



Alex's Lemonade Stand Foundation

Osteosarcoma Impact Report





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. For more information, visit AlexsLemonade.org.



With Gratitude

Dear Friend,

All of us here at ALSF would like to sincerely thank you for your support of Alex's mission to find new treatments and cures for childhood cancers like osteosarcoma.

Your support is helping researchers to develop preliminary data, publish their findings, and push forward innovative treatment options. Thanks to you, we are closer to a day where no child will have to suffer from osteosarcoma.

We are truly honored to fight childhood cancer by your side. Thank you for being the driving force behind lifesaving cures. Please don't hesitate to reach out if you need anything from us here at ALSF.

Until there are cures,



Liz & Jay Scott

Alex's Parents & Co-Executive Directors

Alex's Lemonade Stand Foundation



Thanks to Supporters Like You

ALSF is the largest independent childhood cancer charity in the U.S., focused on funding critical research and supporting childhood cancer families.



More than \$300M raised since 2005



Funded over 1,500 medical research grants at nearly 150 institutions



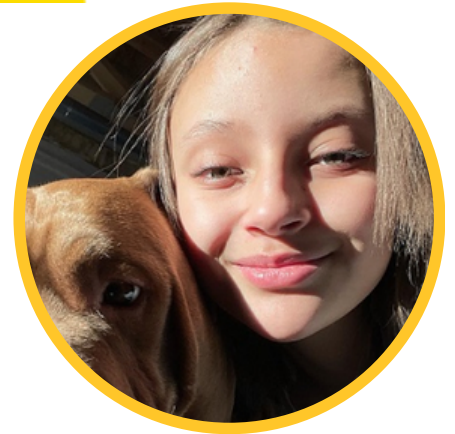
Supported nearly 30,000 families through key programs like Travel For Care

ALSF is the only childhood cancer research organization that has been given the NCI Peer-Reviewed Funder Designation for rigorous selection of research and grants.

Meet an **Osteosarcoma Hero**



KADI



In February of 2019, Kadi began having lower leg pain. At first, her doctor attributed it to growing pains, but a month later agreed she needed X-rays to confirm. By the end of March, Kadi was in unrelievable pain from a clear deformity of her leg and was taken to the ER. Thirty minutes later, the doctor informed Kadi's mom that Kadi had a large, aggressive tumor that had snapped and "eaten" through some of her fibula bone. After a biopsy, bone scan, MRI and CT scan, Kadi was diagnosed with chondroblastic osteosarcoma.

Kadi started chemotherapy and received the standard treatment for osteosarcoma at the time. She also had two-thirds of her fibula and peroneal nerve resected, leaving her with permanent drop foot. Another complex hip surgery had her surgeon questioning whether she'd ever walk again, but Kadi was walking four days later with assistance! She was later declared NED (no evidence of disease) but then, three-and-a-half months later, doctors found another large tumor in her right hip. Every time Kadi would walk onto the oncology floor for treatment, she'd say, "Well here we go again, kicking cancers butt!" Thankfully, with the help of Kadi's positive attitude, the chemo eradicated the cancer, and Kadi was once again NED.

However, Kadi's troubles are not yet over. Her chemotherapy induced early-stage kidney failure and progressive cardiomyopathy. Although her chronic pain isn't debilitating, her medical team informed Kadi's family that due to the nature of her relapse, it is likely she could relapse again. But now, Kadi is out of curative options. Despite fighting cancer twice, Kadi has never lost her precious smile and charismatic personality. She continues forward in life with the most optimistic attitude.

“I don't want my cancer to be who I am anymore; I want to move on from it and live like it never happened.”

-Kadi

ALSF-Funded Projects in Osteosarcoma

Thanks to you, we have been able to continue funding breakthrough research for more cures. Read through some of our recently funded research projects in osteosarcoma below:

Improving homing and activity of CAR T cells in pediatric sarcomas

Joselyn Cruz Cruz, PhD
University of Colorado Denver
Young Investigator Grants, Awarded 2024

Defining how unique properties of the pediatric immune system contribute to poor efficacy of checkpoint blockade in children

Adrienne Long, MD/PhD
Stanford University
Young Investigator Grants, Awarded 2024

Adjuvant RNA vaccination augments CAR T cell activity against osteosarcoma

Arnav Barpujari
University of Florida
POST Program Grants, Awarded 2024

Validating multifunctional extracellular vesicle magbeads as liquid biopsies for pediatric sarcomas

Yusef Mathkour
University of California, Los Angeles
POST Program Grants, Awarded 2024



A complete list of ALSF-funded osteosarcoma projects can be found at:
AlexsLemonade.org/Childhood-Cancer/Type/Osteosarcoma/Grants

Research **in Progress**

Improving Homing and Activity of CAR T Cells in Pediatric Sarcomas

Joselyn Cruz Cruz, PhD

University of Colorado Denver



ALSF has always believed that attracting and retaining the best and brightest early career scientists is critical to the future of childhood cancer research. Joselyn Cruz Cruz, PhD is one such scientist. She was awarded a 2024 Young Investigator Grant, designed to fill the critical need for startup funds for less experienced researchers to pursue promising research ideas. Dr. Cruz's idea: test the most promising approach that has been identified to date.

Many researchers have developed new therapies that harness the immune system to cure cancers; however, most of these treatments (called immunotherapies) are not effective in solid tumors. One of the most promising therapies involves T cells expressing artificial receptors that allow them to recognize and kill cancer cells. These therapies called "chimeric antigen receptor (CAR)" T cells have been transformative for pediatric leukemia, but CAR T cells do not properly migrate to solid tumors, and when they do, their activity is compromised.

Dr. Cruz and her team suspect tumor associated macrophages (TAMs) help tumors through a process called "efferocytosis." Normally, efferocytosis helps our bodies to clear dead or injured tissue, and block activation of the immune system to prevent autoimmunity. The team previously found that inhibiting efferocytosis boosted the immune system's ability to destroy leukemia cells. Dr. Cruz plans to test whether efferocytosis inhibition enhances CAR T cell activity in pediatric sarcomas.

To test whether the function of CAR T cells within the tumor can be improved, Dr. Cruz will combine CAR T cell therapy with a small molecule-targeted drug that inhibits efferocytosis. This is an orally active drug which is currently in clinical trials. It is expected that CAR T cells can better find their way to sarcomas and will not become inactivated within the tumor site. The results from this project will test an approach that can be rapidly translated to children and young adults with sarcomas. Additionally, this approach may have broad applicability to many solid tumors that occur in children and adults.



Thank You

for all you do to help kids with cancer!

