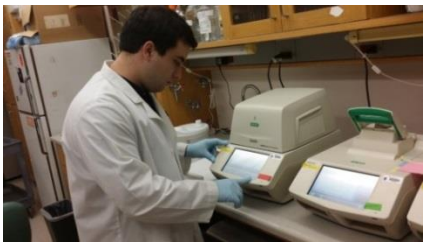
"Angels Among Us" Makes a Difference

Funds raised through Angels Among Us, are quickly delivered where they are needed most in the fight against brain cancer. Since 1994, over $24 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.

"Angels Among Us" Gifts at Work

Purchase sophisticated equipment:

Bio-Rad CFX96 Real Time PCR System



"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

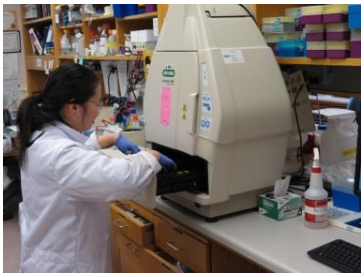
Pictured is Bill Diplas, MD/PhD student, Dr. Yiping He's Lab

Thermo Electron North--Nanodrop Lite Spectrophotometer

"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 ensure normalize our inputs and have high quality samples for downstream analysis and experiments." Dr. Hai Yan

Pictured is Rui Yang, PhD postdoc associate, Dr. Hai Yan's Lab

Bio-Rad ChemiDoc MP System



"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

Pictured is Xin Yu, second year pathology graduate student, Dr. Darell Bigner's lab

Support research efforts of high-level investigators:

Dr. Matthias Gromeier's lab has developed a poliovirus vaccine that is showing great promise. His work was recently featured in People magazine.

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. PVS-RIPO 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. John Sampson's lab has developed cell based and antibody based tumor immunotherapies. They have identified tumor associated antigens for dendritic cell vaccines. The lab is working on the ATTAC trial, in which patients with GBM were immunized with dendritic cells loaded with the *Cytomegalovirus* antigen pp65 where they observed that greater migration of the dendritic cells to the lymph nodes resulted in longer survival. They have examined the mechanism by which they can increase the migration and the results are being published in Nature. Nearly all the data has been completed necessary for a new trial for low grade and secondary GBM that are positive for the IDH1 mutation. Work is also underway for the production of a clinical grade peptide to immunize patients with IDH1 positive tumors. Patients with GBM are known to be severely immunosuppressed, making it difficult to induce a tumor specific immune response. Preclinical work in the laboratory is focusing on overcoming this immunosuppression using checkpoint inhibitors in combination with various vaccine platforms.

Pictured is Sandy Hillburn with Dr. Sampson's team as they celebrate her 100th vaccine.

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 oligodendrogliomas tumors. Further investigations determined that IDH1 and TERT promoter mutations can be used to precisely define glioma classification. Studies addressing these targets are already underway in developing clinical diagnostic methods and potential therapies.

Additionally, Dr. Yan's research has been able to use a strong partnership with Chinese hospitals to identify PPM1D mutations in pediatric gliomas. Taken together, these findings provide an increased optimism that these targets will result in effective treatment options for patients.

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.

Luis Sanchez-Perez is the Assistant Professor of Neurosurgery with a PhD in immunology from the Mayo Clinic College of Medicine. His expertise resides in the area of tumor immunotherapy, with focus on the development of novel T-cell based immunotherapies against brain tumors. In addition, he has a vast knowledge in molecular biology, retroviral, and adenoviral based gene 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 money raised from Angels Among Us has provided the Preston Robert Tisch Brain Tumor Center at 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. We hope you will join our team.

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, Director Emeritus

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

For more information please visit www.angelsamongus.org