



# 2023 Impact Report



## Thanks to You, We're Seeing Change

12 Years of Partnership with Northwestern Mutual

Improving the lives of children with cancer and their families through financial support, volunteerism and collaboration with partners to build stronger communities.



# Receiving the Best Medicine

## (Besides Laughter)

### Six-year-old Arden is a giggle machine.

Ask her anything – her favorite color, her favorite thing about school, her favorite dance moves – the response is a giggle and a bright, beautiful smile that lights up her face.

And Arden has every reason to be giggly: she is celebrating three years of no evidence of disease after fighting childhood cancer.

It started with a stomach bug. At just 16 months old, Arden developed a series of low-grade fevers that had her daycare calling her parents continuously for two weeks. Arden's pediatrician took a second look and thought her spleen had enlarged. Arden was brought straight to the pediatric ER, where she had an ultrasound.

The images on the screen didn't look right. Arden's bloodwork came back abnormal. She was transported via ambulance to Children's Hospital of Philadelphia in the middle of the night, where she received an MRI. Arden had neuroblastoma.

The days that followed were a whirlwind of tests and treatment planning. While celebrating all the little miracles they could, Arden's family heard of a promising clinical trial led by ALSF-funded researcher Dr. Yael Mossé. Arden was a potential match, but needed more testing to determine if the trial was right for her. When testing revealed that Arden had high-risk neuroblastoma with the ALK mutation, she met the criteria to enroll in the trial. And it worked.

The treatment lasted more than three years, and as the final portion of her treatment, Arden completed taking a year of the trial drug, lorlatinib, in May 2023. In September that same year, Arden again celebrated having "No Evidence of Disease" thanks to this trial, and the research that led to it.

Someday, giggly Arden wants to spread her joy and help people, the way she was helped.

“If it weren't for Alex, there wouldn't be any Ardens.”

- Megan, Arden's mom



## To our friends at Northwestern Mutual,

Your generous support means the world to kids fighting cancer, scientists finding cures, and us. So many promising research directions, treatments, support options for families, and more are possible today because you have been giving back every step of the way. We could never thank you enough for that.

From funding grants, to sponsoring special events, to balancing lemons on your heads and more, these steps have made a difference. We see how your creativity and dedication are changing the future for kids with cancer and want you to see it too. Thank you for all you do.

Gratefully,



### **Liz and Jay Scott**

Alex's Parents & Co-Executive Directors  
Alex's Lemonade Stand Foundation



## About ALSF

Alex's Lemonade Stand Foundation (ALSF) emerged from the front yard lemonade stand of 4-year-old Alexandra "Alex" Scott, who was fighting cancer and wanted to raise money to find cures for all children with cancer. By the time Alex passed away at the age of 8, she had raised \$1 million. Since then, the Foundation bearing her name has evolved into a worldwide fundraising movement and the largest independent childhood cancer charity in the U.S. ALSF is a leader in funding pediatric cancer research projects across the globe and providing programs to families affected by childhood cancer.





## **12 Years of Partnership, 12 Years of Impact** (Est. 2012)



**\$32+ Million  
Contributed By  
Northwestern  
Mutual Since 2012**



**\$3.5+ Million  
Contributed By  
Northwestern  
Mutual in 2023**



**Over 380 Research Grants Supported**  
(16 Co-Funded Grants Awarded in 2023)



**More Than  
600,000 Research  
Hours Funded**



**12 Young  
Investigators  
Summits  
Supported**



**Founding Partner of the  
Data Lab, Young Investigator  
Summit and Crazy 8 Initiative**





# Funding Areas **Since 2012...**

**69 POST Grants**

**46 Young Investigator Grants**

**6 Crazy 8 Awards**

**11 Innovation Grants**

**12 Research Catalysts**

**3 Phase I/II Infrastructure Grants**

**6 Psychosocial Family Impact Grants**

**1 Reach Grant**

**1 'A' Award Grant**

**1 R Accelerated Grant**

**1 Bio-Therapeutics Impact Grant**

**2 Epidemiology Grants**

**213 Research Equipment Grants**

**13 Young Investigator Resource  
Sharing Awards**

**21 Young Investigator Shark Tank Awards**







# Paving the Path to Discover More Cures

Your dedication to advancing childhood cancer research is making the future brighter for children with cancer and pediatric cancer researchers alike. **In the last 12 years, Northwestern Mutual's support of research grants from early career scientists bringing new ideas to translating promising discoveries into clinical trials has made an amazing impact for families affected by childhood cancer.**

Kids diagnosed today have more, safer treatment options available to them thanks to the research you've helped fund. Here's a snapshot of how you've supported researchers searching for breakthroughs.

## Jessica Tsai, MD/PhD

### 2020 Young Investigator Grantee

When Dr. Jessica Tsai first received her Young Investigator Grant in 2020, she was working at the Dana-Farber Cancer Institute in Boston. The grant fueled her research on FOXR2, a mutated gene that is thought to drive the development of several human cancers. One is a largely incurable pediatric brain cancer called diffuse intrinsic pontine glioma (DIPG). The work centers around discovering how FOXR2 makes DIPGs grow and how to therapeutically target the gene to stop it from becoming DIPG. DIPG tumors mix with healthy tissue in the brain, making them inoperable, unstoppable, and deadly; only 10% of children live more than two years after diagnosis. Dr. Tsai recognizes the significant need to develop therapeutic strategies that improve the outcome and quality of life for children with DIPG. She is opening her own lab in Los Angeles to continue the important research the Young Investigator Grant helped her start.



## Lia Gore, MD

### *2013 Infrastructure Grantee*

In 2006, Dr. Lia Gore received one of our earliest grants to support the then-new Experimental Therapeutics Program at her hospital in Denver. The program sought to give children with little hope and even fewer childhood cancer treatment options access to cutting-edge treatments. A case file for a 3-year-old girl with relapsed cancer crossed Dr. Gore's desk. The girl had exhausted both standard and experimental treatments. Her family was desperate. Dr. Gore enrolled the girl in a Phase I study. Two weeks later, she was in complete remission. In 2013, Dr. Gore received an Infrastructure Grant co-funded by Northwestern Mutual. This allowed her to continue researching new treatments and providing access to more clinical trials for children in need of more options. Still a pediatric oncologist, Dr. Gore has shifted her focus to developing programs, mentoring other oncologists, and collaborating on large-scale initiatives in the childhood cancer space.



## Elias Sayour, MD/PhD

### *2022 'R' Accelerated Grantee*

Dr. Elias Sayour is a pediatric oncologist and Associate Professor of Neurosurgery and Pediatrics at the University of Florida Health. In 2022, Dr. Sayour received our 'R' Accelerated Award that was co-funded by Northwestern Mutual. This allowed him to further the development of a groundbreaking therapy that strengthens the immune response against glioblastoma, a cancer that only 5% of people can live more than five years with. The treatment involves taking part of someone's own tumor and putting it in a vaccine. Early results showed the immune system was successfully reprogrammed to attack the tumor, and they are now starting a clinical trial. Dr. Sayour hopes to study this breakthrough in a larger group of kids and adults in the near future.



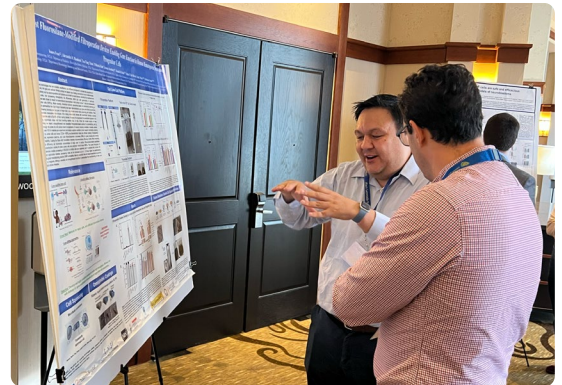




## Young Investigator Summit

**In 2012, Northwestern Mutual approached us with the proposal for a unique symposium: one that would offer new research grantees the opportunity to meet other grantees, explore scientific collaboration, forge new relationships and interact with some of the leading researchers in the pediatric oncology field.** The first Young Investigator Summit was held in October 2012 at Texas Children's Hospital in Houston, and has since been held in several cities across the country, including Milwaukee, Chicago, Los Angeles and Philadelphia. Hundreds of ALSF-funded scientists have been invited to share their findings and accelerate the search for pediatric cures. This fall, the Young Investigator Summit is celebrating its 12th year and will once again be held at Northwestern Mutual's Headquarters in Milwaukee, WI.

This annual summit is a success thanks to you, and a true testament to Northwestern Mutual's commitment to finding a cure for all childhood cancers.



“This summit is bringing together so many young people, many of which will be your colleagues for the next 10, 20, 50 years maybe. So, this small scale format allows you to meet people, get to know them personally.”

— 2018 Young Investigator Grantee, Nick van Gastel, PhD

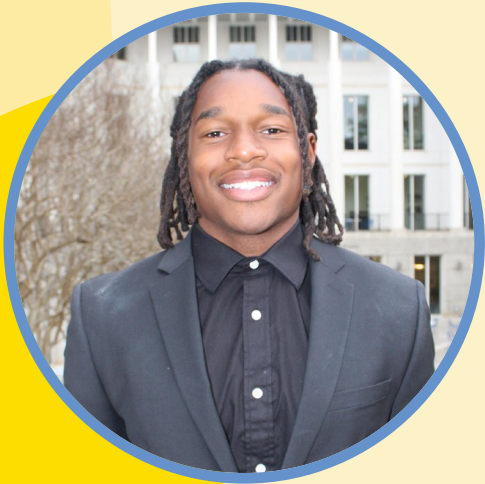




POST grantee  
Reba Manicheril



POST grantee  
Nerea Goni



POST grantee  
Paul Saah

# Fueling Future Scientists

## From the Very Start

Students interested in pediatric oncology research have the chance to experience the field firsthand as part of our Pediatric Oncology Student Training (POST) program. In partnership with Northwestern Mutual, the POST program was redesigned in 2021 to provide opportunities for underrepresented racial and ethnic groups to pursue paid internships in the scientific workforce. **With nearly 75 POST grants co-funded by Northwestern Mutual over the years, your impact is giving budding researchers a chance to start paving their own path toward cures for more pediatric cancers.**

After receiving a Wilms tumor diagnosis when she was 5 years old, **Reba Manicheril** knows the intricacies of survivorship firsthand. This year, she was awarded a POST grant to conduct research at Children’s Hospital of Philadelphia in “Addressing Health Disparities in Childhood Cancer Survivorship Care” under the mentorship of Dr. Lisa Schwartz. To better understand disparities in survivorship care, healthcare utilization and health outcomes, their team is developing and testing intervention methods to re-engage survivors.

**Nerea Goni** received her POST award to study retinoblastoma – the most common pediatric eye cancer – under the guidance of Dr. Jesse Berry at Children’s Hospital Los Angeles. At the age of 3, Nerea lost her left eye to this very cancer, but now, her research is trying to prevent other kids from experiencing the same things she did. Her project focuses on identifying effects of genomic changes in retinoblastoma using a liquid biopsy, with the end goal of improving the quality of a child’s prognosis and treatment.

**Paul Saah** is using his POST grant to focus on the incidence and grades of adverse events during treatment for pediatric acute lymphoblastic leukemia at Emory University with the help of his mentor, Dr. Tamara Miller. In high school, Paul witnessed one of his soccer teammates struggle to return to the field because of the side effects from chemotherapy while fighting Hodgkin lymphoma. Now, Paul aims to improve understanding of the risks and management of toxicity during chemotherapy by utilizing data to describe the incidence and severity of such toxicities in kids with cancer.

# Closing the Distance to **Cures**

Thanks to the yearly efforts made by Northwestern Mutual, families have access to potentially life-saving treatment for their child no matter where it is. When a devastating childhood cancer diagnosis is made and initial treatments aren't effective, the best option available to a child might be far from home. **Northwestern Mutual has supported our Travel For Care program since its inception, which provides financial aid to these families so they can reach the therapies and clinical trials they need. It is there to help kids like Seth.**

Seth is a resilient fighter. He is spunky and can be friends with anyone. He never misses a social event, even when battling cancer!

Before Seth's diagnosis, his parents noticed he had a rash that caused them concern. Not long after, doctors said Seth had acute lymphoblastic leukemia and he began treatment. This meant two CAR T-cell therapies, two bone marrow transplants, a clinical trial, four relapses and countless trips out-of-state.

When Seth had to leave his home in Kentucky for treatment, the Travel For Care program was there to relieve the family's financial burden. His main hospital was in Ohio, and he had to go to Philadelphia more than ten times. Because of your support for the Travel For Care program, Seth was able to access the treatment that brought him to remission.

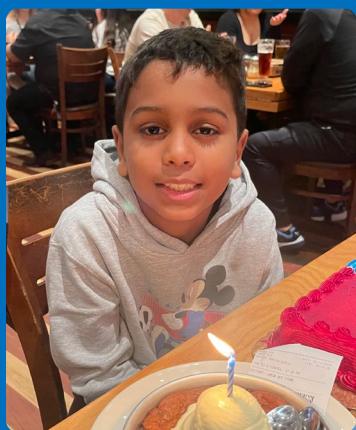
Seth's family could not be prouder of how brave their little fighter is. Seth loves hosting his own lemonade stands so that programs like Travel For Care can keep helping other kids like him.

“ALSF means that any family that is in need can receive support.” — Michelle, Seth's mom



“Don't give up, keep fighting.”

—Inspiring words from childhood cancer hero Seth



## Thank You for Helping Our Heroes

Today, childhood cancer hero Marcel continues to be in remission thanks to the support his family received from the Travel For Care program.

“Without that support, we would have to worry about how we would get to clinic visits and treatments... We had bigger things to worry about, like Marcel's reaction to chemo.” — Ana, Marcel's mom



# Thank you for being a Founding Partner of The Crazy 8 Initiative!



Above, teams funded through our Crazy 8 Grants traveled from all over the world to gather in Philadelphia in April 2024 to share progress on their projects, collaborate, and make valuable connections.

“The Crazy 8 grants brought people together, motivating all of us to be part of a bigger effort.” — Dr. Alejandro Sweet-Cordero, lead of “Understanding and Inhibiting Mechanisms of Metastatic Spread in Osteosarcoma” Crazy 8 Project

## Updates from our Largest, Most Ambitious Childhood Cancer Research Grants

In 2020, we launched our largest, most ambitious grant category ever — the Crazy 8 Initiative. More than just a funding source, the Crazy 8 is our answer to how to cure the (so far) incurable childhood cancers. The Crazy 8 Initiative brings together multidisciplinary teams from all the around the world to study, collaborate, and ultimately make breakthroughs in the search for cures for the deadliest childhood cancers. They meet monthly over Zoom, travel to one another’s labs, and also gather each year in Philadelphia to problem solve and share progress and technology.

Together, these scientists are making a difference, one incredible discovery at a time. **As a Founding Partner of the Crazy 8 Initiative, Northwestern Mutual has sparked amazing advancements for these researchers to pursue cures for all kids with cancer.**

Four years into their work, our six inaugural Crazy 8 teams have made landmark progress in their projects and they aren’t stopping there.





*Dr. Leonard Zon at the 2024 Crazy 8 Summit*

- 1** From his lab at St. Anna Children’s Cancer Research Institute in Austria, **Heinrich Kovar, PhD**, is leading the Crazy 8 project studying Ewing sarcoma. His team has had exciting success using Zebrafish models to find the types of cells that are susceptible to becoming cancer. The team is working to establish an atlas that charts human cell development as it relates to bone sarcoma development, to help better understand when normal cells become sarcoma.
- 2** The holy grail of cancer targets, MYCN, has long been considered undruggable and also an indicator of poor outcomes when it is found in neuroblastoma and medulloblastoma tumors. But, **Yael Mossé, MD**, from Children’s Hospital of Philadelphia and her international team is working to change that. The team developed hybrid molecules that can specifically attach to MYCN and trick the cancer cells’ own internal machinery to dissolve MYCN, which will lead to cancer cell death. Also exciting: Dr. Mossé and her team were recently awarded a \$25 million grant funded through Cancer Research UK, Institut National Du Cancer and KiKa (Children Cancer Free Foundation) through Cancer Grand Challenges, a UK-based initiative, to expand their research to other pediatric cancers.
- 3** The team co-led by **Leonard Zon, MD, (Boston Children’s Hospital) and Ross Levine, MD, (Memorial Sloan Kettering Cancer Center)** is using cellular barcoding to trace leukemia back to its roots — to find the moment a normal blood cell turns into a cancerous blood cell and then develop targeted, less toxic therapies. The team has already made significant discoveries which have led to high-impact publications in *Cell* and *Nature*, further expanding the body of knowledge and continuing to push pediatric leukemia research forward. The team, which spans from Washington to Boston to Switzerland, has also developed and distributed a novel genetic model of leukemia that enables researchers to use barcoding in lab experiments efficiently and cost-effectively. The model has been distributed to more than 15 investigators and also deposited in the Jackson Labs repository, ensuring even more access to this breakthrough model.

As the project continues, they’ve turned their focus to recruiting kids with leukemia to the study, sequencing their cancer, and validating those results with lab models. The end goal isn’t just a better understanding of leukemia origins, it’s better treatments and cures. **“The patients are the motivation. We need to do better,”** said Dr. Zon.





*Dr. Yael Mossé in her lab*

**4** Glue sounds like an unlikely tool for a pediatric oncology researcher. But for **Charles Mullighan, MBBS (Hons), MSc, MD, from St. Jude Children’s Research Hospital** and his Crazy 8 project team, molecular glue offers the promise for effective treatments and cures for children with brain tumors and leukemia. Working together across expertise and disciplines, Dr. Mullighan’s team has designed a collection of several thousands of molecular glues that have the potential to degrade cancer cells. Those glues were screened across a panel of leukemia and medulloblastoma cell lines, resulting in the identification of several potential glues that could stop tumors in experimental models.

**5** For kids with osteosarcoma, one of the most common types of bone cancer, treatments haven’t changed much in decades. Treatments can be effective, but if the disease spreads, the chance of remission lessens significantly. **Rani George, MD/PhD, from Dana-Farber Cancer Institute**, leads the Crazy 8 team working to understand gene behavior in osteosarcoma to better understand the steps that happen to change osteosarcoma from a localized bone tumor to a deadly lung tumor. On her multi-disciplinary team is Ruben Dries, PhD, who is utilizing a technology called spatial biology to study the organization and structure of single cells of cancer to map out specific connections that lead to the spread of cancer to the lung.

**6** **Alejandro Sweet-Cordero, MD, leads an international team that is also studying osteosarcoma**, but with a different approach. Osteosarcoma is extremely heterogenous — meaning that within a tumor no two cells are alike. This makes treatment difficult; because some cells may respond to therapy and others may not.

By using new technology developed by team member Dr. Ana Obenauf, the team will identify and isolate osteosarcoma cells with increased resistance to therapy or increased ability to form metastasis, enabling early intervention that will change the fight against osteosarcoma. His team includes researchers from four different institutions with specialties in molecular pathology and oncology.

**“I am a young dad. It’s heartbreaking to know the stories of kids who have so much potential, but then don’t get the opportunity.”**  
— Dr. Ruben Dries

# Thank you for being a Founding Partner of the Data Lab!

## Empowering Pediatric Cancer Experts Poised for the Next Discovery to Help Kids

We started the Childhood Cancer Data Lab in 2017 to address the hurdles that slow down the pace of researchers in their search for new treatments to help kids with cancer. Massive amounts of data is publicly available, but collecting, sharing and utilizing it can be challenging. The Data Lab's goal is to put resources and knowledge in the hands of pediatric cancer experts to accelerate the pace of finding cures. **Northwestern Mutual is a Founding Partner of the Data Lab, and has made it possible for us to create unprecedented resources and train hundreds of researchers in this community so they can help more kids.**

### Training Workshops

Our Data Lab holds training workshops that teach childhood cancer researchers how to better examine their data. These skills help them pursue projects with the highest potential to help kids fighting cancer. Past workshops have been hosted at Northwestern Mutual offices in Houston and Chicago!

Over the past year, the Data Lab has trained 90 researchers on topics including single-cell RNA-Sequencing and reproducible research practices. They also developed a new course requested by researchers from The Center for Data-Driven Discovery in Biomedicine at Children's Hospital of Philadelphia. It covered working collaboratively on analytical code and project management. The content was based on the Data Lab's expertise in setting up data-intensive research for success and tailored to meet the specific needs of the training group. It will be repurposed for broader audiences in the future.



### Single-cell Pediatric Cancer Atlas (ScPCA)

The ScPCA Portal is a growing database of uniformly processed single-cell data from pediatric cancer tumors and model systems. Currently, it contains data from 518 samples representing 50 pediatric cancer types. As of April 2024, the ScPCA manuscript is available on *bioRxiv*, a widely used preprint server.

Initially, all data on the Portal were generated from projects funded by ALSF. To expand the ScPCA in a cost-effective way, the Data Lab has made it possible for other researchers to share their existing single-cell data on the Portal. In 2023, they launched a call for submissions from the pediatric cancer research community and have since added two community-contributed datasets. Eligible contributors received small one-time grants to be used for childhood cancer research.







*Data Lab training workshop*

## **Open Single-cell Pediatric Cancer Atlas (OpenScPCA)**

Our Data Lab knows from training hundreds of researchers in analysis that making data available is not enough to change the future for children with cancer. Over 300 users have downloaded datasets from the ScPCA Portal, but they must be able to use this information to answer their scientific questions. In 2024, the Data Lab launched OpenScPCA, a collaborative project to analyze and improve the utility of the ScPCA data. It uses an open contribution model designed to allow experts worldwide to contribute and rapidly share results in real-time.

OpenScPCA is built on the success of previous Data Lab endeavors. They have already completed a project with a similar model called the Open Pediatric Brain Tumor Atlas. Over 60 collaborators from across the world openly analyzed and improved the data from 1,000 pediatric brain tumors. This work was published in *Cell Genomics* in 2023.

Through ScPCA, the Data Lab has learned that small grants effectively incentivize researchers interested in sharing. To motivate OpenScPCA collaborators and help sustain their engagement, they will implement a system of grants for completing analyses. Collaborators will develop transferable skills and learn to use powerful tooling for reproducible research and software development.

The Data Lab successfully obtained a grant from Amazon Web Services to set up infrastructure to give collaborators access to high-performance computing. Recently, the Data Lab used training material they previously developed in another workshop designed to onboard potential OpenScPCA contributors, another key step in the Data Lab's goal of helping researchers accelerate their path to new discoveries.

## **refine.bio**

refine.bio makes vast amounts of data immediately usable and openly available to researchers everywhere. Over 8,000 datasets have been processed for download, saving countless hours of researcher time that can be spent on helping discover new treatment opportunities for kids fighting cancer. The tutorial website, refine.bio examples, shortens the learning curve for users less familiar with the analyses on the site. Over 26,000 visitors accessed the examples in 2023.

**Epidemiology Grant**

**\$200,000 over two years**

These grants are designed to support the research of investigators who have a specific focus on the epidemiology, early detection, or the prevention of childhood cancer.

**Determining Social Risk Factors for Poor Outcomes in Pediatric Cancer Using Children’s Oncology Group Registries**

Anne Kirchhoff, Ph.D./MPH  
University of Utah  
2019 Grant

**Equipment Grants**

**Amount and timing may vary**

Closed grants specific to Northwestern Mutual, Equipment Grants are given to pediatric cancer researchers by local NM offices.

**Automatic Cell Counter— from Northwestern Mutual’s King of Prussia Office**

Yael Mosse, M.D.  
The Children’s Hospital of Philadelphia  
2017 Grant

**Centrifuge For Onsite DNA Sample Processing in Kenya— from Northwestern Mutual’s Indianapolis Office**

Terry Vik, M.D.  
Indiana University  
2017 Grant

**Compassion Fund— from Northwestern Mutual’s Des Moines Office**

Brenna Finnerty  
UnityPoint Health Foundation  
2017 Grant

**Computer for lab and gift cards for patient families in need— from Northwestern Mutual’s St. Louis Office**

Jeffrey Magee, M.D./Ph.D.  
Washington University  
2017 Grant

**Digital Mouse Stereotaxic Instruments— from Northwestern Mutual’s New York Office**

David Lyden, M.D./Ph.D.  
Weill Medical College of Cornell University  
2017 Grant

**Flow Hood— from Northwestern Mutual’s Middleton Office**

Paul Sondel, M.D./Ph.D.  
University of Wisconsin - Madison  
2017 Grant

**Four Infusion Chairs and a Mobile Phlebotomy Cart for New Clinic— from Northwestern Mutual’s St. Louis Office**

Todd Druley, M.D./Ph.D.  
Washington University School of Medicine  
2017 Grant

**High-Powered Lens for Fluorescent Microscope— from Northwestern Mutual’s Gainesville Office**

Catherine Flores, Ph.D.  
University of Florida  
2017 Grant

**New computer for lab and gas cards for families in need— from Northwestern Mutual’s Chicago Office**

Susan Cohn, M.D.  
University of Chicago  
2017 Grant

**Parking Vouchers for Patient Families— from Northwestern Mutual’s Albany Office**

Angie Silipigno, Certified Child Life Specialist,  
Albany Medical Center  
2017 Grant

**Patient Emergency Fund for Emergency Expenses— from Northwestern Mutual’s Fort Lauderdale Office**

Nancy Vidaurre, Joe DiMaggio Children’s Hospital Foundation  
2017 Grant

**Patient Emergency Fund for Emergency Expenses— from Northwestern Mutual’s Manchester Office**

Sharon Brown, Children’s Hospital at Dartmouth Hitchcock- DH Health  
2017 Grant

**PCR Machine and Multi-Channel Pipette— from Northwestern Mutual’s Columbus Office**

Kathleen Pishas, Ph.D.  
Research Institute at Nationwide Children’s Hospital  
2017 Grant

**Refrigerated Microcentrifuge and GoBlot Western Blot Processor— from Northwestern Mutual’s Milwaukee and Appleton Offices**

Nathan Schloemer, M.D.  
Children’s Hospital of Wisconsin  
2017 Grant

**Start-up funds for Pediatric Oncology support groups - from Northwestern Mutual’s Orlando Office**

Emily Owens Pickle, CCRP  
Arnold Palmer Children’s Hospital  
2017 Grant

**Thermomixer for Lab— from Northwestern Mutual’s Wellesley Office**

David Debruyne, Ph.D.  
Dana-Farber Cancer Institute  
2017 Grant

**Two Laptops and Patient Garden Shade— from Northwestern Mutual’s San Diego Office**

Paula M. Aristizabal, M.D.  
Rady Children’s Hospital  
2017 Grant

**Webinar equipment to connect various locations and gas cards for patient families— from Northwestern Mutual’s Leawood Office**

Tom Curran, Ph.D.  
Children’s Mercy Hospital  
2017 Grant

**Innovation Grants**

**\$250,000 over two years**

Innovation Grants are designed to provide critical and significant seed funding for experienced investigators with a novel and promising approach to finding causes and cures for childhood cancers.

**Ectopic Neurotrophin Signaling in Pediatric Glioblastoma**

Alex Shcheglovitov, Ph.D.  
University of Utah  
2023 Grant

**Blocking the Evil Messenger in MYCN-driven High-risk Neuroblastoma**

Hui Feng, M.D./Ph.D.  
Boston University  
2022 Grant

**Epigenetic Enhancement of MHC1 to Augment Neuroblastoma Immunotherapy**

Paul M. Sondel, M.D./Ph.D.  
University of Wisconsin - Madison  
2022 Grant

**Pediatric Osteosarcoma: Identifying the Elusive Molecular Signature and its Relationship to this Disease**

Linda Hendershot, Ph.D.  
St. Jude Children’s Research Hospital  
2019 Grant



**Nuclear Receptor Tyrosine Kinases Mediating Chromatin Remodeling & Checkpoint Adaptation**

Charles Keller, M.D.  
Children’s Cancer Therapy  
Development Institute  
2018 Grant

**RNA-ECS to quantify rare clonal RNA species at diagnosis, remission and relapse from the COG AAML1031 study**

Todd Druley, M.D./Ph.D.  
Washington University  
2018 Grant

**RNA methylation in metabolically disrupted pediatric cancers**

Patricia Dahia, M.D./Ph.D.  
University of Texas Health Science Center  
at San Antonio  
2018 Grant

**Targeting KDM6B in Pediatric Leukemia**

Grant Challen, Ph.D.  
Washington University  
2018 Grant

**Development of Mithramycin Analogs for Ewing Sarcoma**

Patrick Grohar, M.D./Ph.D.  
Van Andel Research University  
2017 Grant

**R Accelerated**

**\$800,000 over four years**

R Accelerated Grants provide funding for an original project focused on accelerating the discovery of a more effective therapy. Recipients must have previously received a pediatric cancer-focused R01 grant from the National Institutes of Health.

**Phase I Trial of Multilamellar mRNA Lipid Particles for Recurrent Pediatric High-Grade Glioma**

Elias Sayour, M.D./Ph.D.  
University of Florida  
2022 Grant

**Pediatric Oncology Student Training (POST) Grants**

**\$5,000 over a three-month period**

The Pediatric Oncology Student Training (POST) Program is designed for undergraduate, graduate and medical students who have an interest in pediatric oncology research and would like to experience the field first hand. Students train with a pediatric oncology research mentor.

**Effects of standardized, prospective Epstein-Barr virus (EBV)**

Maanasi Gothoskar, Children’s  
Hospital of Philadelphia  
2024 Grant

**Epigenetic Control of Cell State in Retinoid Resistant Neuroblastoma**

Sadhvi Sreeram, Dana-Farber Cancer Institute  
2024 Grant

**Identification of Phenotypic Effects of Genomic Changes in Retinoblastoma Tumors Using an Aqueous Humor Liquid Biopsy**

Nerea Goni, Children’s Hospital Los Angeles  
2024 Grant

**IL7 Signaling Enhanced CAR T Cells to Treat Pediatric Solid Tumors**

Haydee Rochits Cueto, Baylor  
College of Medicine  
2024 Grant

**Incidence and Grades of Adverse Events During Treatment for Pediatric Acute Lymphoblastic Leukemia**

Paul Saah, Emory University  
2024 Grant

**Exploring the role of TP53 mutations in the radioresistance of Diffuse Intrinsic Pontine Glioma (DIPG)**

Angelica Rivera-Martinez, University  
of Kentucky  
2023 Grant

**FGFR1 Alterations in Pediatric Gliomas**

Angela Deleon, Dana-Farber Cancer Institute  
2023 Grant

**Identification and Characterization of non-P53 Stress Pathways in Shwachman-Diamond Syndrome**

Amelie Cotta, The Cleveland Clinic  
2023 Grant

**Investigating the Role of the MYCN Oncogene in Regulating Chemokine Expression in Neuroblastoma**

Mykaela Salvacion, Children’s Hospital  
of Philadelphia  
2023 Grant

**Maternal Comorbid Conditions and the Risk of Pediatric Cancer**

Tobiloba Adanma Adenekan, University  
of North Texas  
2023 Grant

**Neuronal Regulation of Pediatric Brain Tumor Growth**

Lara Isabel Marco Y Marquez, Washington  
University School of Medicine  
2023 Grant

**Structural Rearrangement Signatures as Novel Biomarkers for Homologous Recombination Deficiency in Cancer**

Ahado Ali, Dana-Farber Cancer Institute  
2023 Grant

**Synthetic Gene Expression Regulatory Switch Engineered CAR T Cells for Children with Cancer**

Yaery Jazmin Salvador Lopez, Baylor College  
of Medicine  
2023 Grant

**Understanding the Association Between Genetic Polymorphisms and Adverse Events During Therapy for Acute Lymphoblastic Leukemia**

Jazmin Huerta, Emory University  
2023 Grant

**Using Rapid Protein Degradation to Determine the Effect of RUNX1 Loss-of-function on DNA Damage Accumulation and Repair**

Jackriell Pina Morales, Einstein Medicine  
2023 Grant

**Characterizing Therapeutic Vulnerabilities in Mismatch Repair Deficient Pediatric High-grade Gliomas**

Kitty-Anne Dubuisson, Dana-Farber Cancer  
Institute  
2022 Grant

**Defining Genetic Drivers Mutations, Clinic Characteristics & Outcomes in Children & Young Adults with Histiocytoses**

Christan Dillard-Ilboudo, Baylor  
College of Medicine  
2022 Grant

**Exploring the Immune Effects of Photodynamic Therapy Treatment on Diffuse Midline Glioma Progression**

Gabrielle Price, Icahn School of Medicine  
at Mount Sinai  
2022 Grant

**Families of Children with Advanced Cancer: The Impact of Social Determinants of Health**

Myanah Keys, Research Institute at Nationwide  
Children’s Hospital  
2022 Grant

**Financial Toxicity at End-of-Life and Beyond**

Ariel Alexander, University of Alabama at Birmingham  
2022 Grant

**IL15/TGF-beta Trap Fusokine for Treatment of Pediatric Sarcomas**

Brittany Russell, University of Wisconsin  
2022 Grant

**Patterns of Ewing Sarcoma Metastases in a Zebrafish Human Xenograft Model**

Jennifer Stiene, The Cleveland Clinic  
2022 Grant

**The Interplay Between DNA Damage and Histone Mutations in Pediatric Gliomas**

Annarah Charles, Dana-Farber Cancer Institute  
2022 Grant

**Understanding Disparities in Pediatric Solid Tumor Oncology Trial Enrollment**

Oludamilola T. Taiwo, Emory University  
2022 Grant

**Wilms Tumor Risk and Management in WAGR Syndrome**

India Cannon, Children’s Hospital of Philadelphia  
2022 Grant

**A Multi-omics Approach to Defining the Differential Impact of IL-15 Versus IL-21 on Mature NK Cells**

Evelyn Navarro, Research Institute at Nationwide Children’s Hospital  
2021 Grant

**Deep Phenotyping of Early Cardiotoxicity in Pediatric AML**

Andrew Siaw-Asamoah, University of Pennsylvania  
2021 Grant

**Defining Features of Relapse Predictive Cells in ALL**

Dorra Jedhoui, Stanford University  
2021 Grant

**Disparities in Relapsed Pediatric AML Therapy**

Beinaka Tomlinson, Children’s Hospital of Philadelphia  
2021 Grant

**Dissecting and Targeting Apoptotic Resistance in Pediatric Leukemia**

Alexander Gousie, Dana-Farber Cancer Institute  
2021 Grant

**Effects of Center-level Resources on Septic Shock and Mortality Incidence in Children with Acute Leukemia**

Modesty Obasohan, Children’s Hospital of Philadelphia  
2021 Grant

**Elucidating HMGA1 Pathways to Target in Therapy for Refractory MLL-rearranged Pediatric Leukemia**

Fidelia Asomani, The Johns Hopkins University School of Medicine  
2021 Grant

**Impact of Pediatric Germline Testing in a Pediatric Cancer Predisposition**

Cristle Ike, Children’s Hospital of Philadelphia  
2021 Grant

**Isogenic Models of Pediatric AML for Interrogating Different Ras Pathway Mutations**

Marcos Armendáriz, University of California San Francisco  
2021 Grant

**Laboratory Correlates of CAR T-Cell Reinfusion**

Kirubel Alemu Gebre, Children’s Hospital of Philadelphia  
2021 Grant

**Ototoxicity and Language Development in Pediatric Germ Cell Tumor Survivors**

Pablo Monterroso, University of Minnesota  
2021 Grant

**Targeting ALK Fusions in Monosomy 7 AML**

Makia Krysten Manselle, Fred Hutchinson Cancer Research Center  
2021 Grant

**Be a Dog’s Best Friend, Help a Child**

Ashish Vaswani, Children’s Cancer Therapy Development Institute  
2018 Grant

**Characterizing PPM1D mutations as oncogenic drivers of Diffuse Intrinsic Pontine Glioma**

Spandana Jarmale, Dana-Farber Cancer Institute  
2018 Grant

**Identifying drivers of Ewing Sarcoma using engineered iPSC of European and African ancestry**

Kai Vorhies, University of Minnesota  
2018 Grant

**Investigating the interplay between nucleophosmin and caspase-2 in determining chemosensitivity in childhood AML**

Kenneth McSherry, Baylor College of Medicine  
2018 Grant

**PDL-1 Expression on Tumor Cells Mediates C8 Cytotoxic T cell (CTL) Resistance**

Taylor Pearl, The Research Institute at Nationwide Children’s Hospital  
2018 Grant

**Phenotype of tumor-associated antigen-presenting cells after blocking indoleamine 2-3-dioxygenase**

Rachel Vaizer, Augusta University  
2018 Grant

**Quantitative Evaluation of CAR-T Cell Inhibition Mediated by PD1**

Kevin Huang, University of Michigan  
2018 Grant

**Targeted Inhibition of CREB for the Treatment of Pediatric Acute Myeloid Leukemia**

Yvonne Lee, Stanford University  
2018 Grant

**Targeting SHP2 in Receptor Tyrosine Kinase-driven neuroblastomas**

Sabina London, The Children’s Hospital of Philadelphia  
2018 Grant

**The Role of Neuropeptide Y and its Y5 Receptor in Dissemination of Refractory Neuroblastoma**

Lindsay Anne Caprio, Georgetown University  
2018 Grant

**A Characterization of TP53 Mutations among Pediatric Osteosarcoma Cases**

Brandon Diessner, University of Minnesota  
2017 Grant



**ABVD without Radiation for Newly Diagnosed Pediatric Patients with Hodgkin lymphoma: A Single Center Retrospective Analysis of 22 Consecutive Patients**

Tu Dinh, University of California San Francisco  
2017 Grant

**Adoptive Cell Therapy against Brain Stem Gliomas**

Brandon Wummer, University of Florida  
2017 Grant

**Characterizing Novel Rearrangements in Diffuse Intrinsic Pontine Glioma**

Yohanna Georgis, Dana-Farber Cancer Institute  
2017 Grant

**Cutting off the Oncogenic Signals that Cofactors Send to Notch in T-ALL**

Paula Jeon, University of Michigan  
2017 Grant

**Identifying Novel Epigenetic Dependencies in Pre-leukemic Hematopoietic Stem Cells**

Emily Haussler, Washington University School of Medicine  
2017 Grant

**Investigating the Effects of Indoleamine 2-3-Dioxygenase Pathway Blockers in Combination with Chemotherapy and Radiation**

Yannan (Jennifer) Wang, M.D.  
Augusta University Research Institute  
2017 Grant

**A Novel Separase Inhibitor, Sepin-1 for Neuroblastoma Treatment**

Siddharth Gorantla, Baylor College of Medicine  
2017 Grant

**Parental Report of Sleep Hygiene and Sleep Quality in Children with Cancer: Implications for the Development of a Family**

Hyun (Monica) Kim, Boston University  
2017 Grant

**Racial Disparities in Pediatric Acute Leukemia**

Tyler Galvelis, The Children's Hospital of Philadelphia  
2017 Grant

**Reactivation of p53-Mediated Apoptosis in Neuroblastoma**

Emily Crawford, Dana-Farber Cancer Institute  
2017 Grant

**Role of Health Literacy on Psychological Distress in Parents of Newly Diagnosed Pediatric Cancer Patients at Rady Children's Hospital San Diego**

Shilpa Nataraj, University of California, San Diego  
2017 Grant

**Psychosocial Family Impact Grants**

**\$300,000 over three years**

Psychosocial Grants fill a direct need for research funding by supporting studies that aim to explain and/or improve psychosocial outcomes of those affected by childhood cancer. These grants are designed to fund established researchers who have novel approaches to understanding the psychosocial aspects of pediatric cancer whose proposals will have a clinically significant impact.

**Impact of Pediatric Germline Testing in a Pediatric Cancer Predisposition Clinic**

Lisa Schwartz, Ph.D.  
Children's Hospital of Philadelphia  
2018 Grant

**Surviving Cancer CAMPetently: Evidence-based Care Delivered at Family Camp**

Melissa Alderfer, Ph.D.  
Nemours A.I. duPont Hospital for Children  
2018 Grant

**Reach Grants**

**\$250,000 over two years**

This award is designed to move hypothesis-driven research toward the clinic. A successful application will identify an unmet clinical need relevant to the care of patients with pediatric cancer and describe how the work performed will allow for the translation of hypothesis-driven research to the clinic, keeping broader clinical testing and implementation in view.

**Phase I study of lentivirus engineered autologous AML cells expressing IL-12 in children and young adults with relapsed**

Michael Burke, M.D.  
Children's Hospital of Wisconsin  
2017 Grant

**Crazy 8**

**\$3M-5M over a four-year period**

These large-scale collaborative grants are designed to bring together cross-disciplinary scientists to accelerate the pace of discovering new cures for currently incurable childhood cancers.

**Barcoding Pediatric Leukemia for Therapeutic Purposes**

Leonard Zon, M.D.  
Boston Children's Hospital  
2020 Grant

**Drugging MYCN**

Yael Mossé, M.D.  
Children's Hospital of Philadelphia  
2020 Grant

**Small Molecule Degraders for Targeting Transcription Factor Drivers of Childhood Cancers**

Charles Mullighan, MBBS (Hons), MSc, M.D.  
St. Jude Children's Research Hospital  
2020 Grant

**Tracking Ewing Sarcoma Origin by Developmental and Trans-species Genomics**

Heinrich Kovar, Ph.D.  
St. Anna Children's Cancer Research Institute  
2020 Grant

**Young Investigator Grants**

**\$150,000 over three years**

Young Investigator grants are designed to fill the critical need for startup funds for less experienced researchers to pursue promising research ideas. These grants encourage and cultivate the best and brightest researchers of the future and lead to long-term research projects. The Young Investigator selected by Northwestern Mutual also receive a \$10,000 equipment grant to supplement their research.

**Improving Homing and Activity of CAR T Cells in Pediatric Sarcomas**

Joselyn Cruz, Ph.D.  
University of Colorado Denver  
2024 Grant

**Investigating the Impact of Osteosarcoma Genetic Lesions on Bone Differentiation**

James Morrow, M.D./Ph.D.  
Dana-Farber Cancer Institute  
2024 Grant

**Modifying CAR T Cell Epigenetic Programs to Improve Therapy Against Aggressive Pediatric Brain Tumors**

Meghan Ward, Ph.D.  
St. Jude Children’s Research Hospital  
2024 Grant

**Utilizing Chromatin Directed Inhibitors to Regulate Gene Expression in Ewing Sarcoma for Therapeutic Benefit**

Justin Sperlazza, M.D./Ph.D.  
University of North Carolina  
2024 Grant

**A Novel Adjunctive LAT-Activating CART (ALA-CART) Cell Platform for the Treatment of Acute Leukemias**

Catherine Danis, Ph.D.  
University of Colorado Denver  
2023 Grant

**Arginine Depletion with DFMO in High-Risk Neuroblastoma**

Christina Turn, M.D.  
Children’s Hospital of Philadelphia  
2023 Grant

**Synthetic Gene Expression Regulatory Switches (SynGERS) for Improved CAR T Cell Function in Pediatric Solid Tumors**

Leidy Diana Caraballo Galva, Ph.D.  
Baylor College of Medicine  
2023 Grant

**Targeting the Checkpoint Receptor TIGIT via CRISPR/Cas9 Genome Editing to Enhance NK Cell Anti-Tumor Activity**

Amanda Campbell, M.D./Ph.D.  
Research Institute at Nationwide Children’s Hospital  
2023 Grant

**Activating Metabolic Pathways to Increase the Persistence of Leukemia Targeting T Cells**

Erica Braverman, M.D.  
Children’s Hospital of Pittsburgh  
2021 Grant

**Development of RNAi-based Therapeutics to Target Oncogenic lncRNAs in Rhabdomyosarcoma**

Christian Tyler Stackhouse, Ph.D.  
Duke University  
2021 Grant

**Exploiting the Potential of Bromodomain Inhibitors in Ewing Sarcoma**

Shireen Ganapathi, M.D.  
Seattle Children’s Hospital  
2021 Grant

**Redefining Osteosarcoma Metastases as Chronic Non-healing Lung Wounds: Implications for Developing Novel Therapies**

James Reinecke, M.D./Ph.D.  
Research Institute at Nationwide Children’s Hospital  
2021 Grant

**Social Determinants of Health, Hospital-level Resources, and Risk of Septic Shock in Pediatric Leukemia**

Jenny Ruiz, M.D.  
Children’s Hospital of Pittsburgh  
2021 Grant

**Dissecting the Role of FOXR2 in the Oncogenesis of Diffuse Intrinsic Pontine Glioma**

Jessica Tsai, MD/PhD  
Dana-Farber Cancer Institute  
2020 Grant

**Using Neurofibromatosis-1 (NF1) to understand Pediatric Brain Tumor Initiation**

Yuan Pan, PhD  
Stanford University School of Medicine  
2020 Grant

**High-throughput CAR NKT Library Screen for Improving Neuroblastoma Immunotherapy**

Xavier Rios, MD/PhD  
Baylor College of Medicine  
2020 Grant

**Donor T-Cell DNA Methylation in GVHD and the Graft-vs-Tumor Effect after Allogeneic Hematopoietic Stem Cell Transplant**

Yiuli Panayioti Ktena, MD  
The Johns Hopkins University School of Medicine  
2020 Grant

**Enhancing the Therapeutic Efficacy of Chimeric Antigen Receptor T cells for Acute Myeloid Leukemia**

Miriam Kim, M.D.  
Washington University  
2019 Grant

**Improving CAR T-Cell Therapy for Pediatric Osteosarcoma by Manipulating Arginine Metabolism**

Shannon Lange, Ph.D.  
St. Jude Children’s Research Hospital  
2019 Grant

**Novel Genomic Drivers in Pediatric Polyposis Syndromes**

Suzanne MacFarland, M.D.  
Children’s Hospital of Philadelphia  
2019 Grant

**Targeting Valine-Specific Amino Acid Dependency in T-Cell Acute Lymphoblastic Leukemia**

Palaniraja Thandapani, Ph.D.  
New York University Medical Center  
2019 Grant

**Interrogation of neuroblastoma dependencies and RNAs on the core-regulatory circuitry for therapeutic inhibition**

Adam Durbin, M.D./Ph.D.  
Dana-Farber Cancer Institute  
2018 Grant

**Investigating the role of BAI1 in the metastasis of medulloblastoma**

Satoru Osuka, M.D./Ph.D.  
Emory University  
2018 Grant

**Novel Antibodies to the C2-set Domain of CD33 for Acute Myeloid Leukemia Immunotherapy**

Colin Godwin, M.D.  
Fred Hutchinson Cancer Research Center  
2018 Grant

**Therapeutic targeting of childhood leukemia by pharmacological inhibition of proteolytic cleavage of MLL1**

Zibo Zhao, Ph.D.  
Northwestern University  
2018 Grant

**Development and Characterization of Novel Models of Human Osteosarcoma Development and Metastasis**

Beau Webber, Ph.D.  
University of Minnesota  
2017 Grant

**High-Throughput Gene-Editing via Microfluidic Cell Deformability to Enable Off-the-Shelf Allogeneic Cellular Immunotherapies**

Steven Jonas, M.D./Ph.D.  
University of California Los Angeles  
2017 Grant



**Identifying Disease Mechanisms and Therapeutic Opportunities in Pediatric Low-grade Gliomas Driven by MYB-QKI Fusions**

Cecile Rouleau, Ph.D.  
Dana-Farber Cancer Institute  
2017 Grant

**The Impact of Hypoxia on Epigenetic Changes in Neuroblastoma**

Sakshi Uppal, Ph.D.  
University of Chicago  
2017 Grant

**Bad Influence: EWS/FLI Alters LSD1 and NuRD Interactions to Enforce Oncogenic Function in Ewing Sarcoma**

Emily Theisen, Ph.D.  
Research Institute at Nationwide Children's Hospital  
2016 Grant

**Young Investigator Summit Equipment Grants**

To further support early career researchers in advancing the field of pediatric cancer research, Northwestern Mutual has generously provided equipment grants to attendees of Young Investigator Summits, as listed below.

Abhinav Dey, Ph.D.  
Emory University  
2017 YI Summit Equipment Grant

Adam de Smith, Ph.D.  
University of California San Francisco  
2017 YI Summit Equipment Grant

Alexandros Tzatsos, M.D./Ph.D.  
The George Washington University  
2017 YI Summit Equipment Grant

Amanda DiNofia, M.D.  
The Children's Hospital of Philadelphia  
2017 YI Summit Equipment Grant

Andrew Hong, M.D.  
Dana-Farber Cancer Institute  
2017 YI Summit Equipment Grant

Asmin Tulpule, M.D./Ph.D.  
University of California San Francisco  
2017 YI Summit Equipment Grant

Bradley Blaser, M.D./Ph.D.  
Boston Children's Hospital  
2017 YI Summit Equipment Grant

Brenton Mar, M.D./Ph.D.  
Dana-Farber Cancer Institute  
2017 YI Summit Equipment Grant

Carl Koschmann, M.D.  
University of Minnesota  
2017 YI Summit Equipment Grant

Conrad Russell Cruz, M.D./Ph.D.  
Children's Research Institute  
2017 YI Summit Equipment Grant

Daniel Herranz, Ph.D.  
Institute for Cancer Genetics  
2017 YI Summit Equipment Grant

David Debruyne, Ph.D.  
Dana-Farber Cancer Institute  
2017 YI Summit Equipment Grant

Elliot Stieglitz, M.D.  
University of California San Francisco  
2017 YI Summit Equipment Grant

Emily Theisen, Ph.D.  
Research Institute at Nationwide Children's Hospital  
2017 YI Summit Equipment Grant

Eric Hutton Raabe, M.D./Ph.D.  
The Johns Hopkins University School of Medicine  
2017 YI Summit Equipment Grant

Genevieve Kendall, Ph.D.  
University of Texas Southwestern Medical Center  
2017 YI Summit Equipment Grant

Glenon Samuel, M.D.  
University of Kansas Medical Center Research Institute  
2017 YI Summit Equipment Grant

Ingo Koomoa-Lange, Ph.D.  
University of Hawaii  
2017 YI Summit Equipment Grant

Jessica Linda Heath, M.D.  
University of Vermont  
2017 YI Summit Equipment Grant

Kathleen Pishas, Ph.D.  
Research Institute at Nationwide Children's Hospital  
2017 YI Summit Equipment Grant

Kevin Jones, M.D.  
University of Utah  
2017 YI Summit Equipment Grant

Kristopher Sarosiek, Ph.D.  
Harvard T.H. Chan School of Public Health  
2017 YI Summit Equipment Grant

Kyle Walsh, Ph.D.  
University of California San Francisco  
2017 YI Summit Equipment Grant

Lena Winestone, M.D.  
The Children's Hospital of Philadelphia  
2017 YI Summit Equipment Grant

Madeline Hayes, Ph.D.  
Massachusetts General Hospital  
2017 YI Summit Equipment Grant

Mario Otto, M.D./Ph.D.  
University of Wisconsin - Madison  
2017 YI Summit Equipment Grant

Nicole Anderson, Ph.D.  
University of Pennsylvania  
2017 YI Summit Equipment Grant

Ranjini Sundaram,  
Yale University & School of Medicine  
2017 YI Summit Equipment Grant

Robin Parihar, M.D./Ph.D.  
Baylor College of Medicine  
2017 YI Summit Equipment Grant

Shuning He, Ph.D.  
Dana-Farber Cancer Institute  
2017 YI Summit Equipment Grant

Stephen Mack, Ph.D.  
The Cleveland Clinic Foundation  
2017 YI Summit Equipment Grant

Sunhye Lee, Ph.D.  
Children's Hospital Los Angeles  
2017 YI Summit Equipment Grant

Yana Pikman, M.D.  
Dana-Farber Cancer Institute  
2017 YI Summit Equipment Grant

Zhenyi An, Ph.D.  
University of California San Francisco  
2017 YI Summit Equipment Grant

**Crazy 8 Initiative Pilot Projects**

**\$200,000 over two years**

To jump start the research ideas that came out of the Crazy 8 Initiative Meeting, ALSF supported 11 pilot projects in 2019, with at least one project for each Crazy 8 area of need.

**Comprehensive Public Resource for Fusion-Negative Sarcoma Sequencing Data**

Alejandro Sweet-Cordero, M.D. & Richard Gorlick, M.D.  
University of California San Francisco  
2019 Grant

**Live-Cell Surface Proteomic Characterization of Atypical Teratoid Rhabdoid Tumors Using High Throughput Multi-Color Flow**

Alejandro Sweet-Cordero, M.D. & Siddhartha S. Mitra, Ph.D.  
University of Colorado Denver  
2019 Grant

## **Supplemental Grants**

### **Amount and timing may vary**

While not specific to an official ALSF grant program, these Northwestern Mutual grants were uniquely positioned to meet areas of need within pediatric oncology.

### **ALSF Shark Tank: Hidden Drivers of Pediatric Low-Grade Glioma**

Sean Misek, Ph.D.  
Broad Institute  
2023 Grant

### **ALSF Shark Tank: Tracking Drug Resistance in FOXR2-expressing DMGs**

Jessica Tsai, M.D./Ph.D.  
Children's Hospital Los Angeles  
2023 Grant

### **ALSF Shark Tank: ARL2, the Villain We've been Looking for in Resistant Leukemias?**

Sara Canovas Nunes, Ph.D.  
Boston Children's Hospital  
2022 Grant

### **ALSF Shark Tank: Development of the Metastasis "Goo-Gone"**

James Reinecke, M.D./Ph.D.  
Research Institute at Nationwide  
Children's Hospital  
2022 Grant

### **ALSF Shark Tank: Dissecting Functional uORFs as a Source of Cancer Genes in High-Risk Medulloblastoma**

John Prensner, M.D./Ph.D.  
University of Michigan  
2022 Grant

### **YI Summit Resource Sharing Plan Award: Project in ZFTA-RELA Fusion Ependymoma**

Austin Stuckert, M.D.  
Baylor College of Medicine  
2022 Grant

### **ALSF Shark Tank: Bioinspired Nanotechnologies to Enable the Clinical Deployment of Next-Generation Cellular Immunotherapy**

Steven Jonas, M.D./Ph.D.  
University of California Los Angeles  
2017 Research Catalyst Grant

### **ALSF Shark Tank: The spliceosome as a synthetic lethal therapeutic target in pediatric solid tumors**

Ronald Bernardi, M.D./Ph.D.  
Baylor College of Medicine  
2017 Research Catalyst Grant

### **ALSF Shark Tank: Uncovering the Myc enhancer-ome in pediatric cancer**

Daniel Herranz, Ph.D.  
Rutgers Cancer Institute of New Jersey  
2017 Research Catalyst Grant

### **ALSF Shark Tank: Understanding the heterogeneity in neuroblastoma metastasis and response to targeted therapy**

Shizhen Zhu, M.D./Ph.D.  
Mayo Clinic  
2017 Research Catalyst Grant

### **ALSF Shark Tank: Unlocking DNA repair weaknesses with cancer organoids**

Asmin Tulpule, M.D./Ph.D.  
University of California San Francisco  
2017 Research Catalyst Grant





## Your Special Event Support

For 12 years, Northwestern Mutual has never failed to show their devotion to childhood cancer families. Our special events are possible because of your outstanding support. As a Presenting Sponsor at L.A. Loves Alex's Lemonade to The Lemon Ball to The Great Chefs Event Philadelphia, it is your support that inspires so many to come together and raise money for critical childhood cancer research. For years, Northwestern Mutual has been a valued resource, a generous donor and an outstanding partner.

In 2023, your support helped L.A. Loves Alex's Lemonade make an extraordinary comeback. With your help, L.A. Loves Alex's Lemonade raised more than \$1.3 million for childhood cancer research. It was an afternoon of full stomachs and fuller hearts at UCLA as guests sampled delicious dishes and sweet treats from more than 50 superstar chefs while bidding on awesome auction items and making a difference.

To kick off 2024, your presence at The Lemon Ball will not soon be forgotten as John Schlifske, your Chairman, President and CEO, received the "Childhood Cancer Lifetime Achievement Award." Leading Northwestern Mutual with unwavering commitment to find a cure and fight to end childhood cancer is the kind of outstanding support that inspires a legacy – a legacy for John that includes more than \$50 million raised to fight childhood cancer (with over \$30 million contributed to ALSF). The generosity continued that night; as Northwestern Mutual surprised us with an incredible \$100,000 donation. Your support helped to raise more than \$900,000 that night as guests danced, dined, and dried their eyes after hearing the inspiring stories of the childhood cancer heroes we fight for every day.

By the time The Great Chefs Event Philadelphia came around in June, we knew it would be another satisfying day of food and fundraising. More than 800 guests came hungry to make a difference. Thanks to your sponsorship, 36 talented chefs were able to join forces with expert brewers, vintners, and mixologists to help raise more than \$550,000 for childhood cancer research.

Combined, these events raised more than \$2.5 million for kids with cancer. That's \$2.5 million that will go toward research that is finding safer, more effective treatments for kids everywhere. We are proud to partner with Northwestern Mutual on these special events this year, and for many more years to come!



# LEMON TOP CHALLENGE

Here's how to join in:

1. Take a photo or video of you, your coworker, your kids, your garden gnomes, whatever—balancing a lemon on your/their heads.
2. Be brave—share it on social media with the tags #LemonTopChallenge @alexlemonade & @northwesternmutual.
3. Challenge friends, family, coworkers, and complete strangers to do the same.



## #LemonTopChallenge

In 2023, Northwestern Mutual topped off all its stellar support with the #LemonTopChallenge, asking supporters to post their attempts at balancing a lemon atop their head. With every post, you donated \$10 to help kids with cancer. It all added up to more than \$100,000. That's a whole lot of research, and a whole lot of lemons on your heads!





“**You can’t sit back and wait for a cure.** You need to work to help other kids from having to go through the battle. Doctors saved Jack because of meaningful research like what Alex’s strives to provide.”

— Molly, childhood cancer hero Jack’s mom



“If I didn’t have that gas card, I don’t know that I’d have gas money to get him to treatment. Every little penny counts.”

— Jennifer, childhood cancer hero Elijah’s mom

“I really appreciate the research ALSF helps fund. All ages are special and everyone should have an equal chance at life.”

— Shurice, childhood cancer hero Kingsley’s mom



**With your support,** we have been able to improve the quality and length of life for children with cancer. This goes beyond research and treatments. Thanks to Northwestern Mutual programs like Pathfinder and the Holiday Hero gift exchange, you are helping us create an atmosphere of total care where families can receive emotional support in addition to financial services.

## Paving the Path to Better Family Support

Stemming from Northwestern Mutual’s Hack For Good Hack-a-Thon, Pathfinder is an app currently in development that will provide concise, accurate resources for childhood cancer families. It will give an individualized guide to assist parents, survivors, SuperSibs, those dealing with grief and more through their experience with childhood cancer journey. Its target launch date is currently late 2024 and Northwestern Mutual is continuing to work with us to develop it through funding and time dedicated from the team.

**Pathfinder mission:** “We want to help the mom sitting in a hospital room with her child at 3 am wondering where to start.”

## Helping Heroes for Holiday Season

This year, 21 Northwestern Mutual offices participated in the Holiday Hero gift exchange. This involved matching a childhood cancer hero family with a local office, which was then given the family’s wish list. Employees were encouraged to interact with the families and get to know them before purchasing their dream holiday presents. Siblings, parents, and the heroes themselves were all included in the generous gift-giving.



“We are not alone thanks to foundations like yours.”

— Bibiana, childhood cancer hero Francisco’s mom





**Fighting Childhood Cancer,**  
*One Cup at a Time.*

(866) 333-1213

[AlexsLemonade.org](http://AlexsLemonade.org)



@AlexsLemonade