A Decade Driving Innovation in the Neurosciences

For the last decade, the Brain Science Foundation (BSF) has driven its mission forward by providing strategic seed funding for innovative research. We work to find a cure for primary brain tumors by advancing the understanding of brain function, bringing about improvements in patient care, and supporting cutting-edge research. To achieve these goals, the BSF follows three key principles:

- **Invest**: in both new research careers and promising new early-stage research, categories often neglected by other funding mechanisms.
- **Learn**: build a body of information about the brain and brain tumors that can be shared widely with scientists, doctors, patients, and donors.
- **Inspire**: encourage donors of all types (individual, corporate, and foundation) to support work that advances knowledge and practice in the field of brain tumors.

To date, the BSF has committed more than $11 million to research and patient support. In addition, BSF principal investigators have been able to attract more than $40 million in additional outside funding to scale up their research.

**Partners HealthCare Honors BSF Founders for Brain Tumor Research Commitment**

On March 22nd, 2012, Steven and Kathy Haley were presented with the inaugural Jack Connors, Jr. Award for Fundraising Excellence presented by Partners HealthCare. The award recognizes the Haleys’ visionary leadership and extraordinary generosity both at Brigham & Women’s Hospital and throughout the greater Boston community.
Driving Research, Investing in Careers

Supporting New Careers in the Neurosciences

With limited research funding available, many promising minds turn to other career paths. The BSF works to help establish new investigators. Our seed funding enables investigators to gather evidence and complete the initial stages of research required by major institutional donors such as the National Institute of Health (NIH).

- 9 projects were awarded in 2011. Of these, four investigators were receiving their first grant ever as a principal investigator.
- 7 projects were awarded in 2012. Of these, four investigators are receiving their first grant ever as a principal investigator.

Bringing Mass Spectrometry to the Operating Room

Nathalie Agar, PhD, was first funded by the BSF in 2009. Since then, Dr. Agar has made dramatic progress in her research of mass spectrometry of tumor tissue, bringing the technology into the operating room to allow surgeons to identify tumor tissue more effectively. Dr. Agar won the NIH Director’s New Innovator Award in 2010, which enabled her to expand her lab. In addition, Dr. Agar won NIH funding for her lab and filed several patents that have attracted venture capitalist interest.

Improving Surgical Results Through Imaging Advances

Alexandra Golby, MD, a neurosurgeon at Brigham & Women’s Hospital, has implemented several projects with BSF support on functional brain mapping and bringing functional imaging technologies to the operating room. Her work has led to the development of the Advanced Multimodality Image Guided Operating (AMIGO) Suite, a ground breaking technology that gives interventional radiologists and surgeons immediate access to a full array of advanced imaging capabilities during surgery. Launched in 2011, the AMIGO suite has been touted as one of the most advanced operating rooms ever developed.
Developing Drug Therapies for Meningiomas and other Brain Tumors

Mark Johnson, MD, PhD, has built a successful and high-performing lab with the help of the BSF’s early and continued support. His work on meningioma stem cells and genomics revealed the presence of unique molecules in the cells that control tumor growth. From this, Dr. Johnson and his team have been able to identify potential therapies to slow the growth of meningioma and other brain tumors.

Discovering the Causes of Meningiomas

Elizabeth Claus, MD, PhD, was one of the first researchers ever to get BSF funding. She used several BSF seed grants to receive the first endowment from the National Institutes of Health for meningioma research. In April 2012, Dr. Claus published the results of her BSF-supported study linking certain kinds of dental X-rays to meningiomas in the American Cancer Society journal Cancer. Dr. Claus has a current project examining what genes are connected to radiation-associated meningiomas.

Training the Next Generation of Brain Surgeons

Edward Laws, Jr., MD, FACS, one of the world’s most renowned pituitary tumor specialists, worked with the BSF to develop the professional development program “Master Class: Endoscopic Anterior Skull Base Surgery.” Based on his decades of experience and research into pituitary tumors, the course has trained more than 100 current and future neurosurgeons in the best practices of endoscopic surgery to remove pituitary tumors.
Fostering Collaboration, Kickstarting Careers

Priscilla Brastianos, MD, received her first research grant of her career from the BSF in 2011 to detect changes in the DNA of metastatic brain tumors occurring in breast cancer patients. Six months into her project, she reported: “Once I had the grant, I found many opportunities to collaborate.” Dr. Brastianos has engaged with a number of established investigators with the Broad Institute, Dana-Farber Cancer Institute, and Brigham & Women’s Hospital. She has also secured four additional awards to support her research, including a grant from the American Brain Tumor Society. In May 2012, her project won her a Young Investigator award from the American Society of Clinical Oncology.

Yanmei Tie, PhD, was another first-time awardee in 2011. Her project, “Development of a Natural Viewing Paradigm for fMRI Language Mapping for Brain Tumor Surgery Planning,” looks to develop non-invasive techniques to identify language function areas for patients. Dr. Tie’s BSF project quickly paid dividends: “After receiving the BSF grant, we resubmitted a proposal to the NIH, adding preliminary results of [our BSF] project. Our proposal’s score increased from the 35th percentile [among applications submitted] to the 5th. We were awarded full funding for two years.”

Advancing Technology for Local Delivery of Chemotherapy

Jeffrey Karp, PhD, along with Lata Menon, PhD, received BSF funding to explore local delivery of chemotherapies for glioblastomas, tumors notoriously difficult to treat. Dr. Karp was awarded the 2011 Young Investigator Award from the Society for Biomaterials in part for the work he performed with BSF support.

Exploring Tumor Genomes to Develop Future Therapies

Rameen Beroukhim, MD, PhD, and his lab team (which includes Dr. Brastianos) were the first to target meningiomas for study into their genomes. By decoding the genomes of several meningioma samples, Dr. Beroukhim is contributing a great deal of understanding to how meningiomas arise and enabling the development of targeted treatments that reverse the effects of the mutations that lead to meningioma.
Bringing Patients Face to Face with Brain Tumor Experts

Meningioma Awareness Day

Meningioma Awareness Day is the world’s first patient-centered event of its kind, bringing together patients, survivors, caregivers, and families with doctors, researchers, and other medical professionals to discuss the latest treatments, research, and proactive strategies for living with and beyond this disease. The BSF has organized five Meningioma Awareness Days.

Meningioma Awareness Day provides a holistic approach to understanding brain tumors, treatment options, and quality of life. In one day, in one location, more than 300 participants are able to discuss a number of topics related to their condition.

The event offers participants a full day of educational presentations, lectures, and opportunities to meet others. An opening program held the previous evening provides an opportunity for one-on-one discussions between patients and medical experts who can answer their questions directly in an intimate setting.

Pituitary Day

In collaboration with world-renowned pituitary expert Dr. Edward Laws of Brigham & Women’s Neuroendocrine Center, the BSF developed and sponsored Pituitary Day. This all-day event unites patients, caregivers, family, and friends with leading clinicians, researchers, nurses, and other experts to discuss the latest in pituitary diagnosis and treatment.

By way of a series of presentations and panel discussions, our collaborators discuss basic and new information related to pituitary disorders, including their physical and psychological aspects and other important issues for patients.
Looking Ahead

As BSF looks forward to the next decade of operations, our goal is to fund additional worthy research initiatives and expand our successful patient and caregiver events. If you would like to be more involved, whether by running your own event, sponsoring a fundraising auction, or volunteering for the BSF, contact us today!

The Brain Science Foundation works to find a cure for primary brain tumors by advancing the understanding of brain function and patient care. The foundation supports cutting edge research in multiple areas, from developing and testing new treatments, epidemiological studies, improvements in patient care, and basic research.

Brain Science Foundation
148 Linden Street, Suite 303 | Wellesley, MA 02482
Tel: 781-239-2903
info@brainsciencefoundation.org

Find us online!
www.brainsciencefoundation.org