



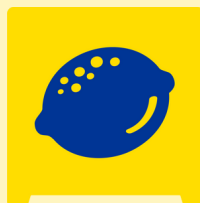
# Alex's Lemonade Stand Foundation Osteosarcoma Impact Report



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



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. Her spirit and determination inspired others to support her cause, and when she passed away at the age of 8, she had raised \$1 million. Since then, the Foundation bearing her name has evolved into a national fundraising movement and is one of the leading funders of pediatric cancer research in the U.S. and Canada.



## With Gratitude

Dear Friend,

Thanks to your thoughtful support, we have been able to find new discoveries for childhood cancer treatment. ALSF-funded researchers continue to develop breakthrough treatments, lead new clinical trials and publish their findings in peer-reviewed journals. Thanks to you, we were able to make this progress, which has positively impacted the lives of children with cancers like osteosarcoma.

Our daughter, Alexandra "Alex" Scott, believed that if we all worked together, we could cure childhood cancer. That idea of collaboration is what inspired others to help her reach her \$1 million fundraising goal. Her idea is the reason we are able to do what we do now, and we are always amazed at what can be accomplished when you bring people together. ALSF, scientists, and you — we're all coming together for one common goal: to cure childhood cancer. Thank you for all you do in the fight against childhood cancer.

Until there are cures for all kids,



**Liz & Jay Scott**

Alex's Parents & Co-Executive Directors

*Alex's Lemonade Stand Foundation*



**Thanks**

to Supporters Like You

**1,000+**

## Childhood Cancer Research Projects Have Been Funded Since Our Founding

“The ‘high-risk, high-reward’ studies that ALSF supported are some of the very studies that best represent me, our science, and serve as the platform for the work we have ongoing and propose for the future. It doesn’t escape me that the support from ALSF has been instrumental, and I extend my deep appreciation to ALSF for supporting our science from the very beginning.”

— Dr. Cigall Kadoch, Dana-Farber Cancer  
Institute



“ALSF helped launch my research program 10 years ago and has supported my lab at every step along the way. Their investment in childhood cancer research has transformed the field and nurtured the development of a generation of childhood cancer researchers.” — Dr. Michelle Monje, Stanford University School of Medicine

# Research **Spotlight**

As part of ALSF's \$26 million commitment to the Crazy 8 Initiative, Dr. Alejandro Sweet-Cordero was awarded a Crazy 8 Award earlier this year to understand how osteosarcoma cells survive in the body once they have spread from the initial tumor. The best chance to treat metastasis is when they are very small and not yet visible. These "micrometastasis" need to find ways to survive in the lung and other tissues. Because this is not their normal environment, survival requires adaptation to the metastatic site. Dr. Sweet-Cordero and his team have developed several new tools that will help them understand this process. These tools allow them to identify cells within tumors that have a high capacity to survive in the metastatic environment and then isolate these same cells from the original tumor. They call this a "molecular time machine." Dr. Sweet-Cordero's team of investigators is highly complimentary in terms of expertise. Their efforts will also involve taking their findings and developing new clinical trial concepts. At the end of their studies, they hope to be poised to begin at least one such clinical trial once specific funding for the trial is obtained.



## **The Biological Underpinnings of Pulmonary Metastasis**



Dr. Rani George of Dana-Farber Cancer Institute was awarded the other Crazy 8 Award this year to build reference genomes specific to bone tumors. Osteosarcoma is a bone tumor that affects children during their growth spurt. Most of the kids who die from osteosarcoma succumb to complications of lung metastasis. Therapies that prevent or treat metastatic disease may be the most impactful innovation that researchers

could bring these children. There are currently three primary challenges that prevent researchers from improving outcomes in these patients: First, they know what the most common genetic changes in osteosarcoma are, but they know little about how these changes create cancer. Second, they understand little about the steps that drive the development of metastatic lesions. Third, when researchers have identified potential drivers of metastasis, they are usually not druggable, negating any potential impact those discoveries might have on patients. Dr. George's research will address each of these challenges. With tumor-specific references, Dr. George and her team will map out all the new connections formed by those rearrangements so that they can determine how each genetic switch becomes re-wired. With these "genetic wiring diagrams" in hand, they can begin to discover the ways that this cancer-specific re-wiring drives malignant behavior like metastasis.

# ALSF-Funded Projects in Osteosarcoma

Thanks to you, we have been able to fund outstanding research, leading toward breakthroughs and cures. Read through some of our recently funded research projects in osteosarcoma below.

PROJECT TITLE	INSTITUTION / PRINCIPAL INVESTIGATOR(S)	GRANT TYPE
Targeting the biological underpinnings of pulmonary metastasis in osteosarcoma	Dana-Farber Cancer Institute / Rani George, MD/PhD	Crazy 8 Awards
Understanding and inhibiting mechanisms of metastatic spread in osteosarcoma	University of California San Francisco / Alejandro Sweet-Cordero, MD	Crazy 8 Awards
Redefining Osteosarcoma Metastases as Chronic Non-healing Lung Wounds: Implications for Developing Novel Therapies	Research Institute at Nationwide Children's Hospital / James Reinecke, MD/PhD	Young Investigator Grants
STING Pathway Activation: The Missing Link between Genomic Instability and Antitumor Immunity in Osteosarcoma	University of California San Francisco / Elizabeth Young, MD	Young Investigator Grants
Stapled Peptide PROTAC: A 3-in-1 Treatment for Pediatric Solid Tumors	Dana-Farber Cancer Institute / Loren Walensky, MD/PhD	Reach Grants
Tracking Ewing Sarcoma Origin by Developmental and Trans-species Genomics	St. Anna Children's Cancer Research Institute / Heinrich Kovar, PhD	Crazy 8 Awards
Single-cell Profiling of Pediatric Bone Sarcomas	University of California, Los Angeles / Alice Soragni, PhD	Single-cell Pediatric Cancer Atlas Grant
Single-cell Atlas of Pediatric Osteosarcoma	Dana-Farber Cancer Institute / Natalie Collins, MD/PhD	Single-cell Pediatric Cancer Atlas Grant
Synergistic Activity of Anti-GD2 Antibody and CD47-Blockade for Immunotherapy of Neuroblastoma and Osteosarcoma	The Board of Trustees of the Leland Stanford Junior University / Robbie Majzner, MD	'A' Award Grants
Pediatric Osteosarcoma: Identifying the elusive molecular signature and its relationship to this disease	St. Jude Children's Research Hospital / Linda Hendershot, PhD	Innovation Grants

[Click here to see a complete list of ALSF-funded projects in osteosarcoma](#)

# Meet **Childhood Cancer Heroes**

In the fall of 2019, Ryan started training for the basketball team by going to daily workouts after school. He quickly started experiencing leg pain which also eventually included shortness of breath. After six weeks of physical therapy and no progress, it was recommended that he see an orthopedic specialist. That's when they took him to an orthopedic surgeon for an X-ray. The results were clear - Ryan had a tumor and he needed immediate attention. After a whirlwind week of tests and scans, Ryan was diagnosed with stage IV osteosarcoma. There was a large tumor on his right femur and multiple tumors in both his lungs.



Ryan started treatment and doctors thought things were going well initially, but in April 2020, Ryan's femur broke as he went to sit down into a chair. He spent the next six weeks in a soft cast. His surgery was scheduled for May, and while they hoped to salvage his limb, the tumor had consumed too much of Ryan's muscle and soft tissue. The only option was an above-the-knee amputation. He has received a prosthetic leg that he uses now as treatment continues.



In September 2017, Gabby started experiencing pain in her left leg. Since she had passed both her twin brother and older sister in height over the summer, her mom assumed they were only growing pains. A month passed, and the pain persisted. Their pediatrician sent Gabby for X-rays and called the next day with startling instructions: pack a bag. A team of doctors was waiting for Gabby at Children's Hospital Los Angeles. After many tests and biopsies, her diagnosis was official. She had metastatic osteosarcoma.

Gabby had a port placed and started the first of 18 rounds of chemotherapy just three days after her diagnosis. A limb salvage surgery was to follow. Her knee and part of her femur were all replaced with titanium. It took 15 months in a wheelchair before Gabby began walking unassisted again in 2019. She currently has no evidence of disease!

After learning that the treatment Gabby received was 35 years old, her family was happy to know that ALSF funds research for new treatments and better cures. With ALSF around, there will always be someone out there fighting for people like Gabby.



**Thank You**

for all you do to help kids with cancer!

