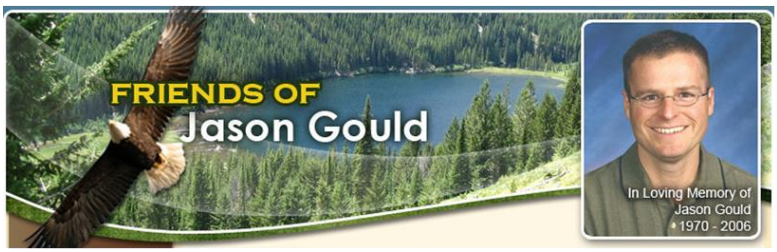


The James

THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

PROGRESS REPORT
2013-2014

How your donations from The Friends of Jason Gould have been used this year…

EBV Vaccine

Dr Baiocchi and Caligiuri are developing a vaccine to prevent EBV-driven diseases like PTLD. Our first product is under development for "first in human" trials

- First article submitted to a immunology journal *acknowledging FGJF*

New Treatment for PTLD

Dr Baiocchi, Caligiuri and colleagues have successfully treated 17 patients with PTLD with brain involvement using a non-toxic, method that targets the virus in the tumor.

- First article submitted a cancer journal *acknowledging FJGF*

New Drugs to Prevent and Treat EBV+ Cancers

- Discovery of PRMT5 as a unique target induced by EBV infection
- Development of a "first in class" drug that selectively targets PRMT5 and prevents AND treats EBV-driven cancers
- Article submitted on first drug to hit PRMT5, *acknowledging FJGF*
- Development of a new drug called silvestrol that KILLS EBV+ tumor cells while BOOSTING immunity to EBV
- Article published in ONCOTARGET *acknowledging FJGF*

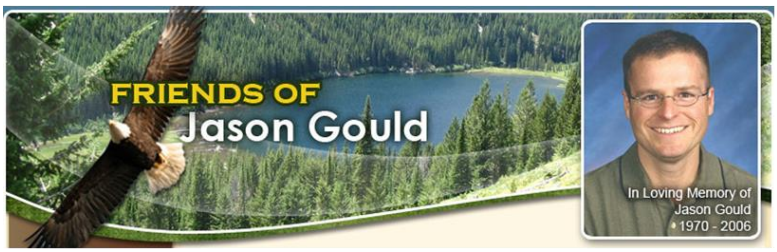
New EBV-specific Cellular Therapy to Treat EBV+ Cancers

- Strategies to prevent and treat PTLD and other EBV-related cancers

Thank you for your support!!

Robert Baiocchi, MD, PhD

Michael Caligiuri, MD



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LABORATORY OVERVIEW

The Baiocchi and Caligiuri Labs are focused on exploring how viruses cause cancer. The Epstein-Barr virus (EBV) is the most potent cancer causing virus and is associated with several human cancers. EBV is a common human herpes virus that infects more than 90% of adults worldwide. Once infected, EBV stays dormant within its human host for life. EBV causes post-transplant lymphoproliferative disease (PTLD), non hodgkins lymphomas, hodgkins lymphoma, nasopharyngeal carcinoma and gastric cancers. We have partnered with pharma and the Leukemia Lymphoma Society to develop a EBV vaccine to prevent PTLD and similar diseases. Along these same lines, we are working on engineering immune cells to kill EBV+ tumor cells. Our interest in discovering how EBV transforms human B cells into malignant lymphomas has led us to discover new targets allowing us to develop new therapeutic approaches to treat patients that are afflicted with these cancers. We are exploring epigenetic mechanisms that drive B cell cancers like PTLD and have discovered how EBV has evolved to "hijack" important survival and growth pathways to drive cancer.

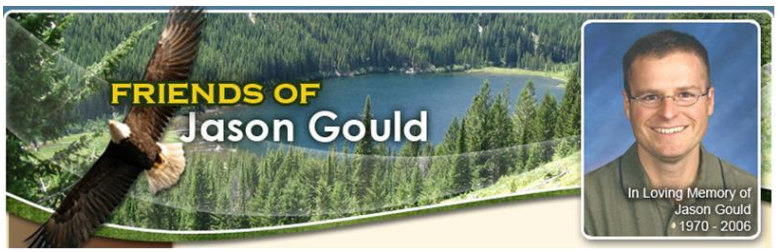
Baiocchi Lab

Caligiuri Lab

DEVELOPING NEW TREATMENTS FOR EBV+ CANCERS

We are presently collaborating with several labs on new methods to treat EBV driven lymphomas. We discovered a protein called PRMT5 that is absolutely required for EBV to cause cancer. We went on to develop a new class of drugs that target PRMT5 over expression in that occurs during EBV infection. This "first in class" drug can completely prevent EBV from driving the B cell toward becoming a lymphoma. We have been using FJGF funds to help develop this new class of drug and are moving forward into animal studies of EBV+ lymphoma models. A drug like this will effectively treat established PTLD without affecting the normal host immune response. Our first manuscript is being written and will acknowledge FJGF.

In other work, we are developing a new drug called silvestrol to treat PTLD. Silvestrol kills EBV+ tumor cells while positively affecting host immunity against the virus. This drug has been delivered to mice with EBV+ tumors (a model similar to PTLD) resulting in 100% survival. Interestingly, human immune cells are vital to achieve this anti-tumor effect. This would be an ideal drug to treat patients with organ transplants who are particularly vulnerable to infection and development of PTLD. This drug is in advanced preclinical animal toxicity models and will be presented to the FDA for a first in man trial in 2015-2016. A manuscript was recently published in the journal ONCOTARGET acknowledging FJGF.



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DEVELOPING NEW TREATMENTS FOR EBV+ CANCERS (continued)

FJGF funds have allowed us to complete analysis of our first 17 patients with primary brain PTLD treated with antiviral therapy. Of these 17 patients, 12 (70%) showed complete resolution of brain PTLD (some patients with up to 20 brain tumors). Primary brain PTLD is an often fatal condition without many treatment options. The results from this treatment approach are impressive and have led to the design of a multicenter clinical trial to open at OSU, Duke, UNC, and University of Miami. Trent Tipple, our poster child" who was effectively cured of his brain PTLD, has given several talks acknowledging FJGF for supporting these efforts. We have an article submitted to a cancer journal acknowledging FJGF.

EBV VACCINE

In collaboration with Dr. Caligiuri's lab at OSU, we are working to develop a vaccine against EBV. This vaccine would prevent EBV-associated cancers that affect patients undergoing organ transplantation. We are partnering with a company to produce the first vaccine that will drive an EBV specific immune response. We anticipate having all preclinical data to the FDA for a phase I clinical trial in 2015-2016. Our first paper describing the vaccine is currently under review at a immunology journal. Acknowledgment of FJGF is on page one of the funding support.

EBV-SPECIFIC CELLULAR IMMUNE THERAPY

On a separate front, we have partnered with Nationwide Childrens' Hospital to develop EBV+ tumor specific T cells that can prevent and treat PTLD. We plan to use an exciting new system to develop this therapy and hope to be able to offer this lifesaving treatment sometime in 2015.