T.H. Chan  
School of Public Health

**Madi Y. Cissé, PhD**  
**Merck Fellow**  
Integration on oncogenic  
signaling and nutrient sensing  
by mTOR in tumors with  
Brendan D. Manning, PhD

**Mark R. Sullivan, PhD**  
**Merck Fellow**  
Identifying requirements  
for lung infection by  
opportunistic pathogens  
with Eric J. Rubin, MD, PhD

“It’s significant that Damon Runyon funds research outside of the normal therapeutic and molecular ways that people look at cancer. Because cancer is so much more than the tumor—it affects every organ system, everything you do on a daily basis.”

REBECCA S. MOORE, PhD  
DAMON RUNYON-HHMI FELLOW  
UNIVERSITY OF PENNSYLVANIA

Harvard University

**Rongxin Fang, PhD**  
**HHMI Fellow**  
Genome-scale imaging of enhancer-promoter interactions in cancer at single cell resolution with Xiaowei Zhuang, PhD

**Grace E. Kenney, PhD**  
**Merck Fellow**  
New enzymatic routes towards nitrogen-nitrogen bond formation in diverse cytotoxic natural products with Emily P. Balskus, PhD

**Thomas R. LaBar, PhD**  
**Candy and William Raveis Fellow**  
Elucidating the mechanisms of cellular evolution with experimental evolution with Andrew W. Murray, PhD

Massachusetts General Hospital

**Charles H. Adelman, PhD\***  
Systematic exploration of the organellar and cellular requirements of pigmentation with David E. Fisher, MD, PhD

**Stefan Niekamp, PhD**  
**Dennis and Marsha Dammerman Fellow**  
Understanding the switch: Competition between chromatin remodeler and polycomb repressive complexes with Robert E. Kingston, PhD

Massachusetts Institute of Technology

**Fangtao Chi, PhD\***  
Understanding how ketone body metabolites influence intestinal stemness, immune responses and tumorigenesis with Ömer H. Yilmaz, MD, PhD

**J. Scott P. McCain, PhD\***  
Circadian clocks in non-photosynthetic bacteria: mechanisms and impacts with Gene-Wei Li, PhD

**Jon McGinn, PhD**  
Dissecting the genetic networks underlying host subversion during *rickettsia* infection with Rebecca Lamason, PhD

**Senén D. Mendoza, PhD\***  
**HHMI Fellow**  
Discovery and characterization of bacterial immunity against RNA phages with Michael T. Laub, PhD

**Sharanya Sivanand, PhD**  
Understanding metabolic heterogeneity in primary and metastatic tumors with Matthew G. Vander Heiden, MD, PhD

**Patrick J. Woida, PhD\***  
Functional dissection of the bacterial-host interface during cell-to-cell spread with Rebecca Lamason, PhD

Whitehead Institute for Biomedical Research

**Henry R. Kilgore, PhD\***  
Subcellular pharmacokinetics with Richard A. Young, PhD

**Jingchuan Luo, PhD**  
**HHMI Fellow**  
Deciphering roles of nuclear-mitochondrial communication in cellular homeostasis with Jonathan S. Weissman, PhD



**Alexandra Nguyen, PhD**

Defining the cell type specific cell division requirements in acute myeloid leukemias with Iain M. Cheeseman, PhD

**Ngoc-Han Tran, PhD\***

Endoplasmic reticulum dynamics and inheritance in germ cells specification with Ruth Lehmann, PhD

**MINNESOTA**

[University of Minnesota](#)

**Nicholas N. Jarjour, PhD**

Antigen-independent pro-liferation of tissue-resident memory T cells and therapeutic applications with Stephen C. Jameson, PhD

**NEW JERSEY**

[Princeton University](#)

**Caroline Bartman, PhD**

**The Mark Foundation for Cancer Research Fellow**

Systems analysis of *in vivo* tumor and stromal cell metabolism in pancreatic ductal adenocarcinoma with Joshua Rabinowitz, MD, PhD

**Courtney Ellison, PhD**

The role of type IV pili in *Pseudomonas aeruginosa* biofilm formation with Joshua W. Shaevitz, PhD, and Zemer Gitai, PhD

**Nir Hananya, PhD**

**Robert Black Fellow**

The roles of histone ADP-ribosylation in DNA damage response with Tom W. Muir, PhD

**Grace E. Johnson, PhD\***

**HHMI Fellow**

Defining quorum-sensing signaling patterns and their effects on gene expression and morphology in *V. cholerae* biofilms at the single-cell and community levels with Bonnie L. Bassler, PhD

**Aaron E. Lin, PhD**

**Walter Isaacson Fellow**

Contact tracing within an organism: developing a genome editing platform to record the history of virus-infected and transformed cells with Alexander Ploss, PhD, and Brittany Adamson, PhD

**Titus Sengupta, PhD\***

**Rebecca Ridley Kry Fellow**

Investigating bacterial small RNA-mediated regulation of host behavior with Coleen T. Murphy, PhD

**NEW YORK**

[Memorial Sloan Kettering Cancer Center](#)

**Rico C. Ardy, PhD\***

**Robert Black Fellow**

An atlas of fibroblast cell states in health and disease through functional genomics with Thomas Norman, PhD

**Kaixian Liu, PhD**

The studies of double-strand break proteins in germline genome transmission with Scott N. Keeney, PhD, and Shixin Liu, PhD

**José Reyes, PhD**

**HHMI Fellow**

Dynamics and impact of genetic and non-genetic diversification driven by loss of p53 with Scott W. Lowe, PhD, and Dana Pe'er, PhD

**Zeda Zhang, PhD\***

**HHMI Fellow**

Decode the senescent cell surface *in vivo* and develop cell therapies for senescence-related diseases with Scott W. Lowe, PhD

[New York University](#)

**Sophia C. Tintori, PhD**

Mechanisms of radiation tolerance in *Caenorhabditis* from Chernobyl with Matthew V. Rockman, PhD

[New York University](#)  
[Grossman School of Medicine](#)

**Nicholas M. Adams, PhD**

**Marion Abbe Fellow**

Elucidating how pDC genome organization regulates IFN production in cancer with Boris Reizis, PhD

[The Rockefeller University](#)

**Alain R. Bonny, PhD**

**Kenneth C. Frazier Fellow**

The spatiotemporal coordination between inflammation and tissue repair with Elaine V. Fuchs, PhD

**Gregory P. Donaldson, PhD**

**Robert Black Fellow**

Cross-talk between B lymphocytes and bacteria in the maintenance of a non-inflammatory mucosal microbiome with Daniel Mucida, PhD

**Catherine A. Freije, PhD**

**Berger Foundation Fellow**

Investigating the role of fitness and host pressure in shaping hepatitis B diversity with Charles M. Rice, PhD

**Anita Gola, PhD**

**National Mah Jongg League Fellow**

A spatially patterned stem cell and immune cell barrier at the skin surface with Elaine V. Fuchs, PhD

**Juhee Pae, PhD**

**Berger Foundation Fellow**

Mechanisms of germinal center B Cell proliferation with Gabriel D. Victora, PhD

DAMON RUNYON FELLOWSHIP AWARD CONTINUED

**Gokhan Unlu, PhD**

Targeting cancer nutrient limitations using dietary interventions with Kivanç Birsoy, PhD

**John C. Zinder, PhD**

**Lorraine W. Egan Fellow**

Structure and biochemistry of human shelterin and associated factors with Titia de Lange, PhD

**NORTH CAROLINA**

Duke University

**Elizabeth R. Hughes, PhD\***

**Robert Black Fellow**

Mechanisms of microbial modulation of cancer immunotherapy with Raphael H. Valdivia, PhD

**PENNSYLVANIA**

University of Pennsylvania

**Rebecca S. Moore, PhD\***

**HHMI Fellow**

Investigation of the role of peripheral secreted molecules on sleep and circadian rhythms with Amita Sehgal, PhD

**Catherine Triandafillou, PhD\***

Intrinsic and extrinsic drivers of heterogeneous drug resistance in cancer with Arjun Raj, PhD

University of Pittsburgh

**Abigail E. Overacre-Delgoffe, PhD**

Microbiome control of the tumor microenvironment: harnessing immunosuppression and exhaustion with Timothy W. Hand, PhD, and Olivera J. Finn, PhD

**TEXAS**

University of Texas

Southwestern Medical Center

**Gabriel Muhire Gihana, PhD**

**The Mark Foundation for Cancer Research Fellow**

Cell morphological modulation of oncogenic Ras signaling with Gaudenz Danuser, PhD

**UTAH**

University of Utah

**Lexy von Diezmann, PhD**

**The Mark Foundation for Cancer Research Fellow**

State changes of a liquid-like compartment monitor crossover recombination with Ofer Rog, PhD, and Erik M. Jorgensen, PhD

**WASHINGTON**

Fred Hutchinson

Cancer Research Center

**Ching-Ho Chang, PhD**

Genetic conflicts shape protamine evolution with Harmit S. Malik, PhD

**Edie I. Crosse, PhD**

**Illini 4000 Fellow**

Determining the role of stem cell heterogeneity in clonal evolution of hematologic malignancy with Lev Silberstein, MD, PhD, and Irwin D. Bernstein, MD

**Siqi Li, PhD\***

**The Mark Foundation for Cancer Research Fellow**

Deciphering clonal competition between oncogenic mutant and normal cells and its effect on cancer initiation with Slobodan Beronja, PhD

University of Washington

**Junhong Choi, PhD**

**HHMI Fellow**

Uncovering cellular development in cancer through precise genome editing with Jay A. Shendure, MD, PhD

**Jean-Benoît Lalanne, PhD**

At-scale dissection of developmental enhancers with single-cell reporters with Jay A. Shendure, MD, PhD

**CANADA**

McGill University

**Janice M. Reimer, PhD**

**Merck Fellow**

Regulation of dynein by Lis1 with Andres E. Leschziner, PhD, and Martin Schmeing, PhD

University of Calgary

**Ysbrand Nusse, PhD**

**Robert Black Fellow**

Defining the role of eosinophils in liver injury and repair with Paul Kubes, PhD

*\*Initial Year*

*\$Physician-Scientists*

DAMON RUNYON-SOHN

# PEDIATRIC CANCER FELLOWSHIP AWARD

As of 2021, Damon Runyon no longer offers new awards through the Damon Runyon-Sohn Pediatric Cancer Fellowship Award program. We remain committed to funding pediatric cancer research through our other award programs.

CALIFORNIA

**Zulekha A. Qadeer, PhD**

Targeting TGFb pathway dependencies in Group 3 Medulloblastoma with William A. Weiss, MD, PhD, University of California, San Francisco

**Peng Wu, MD, PhD**

Understanding and modulating aberrant differentiation in hepatoblastoma with Roeland Nusse, PhD, Stanford University School of Medicine, Stanford

TENNESSEE

**Katherine E. Gadek, PhD**

Defining endothelial progenitor cell pliancy in rhabdomyosarcoma with Mark E. Hatley, MD, PhD, and Stacey K. Ogden, PhD, St. Jude Children's Research Hospital, Memphis

**Anand G. Patel, MD, PhD**

Targeting the developmental architecture of rhabdomyosarcoma with Michael A. Dyer, PhD, St. Jude Children's Research Hospital, Memphis

WASHINGTON

**Kiara C. Eldred, PhD**

Dissecting the mechanisms of tumorigenesis in the human retina with Thomas A. Reh, PhD, University of Washington, Seattle

“It’s a tremendous privilege to be a physician-scientist. It gives me an opportunity to bring my patients’ problems and challenges to the lab and spend the necessary time and resources to try to address their suffering.”

ANAND G. PATEL, MD, PhD

DAMON RUNYON-SOHN FELLOW

ST. JUDE CHILDREN’S RESEARCH HOSPITAL

“I think young scientists are really in the most creative stage of our careers—our ideas are really bold, but these are the ideas that can potentially solve some of the questions that people have been thinking about for decades.”

YAPENG SU, PhD  
QUANTITATIVE BIOLOGY FELLOW  
FRED HUTCHINSON CANCER RESEARCH CENTER

DAMON RUNYON

# QUANTITATIVE BIOLOGY FELLOWSHIP AWARD COMMITTEE

CHAIR

**Todd R. Golub, MD**  
Director and Founding Core  
Institute Member  
Broad Institute of MIT and Harvard  
Charles A. Dana Investigator  
in Human Cancer Genetics  
Dana-Farber Cancer Institute  
Professor of Pediatrics  
Harvard Medical School  
CAMBRIDGE, MASSACHUSETTS

**Andrea Califano, PhD**  
Clyde and Helen Wu  
Professor of Chemical and  
Systems Biology  
Chair, Department of  
Systems Biology  
Director, JP Sulzberger  
Columbia Genome Center  
Herbert Irving Comprehensive  
Cancer Center  
Columbia University  
NEW YORK, NEW YORK

**Gaudenz Danuser, PhD**  
Patrick E. Haggerty  
Distinguished Chair in  
Basic Biomedical Science  
Lyda Hill Department of  
Bioinformatics and  
Department of Cell Biology  
University of Texas  
Southwestern Medical Center  
DALLAS, TEXAS

**Anshul Kundaje, PhD**  
Assistant Professor, Genetics  
and Computer Science  
Stanford University  
STANFORD, CALIFORNIA

**Dana Pe'er, PhD**  
Howard Hughes Medical Institute  
Investigator  
Chair, Computational and Systems  
Biology Program  
Scientific Director, Alan and Sandra  
Gerry Metastasis and Tumor  
Ecosystems Center  
Sloan Kettering Institute  
Memorial Sloan Kettering  
Cancer Center  
NEW YORK, NEW YORK

**Aviv Regev, PhD**  
Head and Executive Vice President  
Research and Early Development  
Genentech, Inc.  
SOUTH SAN FRANCISCO, CALIFORNIA

**Cole Trapnell, PhD**  
Assistant Professor  
Department of Genome Sciences  
University of Washington  
SEATTLE, WASHINGTON

**Caroline Uhler, PhD**  
Professor  
Department of Electrical  
Engineering and Computer Science  
Institute for Data, Systems,  
and Society  
Massachusetts Institute of  
Technology  
Core Institute Member  
Co-Director, Eric and Wendy  
Schmidt Center  
Broad Institute of MIT and Harvard  
CAMBRIDGE, MASSACHUSETTS

**Eliezer M. Van Allen, MD**  
Associate Professor of Medicine  
Harvard Medical School  
Chief, Division of Population  
Sciences  
Dana-Farber Cancer Institute  
Associate Member  
Broad Institute of MIT  
and Harvard  
BOSTON, MASSACHUSETTS

# QUANTITATIVE BIOLOGY FELLOWSHIP AWARD

CALIFORNIA

**Haripriya Vaidehi Narayanan, PhD**

Developing a mechanistic multi-scale framework relating signaling and spatiotemporal dynamics in B-cell affinity maturation and lymphomagenesis with Alexander Hoffmann, PhD, and Roy Wollman, PhD, University of California, Los Angeles

**Hang Xu, PhD**

Investigating the dynamics of chromosomal instability in cancer with Christina N. Curtis, PhD, and Calvin Kuo, PhD, Stanford University School of Medicine, Stanford

MASSACHUSETTS

**Collin Tokheim, PhD**

Computationally identifying oncogenic substrates of the ubiquitin-proteasome system in human cancers with Rafael A. Irizarry, PhD, and Eric S. Fischer, PhD, Dana-Farber Cancer Institute, Boston

**Shou-Wen Wang, PhD**

Inferring cell fate choice from clonal and transcriptomic data, with application to hematopoiesis with Allon M. Klein, PhD, and Fernando Camargo, PhD, Harvard Medical School, Boston

NEW JERSEY

**Cong Ma, PhD\***

Modeling spatial organization and interactions among genetic and epigenetic states across cancer types with Benjamin Raphael, PhD, Princeton University, Princeton, and Li Ding, PhD, Washington University, St. Louis

NEW YORK

**Tin Yi Chu, PhD**

**William Raveis Charitable Fund  
Quantitative Biology Fellow**

Statistical modeling of cell-cell interactions in normal intestine, inflammatory bowel disease and colorectal cancer using single cell and spatial transcriptomics with Dana Pe'er, PhD, and Elaine V. Fuchs, PhD, Memorial Sloan Kettering Cancer Center, New York

**Siting Gan, PhD**

*In situ* single-cell dissection of the tumor-microenvironment interplay mediating brain metastasis with Joan Massagué, PhD, and Dana Pe'er, PhD, Memorial Sloan Kettering Cancer Center, New York

**Sukrit Singh, PhD\***

Physics-driven prediction of drug-resistant clinical mutations to improve precision oncology with John D. Chodera, PhD, Memorial Sloan Kettering Cancer Center, and Markus A. Seeliger, PhD, Stony Brook University, New York

**Esther Wershof, PhD**

**William Raveis Charitable Fund  
Quantitative Biology Fellow**

Three-dimensional spatiotemporal organization of the gut tube in early organogenesis with Dana Pe'er, PhD, and Anna-Katerina Hadjantonakis, PhD, Memorial Sloan Kettering Cancer Center, New York

OREGON

**Jeremy Copperman, PhD**

Whole-cell modeling for the prediction and control of micro-environmentally regulated proliferative and migratory variability with Daniel M. Zuckerman, PhD, and Laura M. Heiser, PhD, Oregon Health and Science University, Portland

TEXAS

**Runmin Wei, PhD**

Integrating single cell genomic and spatial information to delineate tumor heterogeneity and microenvironment interactions in inflammatory breast cancer with Nicholas E. Navin, PhD, and Ken Chen, PhD, University of Texas MD Anderson Cancer Center, Houston

VERMONT

**Vitor Mori, PhD**

EBUS-TBNI of cisplatin optimization in heterogeneous lung tumors with Jason H.T. Bates, PhD, DSc, and C. Matthew Kinsey, MD, University of Vermont, Burlington

WASHINGTON

**Tal Einav, PhD**

Quantifying a polyclonal immune repertoire's ability to bind influenza with Jesse D. Bloom, PhD, and Jonathan W. Yewdell, MD, PhD, Fred Hutchinson Cancer Research Center, Seattle

**Yapeng Su, PhD\***

Quantitative analysis to elucidate spatial-temporal heterogeneity of therapeutic T cell dysfunction mechanisms in the context of adoptive cell therapy against pancreatic cancer with Philip D. Greenberg, MD, and Raphael Gottardo, PhD, Fred Hutchinson Cancer Research Center, Seattle

*\*Initial Year*



DAMON RUNYON

## DALE F. FREY AWARD FOR BREAKTHROUGH SCIENTISTS

**Robert S. Banh, PhD\***

Codon- and nutrient-specific regulation of mRNA translation in pancreatic cancer at New York University Grossman School of Medicine, New York

**Allison L. Didychuk, PhD\***

**The Rhee Family**

**Breakthrough Scientist**

Understanding the mechanism of genome packaging in oncogenic herpesviruses at Yale University, New Haven

**Christopher P. Lapointe, PhD\***

Fundamental mechanisms that underlie human translation initiation and its dysregulation in cancer at Stanford University School of Medicine, Stanford

**Dian Yang, PhD\***

Molecular recording of tumor evolution in response to macrophage modulations at Whitehead Institute for Biomedical Research, Boston

**Xiaoyu Zhang, PhD\***

Discovery of chemical probes that support targeted protein degradation in human cancer at Northwestern University, Evanston

**Xin Zhou, PhD\***

Designing signaling proteins to enact anti-tumor responses at Dana-Farber Cancer Institute and Harvard Medical School, Boston

*\*Initial Year*

“Being named a Dale Frey Breakthrough Scientist is a huge honor. This award, and the recognition it brings, will allow me to take risks in the first few years [of my lab] that I otherwise wouldn’t have—including expanding into new approaches for me, like single molecule biophysics and functional genomics.”

ALLISON L. DIDYCHUK, PhD

THE RHEE FAMILY BREAKTHROUGH SCIENTIST  
YALE UNIVERSITY

# PHYSICIAN-SCIENTIST TRAINING AWARD COMMITTEE

**CHAIR**

**William G. Kaelin, Jr., MD**

Sidney Farber Professor of Medicine  
Dana-Farber Cancer Institute  
and Harvard Medical School  
Howard Hughes Medical Institute  
Investigator  
BOSTON, MASSACHUSETTS

**David P. Carbone, MD, PhD**

Barbara J. Bonner Chair  
in Lung Cancer Research  
Director, James Thoracic Center  
Professor, Division of  
Medical Oncology  
Comprehensive Cancer Center  
The Ohio State University  
COLUMBUS, OHIO

**Lucy A. Godley, MD, PhD**

Co-Director, Center for  
Clinical Cancer Genetics  
Hospira Foundation Professor  
of Medicine  
Professor of Human Genetics  
Section of Hematology  
and Oncology  
The University of Chicago Medicine  
CHICAGO, ILLINOIS

**Nada Jabado, MD, PhD**

Professor, Pediatrics and  
Human Genetics  
McGill University  
Physician, Division of  
Hematology and Oncology  
Montreal Children's Hospital  
MONTREAL, QUEBEC  
CANADA

**Peter S. Nelson, MD**

Member, Divisions of Human  
Biology, Clinical Research,  
and Public Health Sciences  
Endowed Chair for Prostate  
Cancer Research  
Fred Hutchinson Cancer  
Research Center  
Professor, Division of  
Medical Oncology  
Adjunct Professor, Genome  
Sciences and Pathology  
University of Washington  
School of Medicine  
SEATTLE, WASHINGTON

**David R. Piwnica-Worms, MD, PhD**

Professor and Chair,  
Cancer Systems Imaging  
Executive Director, Quantitative  
Imaging Analysis Core  
Gerald Dewey Dodd, Jr.,  
Endowed Distinguished Chair  
in Diagnostic Imaging  
Division of Diagnostic Imaging  
University of Texas  
MD Anderson Cancer Center  
HOUSTON, TEXAS

**Kornelia Polyak, MD, PhD**

Professor of Medicine  
Department of Medical Oncology  
Dana-Farber Cancer Institute  
and Harvard Medical School  
BOSTON, MASSACHUSETTS

**W. Kimryn Rathmell, MD, PhD**

Hugh Jackson Morgan Chair  
in Medicine  
Professor of Medicine and  
Biochemistry  
Chair, Department of Medicine  
Physician-in-Chief  
Vanderbilt University  
Medical Center  
NASHVILLE, TENNESSEE

**Matthew G. Vander Heiden, MD, PhD**

Director, Koch Institute for  
Integrative Cancer Research at MIT  
Lester Wolfe (1919) Professor  
of Molecular Biology  
Professor of Biology  
Member, MIT Center for  
Precision Cancer Medicine  
Member, Ludwig Center at MIT  
Member, Broad Institute of  
MIT and Harvard  
CAMBRIDGE, MASSACHUSETTS

**Cassian Yee, MD**

Professor, Melanoma  
Medical Oncology  
Professor, Immunology  
Division of Cancer Medicine  
Director, Department of  
Solid Tumor Cell Therapy  
Center for Cancer Immunology  
Research  
University of Texas  
MD Anderson Cancer Center  
HOUSTON, TEXAS

# PHYSICIAN-SCIENTIST TRAINING AWARD

CALIFORNIA

**Caitlin F. Bell, MD**

Smooth muscle cell plasticity in the tumor microenvironment: another parallel between atherosclerosis and cancer with Nicholas J. Leeper, MD, and Irving L. Weissman, MD, Stanford University School of Medicine, Stanford

MARYLAND

**Jonathan C. Dudley, MD  
Gordon Family Physician-Scientist**

Earlier detection of cancer in body cavity fluids through aneuploidy analysis after cell enrichment and partitioning with Bert Vogelstein, MD, The Johns Hopkins University School of Medicine, Baltimore

MASSACHUSETTS

**Elisa A. Aquilanti, MD  
The Ben and Catherine Ivy Foundation Physician-Scientist**

Targeting telomerase in glioblastoma with Matthew L. Meyerson, MD, PhD, Dana-Farber Cancer Institute, Boston

**Wallace A. Bourgeois, MD\***

Targeting JMJD1C and IKZF1 as therapeutic opportunities in KMT2A-rearranged leukemia with Scott A. Armstrong, MD, PhD, Dana-Farber Cancer Institute, Boston

**Albert E. Kim, MD  
William G. Kaelin, Jr., MD,  
Physician-Scientist**

Using liquid biopsy and MRI to non-invasively identify therapeutic targets for brain metastases with Priscilla K. Brastianos, MD, and Elizabeth R. Gerstner, MD, Massachusetts General Hospital, Boston

**(Peter) Geon Kim, MD**

Elucidating the mechanisms of inflammation in clonal hematopoiesis with Benjamin L. Ebert, MD, PhD, Dana-Farber Cancer Institute, Boston

**Mark B. Leick, MD\*  
The Mark Foundation for Cancer Research Physician-Scientist**

Engineering novel CAR T cells for AML: translating lessons from correlative studies and other diseases with Marcela V. Maus, MD, PhD, Massachusetts General Hospital, Boston

NEW YORK

**Andrew J. Dunbar, MD**

Interrogating functional contribution of JAK2V617F in the maintenance of myeloproliferative neoplasms with Ross L. Levine, MD, Memorial Sloan Kettering Cancer Center, New York

**Mira A. Patel, MD\***

Molecular mechanisms of human APOE-mediated myeloid cell modulation in cancer with Sohail F. Tavazoie, MD, PhD, The Rockefeller University, New York

**Rabi Upadhyay, MD**

Determining the distal effects of gut microbiota on the lung tumor microenvironment, cancer progression, and checkpoint blockade efficacy with Dan R. Littman, MD, PhD, New York University Grossman School of Medicine, New York

OHIO

**Jonathan E. Shoag, MD**

Harnessing clinical data to identify new prostate cancer therapeutics with Christopher E. Barbieri, MD, PhD, University Hospitals Cleveland Medical Center, Cleveland

PENNSYLVANIA

**Dennis J. Hsu, MD**

Metabolic determinants of codon usage bias in colorectal cancer with Jeremy N. Rich, MD, and Lin Zhang, PhD, University of Pittsburgh, Pittsburgh

**Max M. Wattenberg, MD**

Epigenetic reprogramming of dendritic cells for cancer immunotherapy with Gregory L. Beatty, MD, PhD, and Robert H. Vonderheide, MD, PhD, University of Pennsylvania, Philadelphia

TEXAS

**Natalie Vokes, MD  
The Mark Foundation for Cancer Research Physician-Scientist**

Dissecting tumor intrinsic and immune drivers of resistance to therapy in non-small cell lung cancer with John V. Heymach, MD, PhD, University of Texas MD Anderson Cancer Center, Houston

*\*Initial Year*

DAMON RUNYON

# CLINICAL INVESTIGATOR AWARD COMMITTEE

## CHAIR

### **Charles L. Sawyers, MD**

Howard Hughes Medical Institute  
Investigator  
Marie-Josée and Henry R. Kravis  
Chair in Human Oncology  
and Pathogenesis  
Chair, Human Oncology and  
Pathogenesis Program  
Memorial Sloan Kettering  
Cancer Center  
NEW YORK, NEW YORK

### **Scott A. Armstrong, MD, PhD**

President, Dana-Farber/  
Boston Children's Cancer  
and Blood Disorders Center  
Chairman, Department of  
Pediatric Oncology  
Dana-Farber Cancer Institute  
Associate Chief, Division of  
Hematology/Oncology  
Boston Children's Hospital  
David G. Nathan Professor  
of Pediatrics  
Harvard Medical School  
BOSTON, MASSACHUSETTS

### **Karla V. Ballman, PhD**

Chief, Division of Biostatistics  
and Epidemiology  
Professor, Population  
Health Sciences  
Weill Cornell Medicine  
NEW YORK, NEW YORK

### **J. Robert Beck, MD**

Professor Emeritus  
H.O. West and J.R. Wike Chair  
in Cancer Research  
Fox Chase Cancer Center  
PHILADELPHIA, PENNSYLVANIA

### **Monica M. Bertagnolli, MD\***

Chief, Division of Surgical Oncology  
Brigham and Women's Hospital  
Richard E. Wilson Professor  
of Surgery  
Harvard Medical School  
Chair, Alliance for Clinical  
Trials in Oncology  
Alliance Foundation Trials, LLC  
BOSTON, MASSACHUSETTS

### **Laura Q.M. Chow, MD, FRCPC**

Professor and Associate Chair  
of Education  
Department of Oncology  
Director of Lung, Head and Neck,  
and Clinical Immunotherapy  
Programs  
Associate Director of  
Clinical Research  
LIVESTRONG Cancer Institutes  
University of Texas at  
Austin Dell Medical School  
AUSTIN, TEXAS

### **Ralph J. DeBerardinis, MD, PhD**

Howard Hughes Medical Institute  
Investigator  
Professor, Children's Research  
Institute  
Chief, Division of Pediatric Genetics  
and Metabolism  
Director, Genetic and Metabolic  
Disease Program  
Sowell Family Scholar in  
Medical Research  
Joel B. Steinberg, MD  
Distinguished Chair in Pediatrics  
University of Texas  
Southwestern Medical Center  
DALLAS, TEXAS

### **Howard A. Fine, MD**

Director, Brain Tumor Center  
Associate Director,  
Translational Research  
Sandra and Edward Meyer  
Cancer Center  
Louis and Gertrude Feil  
Professor of Medicine  
Chief, Division of Neuro-Oncology  
New York-Presbyterian/  
Weill Cornell Medicine  
NEW YORK, NEW YORK

### **Daniel F. Hayes, MD, FACP, FASCO**

Stuart B. Padnos Professor  
of Breast Cancer Research  
Professor of Internal Medicine  
Clinical Director,  
Breast Oncology Program  
University of Michigan  
Rogel Cancer Center  
ANN ARBOR, MICHIGAN

### **Andrew L. Kung, MD, PhD**

Professor and Chair, Pediatrics  
Memorial Sloan Kettering  
Cancer Center  
NEW YORK, NEW YORK

### **Dan A. Laheru, MD**

Professor of Oncology  
Co-Director, Skip Viragh Center  
for Pancreas Cancer  
Ian T. MacMillan Professorship  
in Clinical Pancreatic Cancer  
Research  
The Sidney Kimmel Comprehensive  
Cancer Center  
The Johns Hopkins University  
School of Medicine  
BALTIMORE, MARYLAND

### **Daniel C. Link, MD**

Professor of Medicine  
Department of Pathology  
and Immunology  
Division of Oncology  
Washington University  
School of Medicine  
ST. LOUIS, MISSOURI

### **Mignon L. Loh, MD**

Chief, Division of Pediatric  
Hematology, Oncology,  
Bone Marrow Transplant, and  
Cellular Therapies  
Seattle Children's Hospital  
Director, Ben Towne Center for  
Childhood Cancer Research  
Seattle Children's Research Institute  
Professor of Pediatrics  
University of Washington  
Head, Pediatric Oncology Section  
Fred Hutchinson Cancer  
Research Center  
SEATTLE, WASHINGTON

### **Ramon E. Parsons, MD, PhD**

Director, Tisch Cancer Institute  
Ward-Coleman Chair in  
Cancer Research  
Director, Mount Sinai Cancer  
and Mount Sinai Health System  
Professor and Chair,  
Oncological Sciences  
Icahn School of Medicine  
at Mount Sinai  
NEW YORK, NEW YORK

*\*Appointed Director of the  
National Cancer Institute and  
resigned from the committee.*

DAMON RUNYON CLINICAL INVESTIGATOR AWARD COMMITTEE CONTINUED

**Ann Partridge, MD, MPH**  
Vice Chair of Medical Oncology  
Founder and Director,  
Program for Young Women  
with Breast Cancer  
Director, Adult Survivorship Program  
Eric P. Winder, MD, Chair in  
Breast Cancer Research  
Dana-Farber Cancer Institute  
Professor of Medicine  
Harvard Medical School  
BOSTON, MASSACHUSETTS

**Vered Stearns, MD, FASCO**  
Professor of Oncology  
Director, Women's Malignancies  
Disease Group  
Breast Cancer Research Chair  
in Oncology  
The Sidney Kimmel Comprehensive  
Cancer Center  
Johns Hopkins University  
BALTIMORE, MARYLAND

**Jedd D. Wolchok, MD, PhD**  
Meyer Director  
Sandra and Edward Meyer  
Cancer Center  
Weill Cornell Medicine  
NEW YORK, NEW YORK

**Kwok-Kin Wong, MD, PhD**  
Anne Murnick Cogan and  
David H. Cogan Professor  
of Oncology  
Department of Medicine  
Director, Division of Hematology  
and Medical Oncology  
Laura and Isaac Perlmutter  
Cancer Center  
NYU Langone Health  
NEW YORK, NEW YORK

**Sandra L. Wong, MD, MS**  
Chair and William N. and Bessie  
Allyn Professor of Surgery  
Senior Vice President,  
Surgical Service Line  
Dartmouth-Hitchcock  
Medical Center  
The Geisel School of Medicine  
at Dartmouth  
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DAMON RUNYON

CLINICAL INVESTIGATOR AWARD

CALIFORNIA

**Daniel J. Delitto, MD, PhD\***  
Pathogen sensing in fibroblasts  
restrains antitumor immunity in  
pancreatic cancer with Michael T.  
Longaker, MD, DSc, Stanford  
University, Stanford

**Anusha Kalbasi, MD**  
IL13Ra2 Chimeric Antigen  
Receptor (CAR) T cells for  
metastatic melanoma with  
Antoni Ribas, MD, PhD, and  
Christine Brown, PhD, University  
of California, Los Angeles

**David Y. Oh, MD, PhD**  
Co-receptors modulating anti-  
tumor activity of human  
cytotoxic CD4+ effector cells with  
Lawrence Fong, MD, University  
of California, San Francisco

**Melody Smith, MD\***  
Regulatory mechanisms of the  
intestinal microbiome on chimeric  
antigen receptor T cells with  
Robert S. Negrin, MD,  
Stanford University, Stanford

MASSACHUSETTS

**Birgit Knoechel, MD, PhD**  
Mechanisms of CD8+ T-cell  
dysfunction and its therapeutic  
targeting in T-ALL with Kimberly  
Stegmaier, MD, and Catherine J.  
Wu, MD, Dana-Farber Cancer  
Institute, Boston

MICHIGAN

**Phillip L. Palmbo, MD, PhD**  
Targeting TRIM29 to reverse  
immune checkpoint inhibitor  
resistance in bladder cancer with  
Joshi J. Alumkal, MD, University  
of Michigan, Ann Arbor

**Daniel R. Wahl, MD, PhD**  
Targeting metabolic interactions in  
the glioblastoma microenvironment  
to overcome therapy resistance  
with Theodore S. Lawrence, MD,  
PhD, and Maria G. Castro, PhD,  
University of Michigan, Ann Arbor

MISSOURI

**Kelly L. Bolton, MD, PhD**  
The use of enasidenib in IDH2-  
mutated clonal cytopenia of  
undetermined significance with  
Matthew J. Walter, MD, and Eytan M.  
Stein, MD, Washington University  
School of Medicine, St. Louis

**Nathan Singh, MD\***  
**Bakewell Foundation  
Clinical Investigator**  
Tailored cellular engineering to  
overcome costimulation-driven  
CAR T cell dysfunction with John F.  
DiPersio, MD, PhD, Washington  
University, St. Louis



DAMON RUNYON CLINICAL INVESTIGATOR AWARD CONTINUED

NEW YORK

**Aaron D. Viny, MD\***  
**Damon Runyon-Doris Duke Clinical Investigator**  
Epigenetic coupling of DNA methylation and chromatin structure on leukemic transformation and therapeutic response with Emmanuelle Passegué, PhD, and Joseph G. Jurcic, MD, Columbia University, New York

NORTH CAROLINA

**Yvonne M. Mowery, MD, PhD**  
Evaluating and targeting pathways of treatment resistance in head and neck squamous cell carcinoma with David G. Kirsch, MD, PhD, Duke University, Durham

PENNSYLVANIA

**Alexander C. Huang, MD**  
**Damon Runyon-Doris Duke Clinical Investigator**  
Shared antigen and neoantigen-specific T cells in checkpoint blockade efficacy and toxicity with Gerald P. Linette, MD, PhD, University of Pennsylvania, Philadelphia

TEXAS

**Todd A. Aguilera, MD, PhD**  
Immunologic responses to short course radiotherapy in rectal adenocarcinoma and the impact of CD40 agonist immunotherapy with Robert D. Timmerman, MD, University of Texas Southwestern Medical Center, Dallas

**Xiuning Le, MD, PhD\***  
Structure- and lineage-based classification and targeting of resistance in EGFR-mutant NSCLC with John V. Heymach, MD, PhD, University of Texas MD Anderson Cancer Center, Houston

**Sangeetha M. Reddy, MD**  
**Katelyn Shea Butts Memorial Research Award/William Raveis Charitable Fund Clinical Investigator**  
Multi-modality approach to enhancing antigen presentation in breast cancers with Zhijian (James) Chen, PhD, and Hans Hammers, MD, PhD, University of Texas Southwestern Medical Center, Dallas

*\*Initial Year*

DAMON RUNYON

CLINICAL INVESTIGATOR AWARD CONTINUATION GRANT

CALIFORNIA

**Collin M. Blakely, MD, PhD**  
Mechanisms of incomplete response and primary resistance to the 3rd generation EGFR inhibitor osimertinib in lung cancer with Trevor G. Bivona, MD, PhD, University of California, San Francisco

**Kavita Y. Sarin, MD, PhD\***  
**D.G. “Mitch” Mitchell Clinical Investigator**  
Genetic contributions and novel therapies for individuals with frequent basal cell cancer with Jean Y. Tang, MD, PhD, and Anthony E. Oro, MD, PhD, Stanford University, Stanford

**Catherine C. Smith, MD**  
**Richard Lumsden Foundation Clinical Investigator**  
RNA Polymerase II as therapeutic target in AML with RAS activation with Neil P. Shah, MD, PhD, and Kevin M. Shannon, MD, University of California, San Francisco

MASSACHUSETTS

**Matthew G. Oser, MD, PhD\***  
Dissecting and therapeutically exploiting synthetic lethality between NOTCH and TRIM28 to drive anti-tumor immunity in SCLC with William G. Kaelin, Jr., MD, Dana-Farber Cancer Institute, Boston

PENNSYLVANIA

**Jennifer M. Kalish, MD, PhD\***  
Epigenetic and genetic mechanisms of cancer in Beckwith-Wiedemann Syndrome with Marisa S. Bartolomei, PhD, and Garrett M. Brodeur, MD, Children's Hospital of Philadelphia, Philadelphia

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DAMON RUNYON-RACHLEFF

# INNOVATION AWARD

CALIFORNIA

**Danielle Grotjahn, PhD**  
**Nadia's Gift Foundation Innovator**  
Uncovering structural mechanisms of mitochondrial fragmentation in cancer by cellular cryoelectron tomography at Scripps Research, La Jolla

COLORADO

**Sabrina L. Spencer, PhD**  
Causes and consequences of rapid cancer cell adaptation to MAPK pathway inhibitors at University of Colorado Boulder, Boulder

CONNECTICUT

**Luisa F. Escobar-Hoyos, PhD**  
**William Raveis Charitable Fund Innovator**  
Understanding RNA splicing in tumor-cell adaptation and anti-tumor immunity at Yale University School of Medicine, New Haven

**Mandar D. Muzumdar, MD**  
Targeting endocrine-exocrine signaling in pancreatic ductal adenocarcinoma progression at Yale University School of Medicine, New Haven

ILLINOIS

**Joshua A. Weinstein, PhD**  
A novel DNA microscopy platform for rapid discovery of immunogenic tumor neoantigens at The University of Chicago, Chicago

MARYLAND

**Jamie B. Spangler, PhD\***  
Engineered multispecific down-regulating antibodies to advance cancer immunotherapy at Johns Hopkins University, Baltimore

MASSACHUSETTS

**Nora Kory, PhD\***  
Targeting mitochondrial transporters in cancer at Harvard T.H. Chan School of Public Health, Boston

**Srinivas R. Viswanathan, MD, PhD\***  
X marks the spot: exploring how X-chromosome alterations drive sex differences in cancer at Dana-Farber Cancer Institute, Boston

NEW YORK

**Santosha A. Vardhana, MD, PhD, and Ekaterina V. Vinogradova, PhD\***  
Investigating and targeting T cell exhaustion in solid tumors at Memorial Sloan Kettering Cancer Center/The Rockefeller University, New York

PENNSYLVANIA

**Chengcheng Jin, PhD\***  
Investigating neuro-immune interaction in lung cancer at University of Pennsylvania, Philadelphia

*\*Initial Year*

DAMON RUNYON-RACHLEFF

# INNOVATION AWARD STAGE 2 FUNDING

MASSACHUSETTS

**Michael E. Birnbaum, PhD\***  
Decoding and reprogramming tumor-infiltrating T cells by pMHC-targeted lentiviruses at Massachusetts Institute of Technology, Cambridge

**Brian B. Liau, PhD\***  
Investigating allosteric mechanisms regulating DNA methyltransferase enzymes at Harvard University, Cambridge

**Alexandra-Chloé Villani, PhD**  
Deciphering the Achilles' heel of cancer immunotherapy at Massachusetts General Hospital, Boston

NEW YORK

**Michael E. Pacold, MD, PhD\***  
Tracing molecular oxygen in pancreatic cancer at NYU Langone Health, New York

**Elli Papaemmanuil, PhD\***  
Leveraging multi-modal genome profiling approaches to study disease initiation, progression, and response to therapy in TP53 mutated myeloid neoplasms at Memorial Sloan Kettering Cancer Center, New York

TEXAS

**Xiaochun Li, PhD**  
Investigation of Hedgehog and Wnt signaling mechanisms at University of Texas Southwestern Medical Center, Dallas

*\*Initial Year*

# THANK YOU TO OUR DONORS

Your support this year enabled us to invest nearly **\$18.8 million** in exceptional young scientists working across research disciplines to better prevent, diagnose, and treat all forms of cancer. Since our founding in 1946, in partnership with donors across the nation, the Damon Runyon Cancer Research Foundation has invested over **\$430 million** and funded nearly **3,950 scientists**.

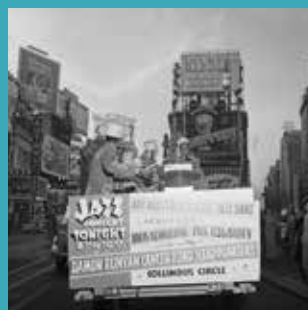
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We are grateful to our individual and corporate sponsors who have partnered with us to launch new programs or are funding one or more of our scientists. Donors can choose to fund scientists based on location, institution, research focus, or cancer type, and the award can be named in recognition of their gift. For more information, visit: [damonrunyon.org/get-involved/sponsor](https://damonrunyon.org/get-involved/sponsor).

**Award sponsors are listed on pages 50 – 52.**

## DAMON RUNYON BROADWAY TICKETS

Damon Runyon Broadway Tickets offers premium seats to all of Broadway's hit shows. We are grateful to the Shubert Organization, Nederlander Productions, Jujamcyn Theaters, and Disney Theatrical Productions for making this program possible. This year we would like to extend special thanks to our Premier Circle members for their ongoing support of our efforts to end cancer. We rely on the proceeds from Damon Runyon Broadway Tickets to fund our brilliant scientists, and thank our donors for their loyalty.



**TO LEARN MORE ABOUT DAMON RUNYON BROADWAY TICKETS AND PURCHASE TICKETS AND GIFT CERTIFICATES ONLINE, PLEASE VISIT [DAMONRUNYON.ORG/BROADWAY](https://damonrunyon.org/broadway).**

## 2022 EVENTS



### 75TH ANNIVERSARY DINNER

Damon Runyon celebrated 75 years of funding cancer research at Gotham Hall in New York on June 1. The event raised nearly \$1 million to support our scientists and honored Walter Isaacson, author and Professor of History at Tulane University, for his illustrious career chronicling scientific innovation. Former Damon Runyon Fellow and current Board Member Elaine Fuchs, PhD, the Rebecca C. Lancefield Professor of Mammalian Cell Biology and Development at The Rockefeller University, was the event's featured scientific speaker.



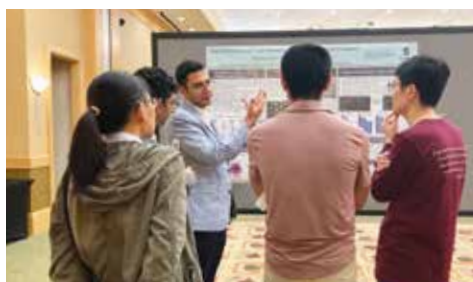
### RUNYON 5K AT YANKEE STADIUM

On September 29, Damon Runyon was thrilled to host the Runyon 5K in person at Yankee Stadium for the first time in three years. Nearly 800 participants experienced the unique course under the lights on a beautiful fall evening and helped contribute to over \$295,000 raised in support of innovative cancer research. The 2022 Runyon 5K was presented by MetLife Foundation, with additional support from Impossible Foods, Captain Lawrence Brewing Company, LMNT, RIND Snacks, Dot's Pretzels, New York Post, SiriusXM, and the Boogie Down Bronx Runners.



### RAVEIS RIDE + WALK

The William Raveis Charitable Fund hosted its eighth annual Raveis Ride + Walk on September 18 at Calf Pasture Beach in Norwalk, Connecticut. Since 2015, the Ride + Walk has raised over \$3.5 million for Damon Runyon scientists. We are grateful to the entire Raveis community for their partnership and support.



### ANNUAL FELLOWS' RETREAT

Every September, our first- and third-year Fellows gather to present their research, offer each other feedback, and learn from accomplished senior scientists. We were delighted to gather in person again this year in Southbridge, Massachusetts, where discussions ranged in topic from genetically engineered gut bacteria to strategies for a successful postdoc career. Among the Retreat's many highlights was the presentation of the Damon Runyon-Jake Wetchler Award for Pediatric Innovation to Sohn Fellow Anand G. Patel, MD, PhD, of St. Jude Children's Research Hospital.



# SPONSORED AWARDS

We thank our individual, foundation, and corporate sponsors who have partnered with us to launch or provide continuing support for specific award programs.

## DAMON RUNYON-RACHLEFF INNOVATION AWARDS

This award was established thanks to the vision and generosity of Debbie and Andy Rachleff.

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## WILLIAM RAVEIS CHARITABLE FUND INNOVATOR

**Luisa F. Escobar-Hoyos, PhD**  
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## CLINICAL INVESTIGATOR AWARDS

This award was initially established in partnership with Eli Lilly and Company. In addition to the named awards, it is supported by Accelerating Cancer Cures, a collaboration between Damon Runyon and leading biopharmaceutical companies.

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## D.G. "MITCH" MITCHELL CLINICAL INVESTIGATOR

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## KATELYN SHEA BUTTS MEMORIAL RESEARCH AWARD/ WILLIAM RAVEIS CHARITABLE FUND CLINICAL INVESTIGATOR

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University of Texas  
Southwestern Medical Center

## RICHARD LUMSDEN FOUNDATION CLINICAL INVESTIGATOR

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The following awards are funded by donors who have generously endowed an award in perpetuity or sponsored an individual Fellow.

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PHYSICIAN-SCIENTIST  
TRAINING AWARDS

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Massachusetts General Hospital

DAMON RUNYON-JAKE  
WETCHLER AWARD FOR  
PEDIATRIC INNOVATION

This \$5,000 award is named in  
honor of Jake Wetchler, who  
died at age 20 after a heroic fight  
against two different cancers.

**Anand G. Patel, MD, PhD**  
St. Jude Children's  
Research Hospital

\*In perpetuity

A background image showing a microscopic view of cells, possibly cancer cells, with a teal overlay. The cells are irregular in shape and have prominent nuclei. The teal color is a solid, medium-toned blue-green.

**“Damon Runyon puts its money  
where its mouth is. And that has  
paid huge dividends in science.”**

**MATTHEW G. VANDER HEIDEN, MD, PhD**

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FELLOWSHIP AWARD COMMITTEE MEMBER '15 – '19

PHYSICIAN-SCIENTIST TRAINING AWARD COMMITTEE MEMBER

DIRECTOR, KOCH INSTITUTE FOR INTEGRATIVE CANCER RESEARCH AT MIT

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Accelerating Cancer Cures is supported by leading biopharmaceutical companies committed to finding new cures for cancer. Thank you to Genentech, Merck, Amgen, and Novartis for partnering with us to support the Damon Runyon Clinical Investigator Award.



In conjunction with this initiative, the Accelerating Cancer Cures Research Symposium brings together our translational researchers with industry leaders to foster communication and collaboration to help speed progress against cancer. The Accelerating Cancer Cures Research Symposium was held on May 19, 2022 at Merck’s headquarters in South San Francisco. The agenda featured scientific presentations from current Damon Runyon Clinical Investigators and Physician-Scientists, a keynote, and a roundtable discussion among scientists from Merck, Dana-Farber Cancer Institute, Stanford University, Amgen, and Gilead.

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The Broadway Premier Circle is a group of loyal Damon Runyon Broadway Tickets customers who have made a special donation in support of cancer research. The Premier Circle offers members priority access to tickets and other benefits.

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# FINANCIAL SUMMARY

## FISCAL YEAR 2022

As in previous years, the financial activities of the Damon Runyon Cancer Research Foundation were audited by RMS US LLP. Below is a snapshot of FY2022.

For our complete audited financial statements, please visit our website at [damonrunyon.org](https://damonrunyon.org)

TOTAL REVENUE



- Investment Return 56.6%
- Contributions 36.2%
- Misc. Income 4.0%
- Bequests & Trusts 2.6%
- Damon Runyon Broadway Tickets 0.6%

TOTAL OPERATING EXPENSES



- Award Programs 86.7%
- Fundraising 9.6%
- General Administration 3.7%

### SUMMARY OF BALANCE SHEETS

	2021	2022
Total Assets	\$175,580,654	\$143,543,813
Total Liabilities	\$32,562,162	\$31,902,382
Total Net Assets	\$143,018,485	\$111,641,431



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