

ALEX'S LEMONADE STAND FOUNDATION

IMPACT REPORT

Brain Tumors



Childhood cancer hero Lauren, featured above (right), enrolled in a clinical trial with ALSF-funded oncologist, Dr. Angela Waanders.

Thanks to your support, Alex's Lemonade Stand Foundation has continued to champion lifesaving childhood brain tumor research and care for the families and children affected by this disease.

Pushing Forward Pediatric Cancer Research in Brain Tumors

Our mission has always been to champion lifesaving childhood cancer research and find cures for all children with cancers like medulloblastoma and DIPG.



Research Spotlight

Dr. Rosalind Segal of Dana-Farber Cancer Institute is using her Innovation Grant to target symmetric division in common pediatric brain tumors.

A protein known as “Eya1” has a critical role in the development and progression of Sonic Hedgehog (SHH)-subtype medulloblastoma, a common brain tumor in children. Dr. Segal and her team are using proteomic

approaches to identify the specific phosphoproteins that are altered by Eya1, and find out how these proteins work in tumor cells. They have initial compounds that target Eya1, and are working to understand how they target Eya1 function, so that better drugs may be developed. So far, they have developed 60 new derivatives to find ones that work on Eya1. Several of the compounds show better efficacy than current drugs in preventing the growth of medulloblastoma. Overall, their preliminary tests show promising results in providing new therapeutics for pediatric cancers.

Reversing treatment resistance to PD-1 blockade in brain tumors

Dr. Catherine Flores of the University of Florida is using her Innovation Grant to develop a clinically applicable method of overcoming treatment resistance to α PD-1 in multiple refractory brain tumors.

Harnessing the immune system for the treatment of cancer through PD-1 checkpoint inhibitor has shown considerable promise in a number of solid tumors. However, outcomes remain poor for brain tumor patients. Dr. Flores and her team have found a novel way to defeat treatment failures to PD-1 monotherapy by employing concomitant transfer of bone marrow-derived hematopoietic stem and progenitor cells (HSC) with PD-1 checkpoint inhibition in preclinical models of CNS malignancies. They recently published that HSC + α PD-1 overcomes treatment resistance to α PD-1 in both high-grade glioma and cerebellar medulloblastoma which are tumors with distinct genetic backgrounds and anatomic location. This therapy has unifying mechanisms that transcends the differences in the types of malignant brain tumors and their anatomical location in these orthotopic models.



[More about ALSF-funded projects in brain tumors can be found here: AlexsLemonade.org/Childhood-Cancer/Type/Brain-Tumor](https://AlexsLemonade.org/Childhood-Cancer/Type/Brain-Tumor)

Meet A Brain Tumor Hero

Part of our mission is to support families in the ways they need it most and empower everyone to help cure childhood cancer.

Meet Lauren



Lauren is bright, strong and mature. Many describe her as an old soul. As a sophomore in high school, she's been through more than most kids her age.

When Lauren was 7 years old, she failed a vision test at school. An MRI later revealed she had a low-grade glioma tumor in the center of her brain and on her optic nerve.

That summer, Lauren underwent two brain surgeries at Children's Hospital of Philadelphia (CHOP), an ALSF Center of Excellence. Unfortunately, her tumor was inoperable because of its location, so Lauren endured a biopsy, port placement, chemotherapy and vision loss in her right eye.

A few years later, Lauren was able to enroll in a clinical trial with her ALSF-funded oncologist, Dr. Angela Waanders. Thanks to the drug lenalidomide, her tumor was stable for a while.

While in treatment at CHOP in 2013, Lauren saw a mural of Alex Scott's lemonade stand. She told her parents she wanted to host a lemonade stand of her own for her birthday to support pediatric cancer research – the same research that has given her the chance to keep fighting.

Last April, Lauren was having trouble with her vision again. Fearing the worst, she was taken to CHOP immediately. Her family's fears were confirmed. An MRI showed that she had hydrocephalus, a swollen ventricle that put pressure on her brain, requiring a shunt.

Lauren's doctors decided to biopsy her tumor again. The test revealed four types of mutations in her tumor. Lauren became one of 400 kids to go on an MEK inhibitor drug originally made for metastatic melanoma. By November, an MRI revealed tumor reduction, but the treatment came with side effects. "The good news is that the drug seems to be working," said her father, Patrick, "It just comes with some consequences."

Lauren is focused on being a young teenager in high school, but that hasn't stopped her from supporting pediatric cancer research. Since her first lemonade stand in 2013, Lauren has raised \$70,000 for Alex's Lemonade Stand Foundation. She hopes to reach her goal of \$100,000 by the time she graduates high school. For Lauren's family, it's all about the research.

Thank you for supporting brain tumor research. You're giving hope to childhood cancer heroes like Lauren!