

Discover!

news from the Brain Research Foundation

BRF Launching New Program on Youth Sports-Related Brain Injuries

Brain injuries related to youth sports activities are of increasing concern in communities across the country. The Brain Research Foundation is launching a new educational initiative this fall to heighten awareness about these injuries, gather expert information, and facilitate dialogue among national and international experts on how to keep children and adolescents safe.

Discover! will serve as one vehicle to heighten awareness as part of this new initiative. In this issue, we begin with an overview on concussions, the most common type of sports-related brain injury.

According to the Centers for Disease Control and Prevention (CDC), children and teens are more likely to get a concussion and take longer to recover than adults. In addition, athletes who have ever had a concussion are at increased risk for another.

A study by the Brain Injury Association of America and the CDC reported that 40.5% of athletes who suffer concussions

return to play before it is safe to do so. The following is information from the CDC about concussions:

What is a concussion?

A concussion is a type of traumatic brain injury, or TBI, caused by a bump, blow, or jolt to the head that can change the way the brain normally works. Concussions can also occur from a fall or a blow to the body that causes the head and brain to move quickly back and forth.

Health care professionals may describe a concussion as a "mild" brain injury because concussions are usually not life-threatening. However, repeated concussions or a severe concussion may lead to long-lasting problems with movement, learning, or speaking.

What are the signs and symptoms of a concussion?

Symptoms of concussion usually fall into four categories:

Thinking/remembering

- . Difficulty thinking clearly
- . Feeling slowed down
- . Difficulty concentrating
- . Difficulty remembering new information

Physical

- . Headache
- . Nausea or vomiting (early on)
- . Balance problems
- . Dizziness
- . Fuzzy or blurry vision
- . Feeling tired, having no energy
- . Sensitivity to noise or light

Emotional/Mood

- . Irritability
- . Sadness
- . More emotional
- . Nervousness or anxiety

Sleep Disturbance

- . Sleeping more than usual
- . Sleeping less than usual
- . Trouble falling asleep

What to do if a concussion occurs?

People with a concussion need to be seen by a health care professional. A health care professional may refer you to a neurologist, neuropsychologist, neurosurgeon, or specialist in rehabilitation (such as a speech pathologist). Getting help soon after the injury by trained specialists may speed recovery.

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Dear Friends,

The Brain Research Foundation continues to grow—new trustees, new staff and new program directions. The Board of Trustees grew in number and range of skills. At our April Board meeting, we welcomed Robert Malenka, M.D., Ph.D. to our Board of Trustees. Dr. Malenka is the Pritzker Professor of Psychiatry & Behavioral Sciences at Stanford University Medical Center. He is a world-renowned

scientist whose research plays an important role in understanding how neural circuits are modified throughout life by experiences.

The Associate Board adds a completely new level of support, enabling younger professionals to take an active role in raising funds and awareness through their events and educational programs. It has been great to see how easily this group melded into our framework. (Stories on their 2010 events are included on pages 6 and 7.)

Our staff has also grown with Joe Flint's arrival as Director of Development. Additional funds Joe helps to secure will open doors to new educational programs and increase our Seed Grant Program to broaden the knowledge base in neuroscience. In the months ahead, we'll share

more about a new educational program focused on sports-related brain injuries in children and adolescents. We hope you find the front page article on this topic helpful as we launch this initiative.

Your support enables our volunteers to move forward to increase funding for brain research and educate the public about neurological disorders. Our annual appeal will be sent to you shortly. We hope you can again support our mission by making a year-end contribution. Thank you.

Sincerely,

Terre A. Sharma, Ph.D.
Executive Director

Remembering Gwill Newman

Gwill Newman's son was mentally ill. Though he died only a few years after being diagnosed with paranoid schizophrenia, Gwill worked tirelessly the rest of her life to help advance research so that others would not suffer as her family had. Our Board was deeply saddened by Gwill's death on August 30, 2010 but heartened in remembering all she did to better the world.

Gwill's enthusiasm for research that would expand the understanding of the brain was remarkable. She was confident that supporting research would provide the answers that would eventually help those suffering from neurological disorders. She pursued this relentlessly through her many years on the Brain Research Foundation Board, and through additional endeavors which included helping to found the National Alliance for Research on Schizophrenia and Depression in 1981.

Wanting to help others understand mental illness, Gwill's book *My Son's Name Was Fred* was published in 2006. She dedicated this work of love to those who have suffered from the darkness of ignorance concerning the human brain and to those who strive to enlighten us all by challenging the human brain to understand itself.

Foundation Forward

The Pioneer Fund Contributes \$1.5 million to the Brain Research Foundation

In early September, the Brain Research Foundation received a \$1.5 million grant from The Pioneer Fund (Denver, CO). The endowment has been established to study atypical dementia.

Atypical dementias are unusual cases of dementia related to a variety of underlying pathologies, including atypical Alzheimer's disease, frontotemporal dementia, dementia with Lewy bodies, and prion disease, among others. Because these types of cases are not as common, research has not pursued them as vigorously as typical dementia. However, much can be learned from these less common conditions that could benefit people suffering from both typical and atypical dementia.

A private family foundation, The Pioneer Fund was established by Helen M. McLoraine and her mother, Mabel Green Myers, in 1962. The Fund was created to support medical research, higher education scholarship assistance, and youth social welfare.

In 2006, Dr. Lawrence Pottenger, a University of Chicago orthopedic surgeon and Ms. McLoraine's cousin, died as a result of complications due to early onset Alzheimer's disease. His wife Bobbie was instrumental in connecting the Brain Research Foundation with The Pioneer Fund to create this endowment to research atypical dementia. This work will be led by Dr. James Mastrianni, Associate Professor of Neurology at the University of Chicago, who was Dr. Pottenger's doctor.

"The Pioneer Fund's generous contribution ensures solid research will continue to advance the understanding of atypical dementia," said Executive Director Terre Sharma. "I am sure that Ms. Myers and Ms. McLoraine would be happy to know many people will benefit from this support."

We Welcome Joe Flint, Our New Director of Development



The Brain Research Foundation has appointed Joseph L. Flint as its new Director of Development. Flint comes to the Foundation with 26 years of experience in non-profit management at the local, state, and national levels. He previously held development roles with the Dermatology Foundation, Connections for the Homeless (Evanston, IL) and Metropolitan Family Services (Chicago).

"We are delighted to have Joe on board," said Executive Director Terre Sharma. "This is a very exciting time for the Brain Research Foundation and we're looking forward to his support in continuing our growth and helping us fund additional neuroscience research

that will ultimately impact all our lives."

Flint holds a master's degree in counseling from Northeastern Illinois University and a bachelor's degree in communications from Marycrest College in Davenport, IA.



With your help, the Brain Research Foundation continues to grow, bringing us steps closer to unravelling the mysteries of the brain. We thank you for your support and encourage you to help us spread the word about the important work we're doing.

Ways of Giving

There are several ways in which donors can participate in the work of the Brain Research Foundation.

Direct Gifts Contributions are accepted in the form of cash, check, credit card, and stock.

Matching Gifts If you work for one of the growing number of companies that has a Matching Gift Program, the amount of your gift could be multiplied. Please check with your Human Resources Office to see if your company offers this benefit.

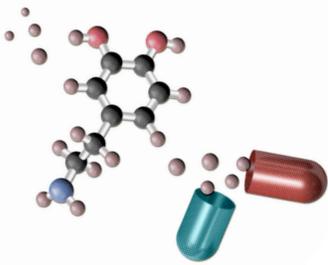
Planned Giving Long-term estate and financial planning can enable you to make a substantial contribution to the Brain Research Foundation. Examples of planned gifts include: bequests, life insurance policies, charitable remainder trusts, charitable lead trusts, and charitable gift annuities.

Memorial and Honorary Gifts

You can make a donation in memory of someone or give a gift in honor of a special person.

For more information call the BRF at 312.759.5150 or visit us at www.thebrf.org.

It's not too late to join us at the Annual Discovery Dinner on November 1, 2010 at Four Seasons Hotel Chicago. For information please contact PJH & Associates at 312.553.2000.



BRF Lab Notes

Seed Grants: Growing Discovery

For the past thirty years, the Brain Research Foundation has been supporting neuroscientists through our annual Fay/Frank Seed Grant Program. The Program has awarded 571 seed grants, totaling more than \$8.5 million. These grants are one of the most important and productive things the Foundation does to support promising investigative leads. The Program provides start-up money to launch an innovative project that will likely become competitive for federal funding.

The Brain Research Foundation's Scientific Review Committee (SRC) evaluates the Seed Grant proposals and makes recommendations for funding to the Foundation. The SRC consists of senior scientists from several institutions throughout greater Chicago and nationwide. Their scientific expertise was invaluable when reviewing the 2010 Brain Research Foundation Seed Grant proposals.

While we are pleased with the success of the Seed Grant Program, we would like to be able to fund even more cutting-edge research. We hope you continue to support this investment in the future.

Following is a summary of Dr. Jaime Grutzendler's 2010 Seed Grant project through which he is **researching a new mechanism for clearing emboli in brain blood vessels that could be a link between Alzheimer's and vascular dementia.**

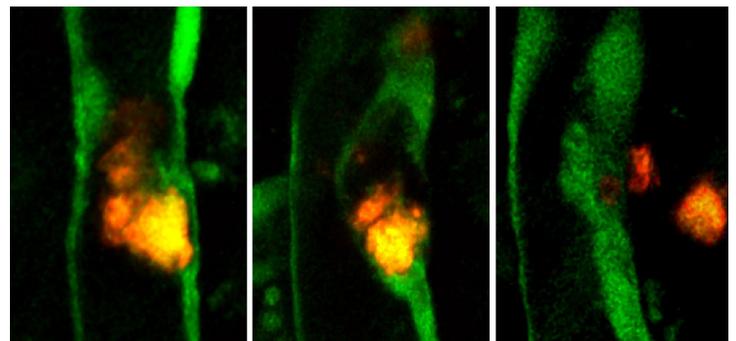
Occlusion of tiny blood vessels in various organs is likely to occur frequently throughout life. A blockage in the blood vessel prevents normal blood flow and oxygen from reaching the tissues in that location. The cumulative effect of these occlusions may lead to organ damage. In the brain, this may be the basis for age related cognitive decline and dementia.

Dr. Grutzendler, assistant professor of neurology at Northwestern University, and colleagues recently discovered a novel cellular mechanism that removes clots from tiny blood vessels in the brain. Previously, it was thought that vessels removed blood clots by two methods, either by eventually pushing them along as blood is being pumped or breaking them down by enzymes. Dr. Grutzendler has determined a third method in which the vessel will project a membrane that engulfs the clot and then

expel it through a hole created at the point of encapsulation. The hole will be patched with some of the membrane that surrounded the clot, and blood will now flow freely again.

This amazing mechanism helps protect the brain from ischemic damage. However, if it doesn't work efficiently, it could have critical implications in the progression of age related cognitive decline. In Alzheimer's disease (AD) blood vessels are covered by a layer of an abnormal peptide called amyloid. This abnormality may affect the process of vessel clearance that Dr. Grutzendler's lab has discovered, making it slower and leading to more severe damage to the brain after occlusion.

Dr. Grutzendler is using his 2010 Seed Grant award to determine if Alzheimer's pathology has an effect on the speed of this new clearance mechanism and on the damage associated with occlusion of small blood vessels in the Alzheimer's brain. Using imaging techniques, Grutzendler is determining if the rate of clot clearance is altered in AD models. He hypothesizes that the clearance mechanism is delayed in AD models, leading to severe tissue damage following an occlusion. These experiments will provide novel information about the effects of AD pathology and amyloid angiopathy on clearance efficiency. This study may thus improve our understanding of the mechanistic links that exist between vascular pathology and Alzheimer's disease.



Microscopic image of blood vessel in the brain removing a clot. Time lapse photography over the course of five days.

2010 Seed Grant Recipients

Rajeshwar B. Awatramani, Ph.D.

*Department of Neurology,
Northwestern University*
The Developmental Basis of
Dopaminergic Neuron Diversity

Dane M. Chetkovich, M.D., Ph.D.

(Winner of Margaret Hoover Fay
Epilepsy Seed Grant)
*Department of Neurology,
Northwestern University*
Role of TRIP8b in Epilepsy

Anis Contractor, Ph.D.

*Department of Physiology,
Northwestern University*
The Role of beta2* Nicotinic
Receptors in Natural Reward
Mechanisms

David J. Freedman, Ph.D.

*Department of Neurobiology,
The University of Chicago*
Neuronal Circuit Mechanisms of
Visual Feature Integration

Jaime García-Añoveros, Ph.D.

*Department of Anesthesiology,
Northwestern University*
CRZF1 in Te Migration and
Differentiation of Cajal-Retzius Cells

Liang-Wei Gong, Ph.D.

*Department of Biological Sciences,
University of Illinois at Chicago*
The Regulation of Dynamin and
Actin Polymerization in Endocytic
Vesicle Biogenesis

Jay A. Gottfried, M.D., Ph.D.

*Department of Neurology,
Northwestern University*
Perceptual Coding of Natural Odors
in the Human Brain

Elizabeth A. Grove, Ph.D.

(Winner of the Women's Council
Seed Grant)
*Department of Neurobiology,
The University of Chicago*
Novel Approach to Gene
Manipulation in a Cerebral Cortical
Signaling Center

Jaime Grutzendler, M.D.

*Department of Neurology,
Northwestern University*
Embolus Extravasation: A Link
Between Vascular and Alzheimer's
Pathology

Orly Lazarov, Ph.D.

*Department of Anatomy and
Cell Biology,
University of Illinois at Chicago*
Regulation of Neural Stem Cells
by Amyloid Precursor Protein
Metabolites in the Adult Brain

Puneet Opal, M.D., Ph.D.

*Department of Neurology,
Northwestern University*
Role of VEGF in Spinocerebellar
Ataxia Type 1

Lei Wang, Ph.D.

*Department of Psychiatry and
Behavioral Sciences,
Northwestern University*
Development of a Calcium-Sensitive
MRI Probe for Neural Activity

Jack Waters, Ph.D.

*Department of Physiology,
Northwestern University*
Pre- and Postsynaptic Effects of
Muscarinic Acetylcholine Receptors
in Somatosensory Neocortex

Anthony R. West, Ph.D.

*Department of Neuroscience,
Rosalind Franklin University*
Phosphodiesterase 10A as a Novel
Therapeutic Target in the Treatment
of Levodopa-Induced Dyskinesias

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Rush University Medical Center*

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*Center for Neuroscience,
UC Davis*

D. James Surmeier, Ph.D.

*Department of Physiology,
Northwestern University*



- . Initiated in 1981
- . Awarded 571 seed grants, totaling more than \$8.5 million
- . Provides start-up monies for new research projects in the field of neuroscience
- . Competitive, peer-reviewed program
- . Two phase application process
 - Phase 1 – Letter of Intent
 - Phase 2 – Application
- . 2011 award amount is \$40,000 for a one year grant period
- . Application process online at www.theBRF.org

“Rockin’ on the River” Nets Almost \$40,000

On Wednesday, August 18, 2010, the Associate Board of the Brain Research Foundation hosted its first annual signature event with over 200 people in attendance.

Attendees enjoyed a perfect summer evening along the Chicago riverwalk at 401 North Michigan. The event featured refreshing cocktails, raffle prizes and the music of Dr. Bombay, who graciously donated its time and amazing talent. Delicious hors d’oeuvres and desserts kept the crowd fueled for a night of socializing and dancing as passersby enjoyed the music wafting up to Michigan Avenue.

Thanks to the incredible enthusiasm, effort and generosity of the event’s sponsors, contributors and attendees, the Associate Board is pleased to report that its first official major fundraising event as part of the BRF was a great success! Almost \$40,000 was raised to help fund additional brain research grants.

The BRF Associate Board raised over \$3,500 from raffle tickets alone at the event. Prize winners took home tickets to multiple sporting events, an Odyssey dinner cruise and the most coveted prize of the evening—Chef for a Day at Charlie Trotter’s. Congratulations to all our winners! We hope you are enjoying the prizes as much as we enjoyed putting together the raffle.

The Associate Board greatly appreciated all who helped make this first annual event such a huge success. We look forward to seeing you all there next year.



From left, Jason Chmielewski, Associate Board Member Sarah Burke, Steve Snyder, Jennifer Cunningham



Chris Mitchell, Associate Board Member Nick Rotondo, Anne Byrne, Associate Board Chair John Nicholson



Board Member Kathy Thompson, Associate Board Member Lua Clark



Dean Sinadinowski, Andrea Fikany, Alicia Nicholson, Emily Schnurr



Peter Kasdin, Associate Board Member Michael Kasdin



Amy and Brad Weintraub, Associate Board Member Katie Pisel



Bob Schultze, Dan Neidermyer

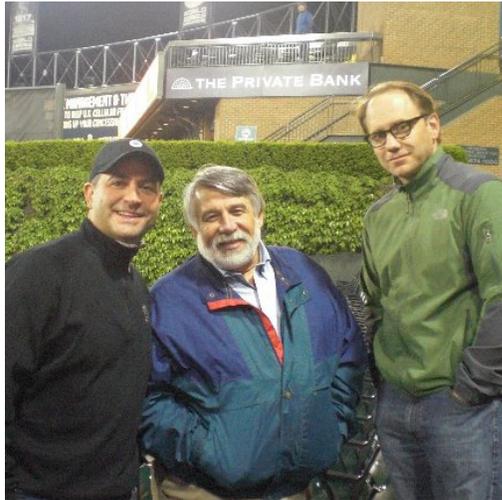
After Hours

Take Me Out to the Ball Game!

On Thursday, May 6th the Associate Board of the Brain Research Foundation hosted its second annual Sox Game fundraiser. We successfully sold 500 tickets to the Chicago White Sox versus Toronto Blue Jays game. Despite the cold and rainy weather at US Cellular Field we had great attendance from board members, family, friends, little league groups, coworkers and church groups.

Our largest group in attendance was the Liberty Temple Full Gospel with almost 50 members turning out to support the BRF. The Gospel group helped spread awareness by proudly wearing our BRF t-shirts – *It Takes Brains to Play Ball*. In addition, the young kids from this group were also on the jumbotron showing off their clever dance moves and those great BRF t-shirts!

We would like to extend a big thanks to our top tickets sellers; Jennifer Falconer, John Nicholson, Michael Kasdin and Kathy Thompson. Through their efforts as well as the hard work and dedication of other board members, we were able to raise \$1,250 for the Brain Research Foundation. We hope by making this evening an annual event we will continue to raise money and raise awareness for BRF.



From left, Associate Board Member Brant Ahrens, Board Member Dr. Bennett Leventhal, Dr. Joe Nyre



Jeff Ambrose, Chris Kaskie, Amy Kaskie, Associate Board Member Julie Schultz, Larry Harris



The cold rainy weather on May 6th couldn't dampen the spirits of this group of BRF supporters.



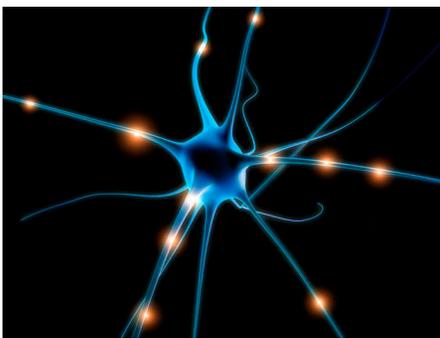
Chicago's Liberty Temple Full Gospel Church was the largest group to attend the event. The BRF is most appreciative of its support and hope they will join us in 2011.

111 West Washington Street
Suite 1710
Chicago, Illinois 60602

For more information on the
Brain Research Foundation, please
call 312.759.5150 or visit our website at
www.theBRF.org

You can also follow us on Facebook
www.facebook.com/brainresearchfoundation

Brain Matters



BRF's Neuroscience Day is an opportunity
to share research interests and stimulate
scientific interactions between laboratories

Annual Neuroscience Day

On December 3, 2010, the Brain Research Foundation will sponsor its 11th Annual Neuroscience Day.

This event is held every year to promote the interaction of neuroscientists and to learn about new, exciting research through poster presentations and lectures. This unique forum is intended to provide members of the Chicagoland neuroscience community the opportunity to share research interests and to stimulate scientific interactions between laboratories.

Neuroscience Day will begin with poster presentations by graduate students and postdoctoral fellows. Posters will be from a variety of areas of study, including Alzheimer's disease, depression, epilepsy and schizophrenia. The posters will give a brief summary of recent research that graduate students and postdoctoral fellows conducted. Each participant will be on hand to explain their work. Judges from various Chicago institutions will grade the posters and the top presenters will be awarded \$500 for their outstanding work.

Scientific lectures will follow the poster presentations. The speakers will be: Christian Hansel, Ph.D. from the University of Chicago, Roger Nicoll, M.D. from the University of California, San Francisco, Harry Orr, Ph.D. from the University of Minnesota, and Robert Vassar, Ph.D. from Northwestern University. Sangram S. Sisodia, Ph.D., from the University of Chicago, is the moderator for this event.