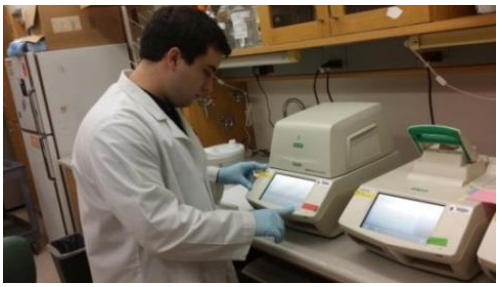
How Angels Among Us Makes a Difference

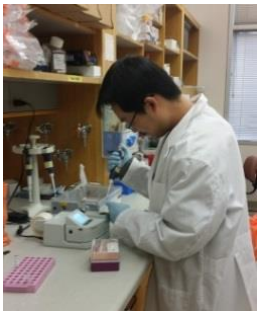
Funds raised through Angels Among Us are quickly delivered where they are needed most in the fight against brain cancer. Since 1994, over $36 million has been donated to The Preston Robert Tisch Brain Tumor Center from Angels Among Us. It is the largest source of unrestricted funds for the Center and the most critical. This type of support allows the Center to continue to lead the world in the development of new therapies, quality of life initiatives and innovative treatment techniques. Below are examples of how your gift has been used in the fight against brain cancer.

Your Gifts at Work….

Purchase sophisticated equipment:

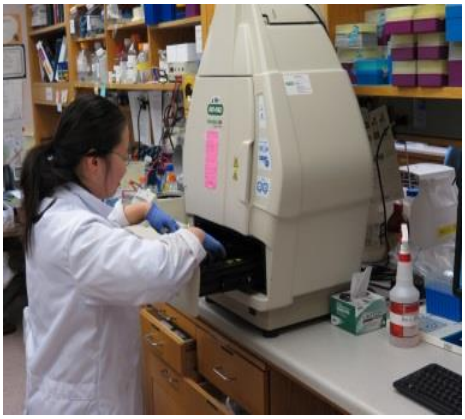
"We use the Bio-Rad CFX96 Real-Time PCR system on a daily basis now, to understand gene expression in glioma and medulloblastoma and to develop diagnostics for detecting important mutations in these cancers." Dr. Yiping He





"The Nanodrop Lite Spectrophotometer is an important tool for quantifying DNA concentration and quality in our samples. Most protocols we use involving DNA use this device as it helps us normalize our inputs and have high quality samples for downstream analysis and experiments." Dr. Hai Yan

"The Bio-Rad ChemiDoc MP System is a full-feature instrument for protein gel or western blot imaging. It is designed to address multiplex fluorescent western blotting, chemiluminescence detection, and general gel documentation applications. The ChemiDoc imaging system is used for qualitative and quantitative analysis of purified immunotoxins, proteins that are used for preclinical and clinical therapy. This imager is also utilized for the expression analysis of different proteins in brain tumor cell lines and xenografts by western blot and for imaging DNA fragments after PCR based amplification." Dr. Vidya Chandramohan



Support research efforts of high-level investigators:

Dr. Matthias Gromeier's lab has developed a poliovirus vaccine, PVSRIPO, which is showing great promise and is currently in a phase 2 clinical trial; it was also granted breakthrough therapy designation by the Food and Drug Administration in May, 2016. Dr. Gromeier's work has been featured in *People* magazine and on *60 Minutes.*

The idea of targeting cancer with viruses has been around for at least 100 years. However, valid strategies of using 'oncolytic' (cancer-fighting) viruses emerged only recently. This is mostly due to technological advances in genetic engineering of viruses. To work against cancers in patients, oncolytic viruses must target cancer cells for infection and they must kill them. At the same time, they must be safe. Accomplishing this is very difficult scientifically and only very few viruses are suitable as cancer-fighting agents in the clinic. PVSRIPO kills cancer cells, but not normal cells, because its ability to grow (and kill) depends on biochemical abnormalities only present in cancer cells. Pictured is Dr. Gromeier in his lab with the Heracell CO2 Incubator purchased with Angels Among Us gifts.

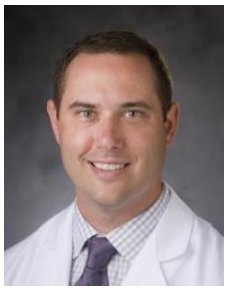
Dr. Michael Dee Gunn's lab focuses on understanding how dendritic cells, monocytes, and macrophages regulate immune responses, contribute to specific disease pathologies, and can be manipulated to stimulate or inhibit specific immune responses. Dr. Dee Gun's lab has helped identify immune-stimulatory and immune-suppressive cell types in brain tumors using advanced methods of flow cytometric analysis. Despite more advanced therapies, glioblastoma – the most frequent and most malignant brain tumor in adults— has a median survival of less than 15 months. The lack of therapeutic success is linked to the immunosuppressive nature of glioblastoma. Dr. Dee Gunn is working to overcome this immunosuppression in order to achieve better patient survival. His lab has developed a novel cellular vaccine strategy for the treatment of cancer. This strategy is much simpler, more cost effective, more clinically feasible, and much more efficacious than classic dendritic cell vaccines, and is now being tested in various preclinical tumor models, including glioblastoma, and will soon be advancing to initial human clinical trials.

Recruit and retain high-level researchers:

The recruitment of Dr. Hai Yan to the Duke Brain Tumor Research Program has proven to be an invaluable asset. Dr. Yan's scientific accomplishments since arriving at Duke have centered on uncovering major genetic alterations occurring in glioma, including IDH1 and IDH2. His work has advanced in determining the unique biology driving tumors to develop in the brain. Dr. Yan's lab has uncovered mutations to a gene called TERT found in >80% of glioblastoma and oligodendroglioma tumors. Further investigations determined that IDH1 and TERT promoter mutations can be used to precisely define glioma classification, and many of the molecular classifications in the fourth edition of the 2016 World Health Organization IARC Blue Book Classification of Tumors of the Central Nervous System are based on his lab's molecular discoveries. Studies addressing these targets, including a phase one clinical trial, are already underway in developing clinical diagnostic methods and potential therapies.

Provide start-up funding for young investigators:

Unrestricted support from Angels Among Us is critical to provide much-needed career developmental awards for our young investigators to help jumpstart their promising careers. These funds also provide young researchers with support for new projects that will ultimately be submitted to the National Institutes of Health to obtain additional funding. Without these "start-up funds" many novel ideas may not be pursued.



A start-up package made possible by Angels Among Us funds provided equipment purchases for Dr. Peter Fecci, including a bio safety cabinet and freezers, and helped launch his career as a Duke neurosurgeon. Dr. Fecci has a specialized focus in brain tumor immuno-biology and immuno-therapeutic design, and serves as director of the Duke Brain Tumor Immunotherapy Program. In 2015, he was awarded the Sontag Foundation's Distinguished Scientist Award for his work with bone marrow T cell sequestration. This ongoing project aims to better characterize T cell sequestration in glioblastomas by deciphering the causes and developing the means for releasing T cells in order to create a more effective mode of brain cancer therapy.

Our success requires expensive equipment, optimal laboratory space, a large number of patients for our clinical investigation trials, and experienced, passionate faculty and staff to lead the research and provide the care. The proceeds from Angels Among Us are critical to our success.

While there is no cure for brain cancer yet, the funds raised from Angels Among Us provides Duke with essential expertise and technology to conduct the most advanced research and care for patients. Thank you for your support of Angels Among Us and for making a difference in the lives of our patients.

David Ashley, MBBS, FRACP, PhD, Director
Allan Friedman, MD, Deputy Director
Henry Friedman, MD, Deputy Director
Peter Fecci, MD, PhD, Associate Deputy Director
John Sampson, MD, PhD, Chair, Department of Neurosurgery
Darell D. Bigner, MD, PhD, Founding Director

THE PRESTON ROBERT TISCH BRAIN TUMOR CENTER at Duke...there is HOPE

For more information please go to www.angelsamongus.org