Childhood Cancer Research Highlights

The American Cancer Society is deeply committed to finding new answers that will help every child and family affected by cancer.

**Research Grants**

The American Cancer Society funds scientists and medical professionals who research cancer or train at medical schools, universities, research institutes, and hospitals throughout the United States.

We provide millions of dollars to cancer research through multiple grants. Here are examples of research we currently fund for cancers affecting children and adolescents.

### Evaluating Outpatient Chemotherapy for Children with HR ALL to Improve Quality of Care

**Grantee:** Lori Ranney, MSN  
**Institution:** Winona State University in Winona, Minnesota

Children who have high-risk acute lymphoblastic leukemia (HR ALL) receive high-dose methotrexate as inpatients. In general, these patients and their families stay in the hospital for 4 straight days and for 4 different times over a 2-month period to get this medicine.

As part of her graduate study for a doctorate in nursing practice, Ranney transitioned some patients in one treatment center from inpatient visits for methotrexate to at-home methotrexate infusions. She created education plans for staff and families. Of the patients who chose the methotrexate at-home option, all families stayed safe and reported that their quality of life improved for well-being, activity level, appetite, sleep, family time, and stress level.

Ranney’s findings could help make care more individualized and decrease hospital stays for children with HR ALL. That could lead to lowered health care costs, less stress, and overall improvement in the quality of life for these children and their families.

### New Combination Targeted Therapies for Neuroblastoma and Ewing Sarcoma in Children

**Grantee:** Anthony Faber, PhD  
**Institution:** Virginia Commonwealth University in Richmond, Virginia

Neuroblastoma starts in certain nerve cells before a baby is born. In earlier lab studies, Faber and his team combined 2 drugs for a targeted therapy that killed certain types of neuroblastoma cells that grow quickly and are harder to treat.

In mice, the drug combo shrank some tumors and did not cause obvious toxic side effects.

Using a similar strategy, Faber’s team developed a combination targeted therapy for Ewing sarcoma, a rare childhood cancer that starts in the bones or surrounding tissue.

With his American Cancer Society grant, Faber’s team is continuing to test the targeted therapy for neuroblastoma in several types of mice. The team expects the findings to lead to studies in humans and eventually offer hope for children with neuroblastoma.
**Stopping Cholesterol Production May Treat Certain Brain Tumors in Kids**

**Grantee:** Zeng-jie Yang, MD, PhD  
**Institution:** Fox Chase Cancer Center in Philadelphia

Medulloblastoma is the most common type of cancerous brain tumor in children. Treatment has improved, yet a significant number of children die from the disease. Even children who survive can have severe, sometimes long-lasting side effects from aggressive treatments, including some that may not start for months or years after treatment.

In earlier studies, Yang learned that medulloblastoma tumors need cholesterol to grow. With this grant, his research team is testing simvastin, a common drug (statin) used in humans to reduce high cholesterol levels, to see how it works to treat brain cancer in mice.

They’ve learned that simvastin is able to significantly reduce tumor growth in these mice. Yang is also testing simvastin with certain types of targeted therapy to find out if the combination can help prevent medulloblastoma from growing.

The researchers believe this strategy is promising since drugs to reduce cholesterol are safe, low cost, and readily available. Positive results in mouse studies can help provide a reason to start testing statins in children with medulloblastoma tumors and possibly other types of cancer.

**Using Mice to Test Potential New Targets for Treating Osteosarcoma**

**Grantee:** Claudia Benavente, PhD  
**Institution:** The Regents of the University of California, Irvine

Osteosarcoma is the most common type of bone cancer and most often occurs in children and young adults. People with osteosarcoma that has not spread to other areas of the body (known as metastasis) have a better chance of living for at least 5 years after the diagnosis compared to someone whose cancer has metastasized. To develop new treatments, researchers need to better understand what causes the cancer to metastasize.

In previous studies, Benavente and her research team found a protein called UHRF1, which builds up in osteosarcoma tumors. She and her team studied mice with osteosarcoma and found that blocking the buildup of UHRF1 in the tumor may dramatically reduce the spread of osteosarcoma in mice, and increase their survival.

With this grant, Benavente is working to better define the role of UHRF1 and hopes the research her team is doing can lead to the development of a new type of osteosarcoma drug to target the UHRF1 protein.

UHRF1 accumulates in other cancers, including certain types of breast, prostate, and lung cancer. If her work proves to be helpful, it has the potential to help children with osteosarcoma and adults with other types of cancer.

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**Childhood Cancer Statistics Update in Cancer Facts & Figures 2019**

Each year, the American Cancer Society Surveillance and Health Services Research program analyzes data on cancer in the United States, including childhood cancers, as part of its *Cancer Facts & Figures* publication. The process is led by Rebecca Siegel, MPH. Here are some key findings from the 2019 report for American children from birth to age 14.

Researchers estimate that:

- 11,060 new cases of childhood cancer will be diagnosed in 2019.
- 1,190 deaths from childhood cancer will occur in 2019. Mortality rates for cancer in children have decreased by more than 66% over the past 40+ years. In 1970, the rate was 6.3 deaths per 100,000 children. In 2016, the rate was 2.2 per 100,000 children.