December 2019

YEAR-END REPORT

Blair Foundation Newsletter

In this issue:

Quick Facts

- Research funding granted in 2019: $25,000
- Grant funding since inception: $247,000+
- Catherine's 17th birthday: 1/2/20

Dear Supporters,

As we near the end of 2019, we once again want to thank you for your ongoing support of our mission to fund research for neuroblastoma. As you know, we feel strongly that supporting research is the best way to help make a difference and change the lives of children who will fight this insidious disease.

This year, with your help, we were able to continue to support Dr. Anthony Sandler's neuroblastoma research at Children's National. We have also received an encouraging update from last year's grant to Fred Hutchinson Cancer Research Center (see page two for details on both projects).

We are honored that you continue to remember Catherine's life by helping us try to make a difference for others.

We wish you joy and peace in the coming year.

Ellen, Tom, and John Blair

The Littlest Angel, 2005

Click here to make your year-end donation:

www.BlairFoundation.org/donate

December 11, 2018

RESEARCH

Blair Foundation Newsletter

2019 Research Grant

$25,000 to Children's National in Washington, DC

Advancing Breakthroughs in Neuroblastoma Research and Care

December 2019: We made a $25,000 grant to Dr. Anthony Sandler and his team at Children's National Medical Center. The Sandler lab continues to investigate the role of immune-based therapy in neuroblastoma. The central hypothesis of the team's research proposes that high risk tumors have immune privilege and in the case of neuroblastoma is associated with MYC oncogene expression. Targeting MYC in tumor cells seems to induce tumor immunogenicity and exploiting this observation by creating a whole cell vaccine may enable robust anti-tumor immunity.

The next phase of research includes four specific aims:

- **Novel vaccine design targeting MYC in tumor cells:** Whole cell tumor vaccination has not been used in the context of knocking down specific genes to generate immunogenicity. The pre-clinical studies proposed use tumor cell lines for vaccination in which MYC targeting renders the cells immunogenic.
- **Application of combination vaccine therapy and checkpoint inhibition in different tumor models:** The proposed model demonstrates the superiority of tumor vaccination combined with two checkpoint inhibitors. Anti-CTLA-4 enhances T-cell expansion, while anti-PD-L1 (or anti-Pd-1) diminishes effector T-cell exhaustion and prevents adaptive immune resistance.
- **Characterization of T-cell immunity:** The findings from our work over the last year suggest that targeting this novel checkpoint can make tumors more sensitive to vaccine therapy. The novel checkpoint inhibits T-cell function and blocking this pathway enables cytotoxicity.
- **Phenotyping the immune environment in neuroblastoma:** We have continued to phenotype the immune environment of patients with neuroblastoma and have characterized over 700 genes related to immunity in patient tumors.

**For the full summary please visit https://www.blairfoundation.org/research

Update on 2018 Grant to Fred Hutchinson Cancer Research Center

In Seattle, Washington

We partnered with the Olson Lab at the Fred Hutchinson Cancer Research Center to help advance immunotherapies towards the clinic for neuroblastoma. The funding provided supports two main efforts of critical importance. The first is the development of novel fully human antibodies against two candidate target proteins that are expressed on the surface of almost all neuroblastoma cells: Glypican-2 (also known as GPC2) and Neural Cell Adhesion Molecule 1 (also known as NCAM1). There is currently a dearth of clinic-ready molecules that have been developed and that are optimized for immunotherapeutic uses, such as chimeric antigen receptor (CAR) T cells and bispecific T cell engager (BiTE) drugs. The second effort is the characterization of these antibodies in multiple engineered formats so that they can be used by our collaborators world-wide. The Olson lab will use these new molecules to develop an innovative dual targeting approach which they hope will result in a highly specific neuroblastoma therapy that coaxes the bodies existing T cells to selectively kill the cancer while sparing any healthy tissue that might express either target alone. This "on-target, off-tumor" problem plagues many current generation immunotherapies and the Olson lab hopes that this approach, code named the SMITE (simultaneously multiple interaction T cell engaging) Program will be the key to a highly specific, minimally toxic therapy.

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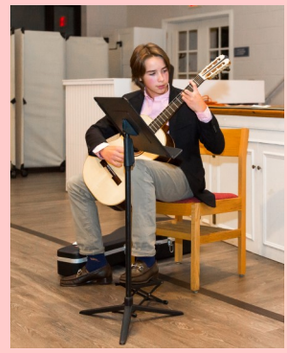
EVENTS

Blair Foundation Newsletter

Art Hope Love: An Artful Evening
October 2019



Complete photo gallery on our website! Photo credit J.Yi Photography

Thanks to the Northern Virginia Facial Hair Club for your support at the annual Beard/Stache Competition!

The Catherine Elizabeth Blair Memorial Foundation is a component fund of the Greater Washington Community Foundation

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