

# Discover!

news from the Brain Research Foundation

## Scientific Innovations Award Winners

The Brain Research Foundation has expanded our funding to support even more ground-breaking research. In addition to our annual Fay/Frank Seed Grant Program, the Foundation is awarding two larger grants at \$150,000 each to distinguished investigators. The winners are the first recipients of the newly established BRF Scientific Innovations Award (SIA). By selecting projects from highly experienced and productive scientists, the BRF provides funds for novel approaches to understanding the brain that will lead to significant findings.

The intent of this new awards program is to support research ideas or strategies that are so cutting-edge that they may not yet be considered for other sources of funding. The Foundation expects these grants will yield exciting results that will form the basis of submissions for major grant funding and lead to significant publications in high impact journals. The awards will fund any area of the full spectrum of brain function and disease, including ADHD, autism

### 2012 Scientific Innovations Award Winners

#### Ben A. Barres, M.D., Ph.D.

Professor and Chair, Department of Neurobiology, Stanford University School of Medicine  
*An Astrocytic Basis for Humanity*

#### W. Martin Usrey, Ph.D.

Professor, Center for Neuroscience, University of California Davis  
*Optogenetics in the Behaving Primate: Using Light to Study Cortical Function*

spectrum disorder, Parkinson's disease, Alzheimer's disease, epilepsy, schizophrenia, mood disorders, ALS, and many others.

The Scientific Innovations Award program provides funding for innovative science in both basic and clinical neuroscience. This funding mechanism is designed to support creative, novel, exploratory research in well-established research laboratories, under the direction of distinguished investigators.

Medical institutions from across the United States were invited to nominate one faculty member to apply for the SIA. The application process mirrored the current Seed Grant Program process; letters of intent were submitted first, (we

received 73 letters of intent) followed by invitations from the Foundation for full applications.

The Brain Research Foundation's Scientific Review Committee (SRC) then evaluated the SIA proposals and recommended to the Foundation the most promising ideas for funding. The SRC is a national group of highly regarded senior scientists

broadly representing various neuroscience-related programs. Two or more BRF trustees were also present when the Committee met.

"Obtaining federal research funding is extremely difficult, especially for exploratory research. It is our role to help fill the funding gap through our research grant programs," said Terre Constantine, BRF Executive Director. "Our ultimate goal is to facilitate the discovery of new scientific knowledge that will result in improved treatments and cures for brain disorders."

*Note: SRC member Kimberley McAllister did not participate in the SIA proposal review process.*



<b>In this issue:</b>	
Dear Friends	page 2
Foundation Forward	page 3
BRF Lab Notes	page 4
In The Spotlight	page 5
BRF After Hours	page 6
Research Community	page 8

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# Dear Friends,



I have been privileged to be the Executive Director of the Brain Research Foundation for several years. When I first began, my interest in this organization was, in part, driven by the fact that I was a scientist and had experienced first-hand how difficult it is to obtain funding for research, support staff and a well-equipped lab in order to pursue innovative ideas.

I was excited about the important funding need that the Brain Research Foundation fills; it helps advance emerging science and answer critical questions about the brain.

At the start, my passion came from a professional knowledge for the need for funding. Now there is another passion that amplifies my motivation—a very personal passion. Two years ago my mother was diagnosed with a stage 4 brain tumor. I take comfort from the knowledge that the research BRF makes possible will play a role in helping people who are suffering with a wide range of neurological

diseases—including the type of brain tumor that has afflicted my mother. A cure will not come today . . . it will not come tomorrow . . . and it will not come in time to help her. But I know our organization is making a difference and I am extremely proud to be leading it.

My story is not unique. Most, if not all of you, have a similar story of a loved one that has suffered with a neurological issue. It is important to share these stories in order to give a voice to the incredible passion that drives our Foundation. We plan to tell these stories by featuring a personal story in each of our upcoming newsletters. These stories illustrate the tremendous need for research that will move us closer to answers. This issue features a personal story from BRF Associate Board member, Andrew Swigart, whose family was profoundly affected by brain disorders. Please read his story on page 5.

The Foundation's mission is to help uncover answers by supporting groundbreaking neuroscience research. The Foundation has always strived to maximize the research that we fund with the donations we receive. In 2011 we codified an even more specific goal—100% of the unrestricted/temporarily restricted contributions we receive will be used to fund innovative research projects and educational programs pertaining to the brain.

We want our donors to know that every dollar that they donate will be directly utilized to advance the understanding of the brain. We are confident that our commitment will one day lead to novel treatments and the prevention of neurological diseases in children and adults. A recent analysis of BRF grantees has shown that every \$1 the BRF has invested in their research has enabled them to generate over eight times that amount in additional funding.

When one considers the limited resources available to researchers exploring new, untested ideas, this statistic becomes all the more meaningful. The funding we provide is truly making a critical difference. With your support, the financial health of the BRF will continue to be positive and we will be able to use the interest from our fund balances to cover operating costs, thus achieving our goal of utilizing all incoming donations for the meaningful programs that are changing our understanding of the brain.

As you read this newsletter, I hope you will become inspired by what we do. Please help us continue our mission by donating to a cause that affects us all.

Sincerely,

A handwritten signature in dark ink, reading "Terre A. Constantine".

Terre A. Constantine, Ph.D.  
*Executive Director*

# Foundation Forward

## The Brain Research Foundation Moves Concussion Education Forward

For over a year, the Brain Research Foundation has been working to expand awareness of the need for more education and research on the topic of sports-related head injuries. We conducted a qualitative survey in the fall of 2010 and identified that coaches, trainers and physicians who steward young athletes are not adequately educated about concussions. We are working to encourage better understanding about long-term risks as well as the need to closely monitor students before they return to play. We believe that increasing awareness among

athletic directors, medical professionals, parents and students will ultimately lead to safer experiences for young athletes.

In support of building this awareness, the Brain Research Foundation awarded a \$50,000 grant to Sports Legacy Institute to help fund an initiative designed to improve how coaches and athletic directors respond to sports-related head injuries.

The grant will fund concussion education and training programs for coaches and athletic trainers of the Chicago Public Schools as well as other area schools during calendar year 2012.

"We are honored that the Brain Research Foundation is supporting this initiative to protect the brains and futures of athletes," said Christopher Nowinski, Co-Founder and CEO of Sports Legacy Institute. "Together we will empower thousands of coaches and athletic directors to play sports smarter and more safely."

To date, there have been 22 Advanced Concussion Trainings, reaching more than 2,000 coaches, athletic directors and students in Chicago.



Chris Nowinsky (left), CEO of Sports Legacy Institute, receives BRF's grant from Terre Constantine and Rob Johnson at the 2011 Discovery Dinner.

### Compelling Math

Since 1981, our Seed Grant Program has awarded \$9.2 million to innovative neuroscientists. Our modest grants have generated the data required to obtain over eight times the initial investment in further funding

To find out more about the funding success of our grantees, download a copy of our 2010-2011 annual report at [www.theBRF.org](http://www.theBRF.org).

### Matching Gift Programs

Everyone has heard of a Matching Gift but many of us may not know if the company we work for has a Matching Gift Program.

Companies do this to encourage their employees to donate to charitable organizations like the Brain Research Foundation. Many companies and foundations will double or even triple the value of charitable gifts made by employees and their spouses, board members, and retirees. By taking advantage of a company's matching gift benefit, you will be making an even bigger impact in advancing the understanding of the brain.

Talk to personnel at your company to see if such a program exists. Or go to our website to donate and use the search engine on that page to quickly determine if your company will match your gift. We hope you will take a moment to help maximize your donation.



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.

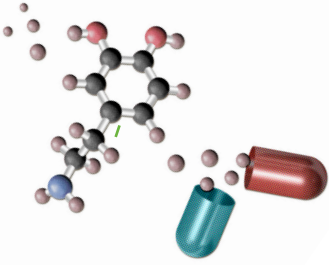
**Direct Gifts** Contributions are accepted in the form of cash, check, credit card, and stock.

**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](http://www.theBRF.org).



# BRF Lab Notes

## Circadian Clocks and Neurodegenerative Disease



Ravi Allada, M.D.

**Ravi Allada, M.D.**, Professor of Neurobiology at Northwestern University, is interested in the molecular mechanisms underlying circadian rhythms and their links to various clinical disorders, including insomnia, depression and even neurodegenerative diseases. A circadian clock is an internal biological clock that regulates the 24 hour cycle of biological processes in animals and plants. Circadian clocks are important in determining the sleeping and eating patterns of all animals.

Patients with neurodegenerative diseases, such as Alzheimer's, Huntington's and Parkinson's diseases, often suffer from sleep and circadian disorders. This disruption of sleep makes care giving extraordinarily difficult and in many cases worsens disease symptoms. Understanding the

link between circadian disorders and neurodegeneration, the progressive loss of structure or function of neurons, may provide important inroads towards improving the lives of patients with neurodegenerative diseases.

In 2011, the Brain Research Foundation awarded Dr. Allada a seed grant to study a specific circadian clock gene and its role in neuronal maintenance and neuroprotection. Dr. Allada will examine the *Drosophila*; this fruit fly has been a powerful model for elucidating the underlying mechanisms of circadian clocks. Using the fruit fly is an economical approach to test various hypotheses. In addition, we know that flies and mammals share genetic mechanisms underlying circadian rhythms. There are also well-developed models of human neurodegenerative diseases in flies.

The Allada lab has discovered that the main gene controlling the circadian clock, Clock (*Clk*), may act to protect against neurodegeneration. Dr. Allada hypothesizes that *Clk* allows neurons to regulate their activity to avoid excitotoxicity, the long-term damage of neurons that is caused by excessive neural activity. Dr. Allada proposes to test whether *Clk* mutant flies are more susceptible to neurodegeneration. He will also test whether extra *Clk*, conversely, is protective against neurodegeneration. If his hypothesis is confirmed, the research we've funded may lead to diagnostic tests, preventative measures and treatments aimed at any underlying circadian contribution to neurodegenerative disorders.

## Yale Professor is Our Newest Scientific Review Committee Member



Matthew W. State, M.D., Ph.D.

The Brain Research Foundation Scientific Review Committee (SRC) is made up of highly-regarded researchers in the field of neuroscience. The Committee lends its scientific expertise when reviewing the numerous research proposals submitted to the BRF. It is the SRC that evaluates these proposals and provides recommendations for funding by the Foundation. We are pleased to announce that **Matthew W. State, M.D., Ph.D.** has recently joined the Committee.

Dr. State is the Donald J. Cohen Professor of Child Psychiatry, Psychiatry and Genetics at Yale University School of Medicine. He is a leading child psychiatrist whose research focuses on understanding the genetic mechanisms involved in childhood neurodevelopmental and neuropsychiatric disorders. Currently his lab concentrates on Tourette's syndrome, obsessive compulsive disorder, autism, childhood onset schizophrenia and structural brain disorders. He received his undergraduate and medical degrees from Stanford University and his Ph.D. in Genetics from Yale University.

"BRF is thrilled to continue to strengthen our SRC by adding new talent," stated Terre Constantine, Executive Director. "We know that Dr. State's scientific expertise will be a great asset during the review process."

# In The Spotlight

## Associate Board Supporting Seed Grant Program

The Brain Research Foundation Associate Board was established to increase awareness of children's brain disorders and the important work of the Foundation. The Associate Board focuses on making a positive difference in the lives of children with brain disorders and their families through public educational programs, professional education, and now, by helping to fund cutting-edge neuroscience research by sponsoring a seed grant.

One way the Associate Board generates awareness and support is through its annual event *Rockin' on the River*. Its most recent event was extremely successful with net proceeds totaling nearly \$50,000. With these funds, the Associate Board is taking its commitment to a new level by supporting research through funding of a 2012 Fay/Frank Seed Grant. The Associate Board seed grant recipient will be a researcher specifically advancing the understanding of a children's brain disorder. As always, the seed grant proposals will be reviewed by our Scientific Review Committee, a national group of well-respected neuroscientists, that evaluates each grant proposal to determine the most promising new research projects in the field of neuroscience. The Committee selects those projects that will likely lead to extramural funding from the National Institutes of Health or other outside funding sources.

Once the winners are identified, the Associate Board will select the project it wants to support. The Board will follow the recipient's progress and be able to experience—first-hand—how its investment is making a scientific difference.



Associate Board members at *Rockin' on the River*. From left, Lua M. Clark, Bernardo Lacayo, Nicholas J. Rotondo.



BRF's Associate Board generated nearly \$50,000 at *Rockin' on the River*. From left, Board members Graham V. Bayly and Ryan A. Cordier.

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## My Passion for the Foundation

*A story from Andrew Swigart,  
BRF Associate Board member*



Statistically, over 50 million Americans are affected by brain and nervous system disorders. In my case, as may be the case for many of you reading this, that statistic is a part of my life.

The lives of both my sister and mother were irreparably altered by neurological disorders and

the mysterious factors that cause them. My sister is a childhood cancer survivor. She survived an ependymoma tumor—a malignant growth in the central nervous system. Those of you with a similar experience know that childhood cancer traumatizes the patient and her family in different ways. I was in second grade when my sister was diagnosed so her illness impacted a majority of my childhood. Like many young siblings of those who have had severe childhood illnesses, I grappled with a lot of complex feelings. It was difficult for me to wrap my mind around the attention and centrality of my sister's situation. My parents had to make life or death decisions for her and at the same time provide some normalcy for me. It was a lot for us all to handle.

My sister suffered, struggled, and has overcome many of the ramifications of her treatment with a graceful strength, a subtle toughness and iron grit. I am very pleased to say that her cancer has been in remission for over 25 years.

Years later, another neurological disorder called Creutzfeldt-Jakob Disease (CJD) struck my family. CJD is like an accelerated version of Alzheimer's disease. Slowly, malformed proteins clogged my mother's neural pathways affecting her higher reasoning skills, memory, motor functions, and ultimately her body's most basic functions. We lost small parts of her on a daily basis and her passing was a slow process to watch: physically painless but emotionally wrenching.

My family's experience has provided me with a passion to support the advancement of basic scientific research and the perspective to appreciate the direct correlation between that research and hope. The BRF seed grants push forward the frontiers of medical science. The answers derived from the research the Foundation funds will benefit us all, and provide other families some much-needed hope.

I was profoundly shaped by both illnesses; they are inseparable from my life. I am grateful for the BRF for providing me the opportunity to help support the advancement of research that will one day prevent other families from experiencing the trauma that affected mine.

# The 2011 Discovery Dinner

## The Dinner Panelists:

### **Dane M. Chetkovich, M.D., Ph.D.**

*Associate Professor, Department of Neurology, Northwestern University*

### **Orly Lazarov, Ph.D.**

*Associate Professor, Department of Anatomy and Cell Biology, University of Illinois at Chicago*

### **Jill A. Morris, Ph.D.**

*Program Director, Neurogenetics National Institute of Neurological Disorders and Stroke, National Institutes of Health*

## \$728,000 Contributed for Research at our 2011 Discovery Dinner

More than 300 guests arrived at the Four Seasons Chicago on Tuesday, November 1, to support neuroscience research. The 2011 Discovery Dinner was chaired by BRF Trustees and friends Suzanne M. Kopp-Moskow and Michael H. Moskow, Linda and Tom Heagy and Millie Rosenbloom Simon and John B. Simon.

Along with a reception and dinner, the Brain Research Foundation honored two worthy recipients with the Frederic Gibbs Discovery Award. Virginia and Norman Bobins received the Philanthropic Leadership Award, recognizing their many years' commitment and outstanding fundraising efforts for neurological research. Aon Corporation received the Discovery Award for Community Service. Greg Case, Aon's President and CEO, accepted the award on behalf of Aon, which was honored for its commitment to service and a firm-wide culture of giving back.

## Panel Discussion Focused on Investing in Scientific Discovery

After dinner, guests heard from a panel of three distinguished investigators who discussed the importance of supporting scientific research. The panel discussion focused on the BRF's most successful and longstanding research funding mechanism—the Fay/Frank Seed Grant Program. 2011 marked the 30<sup>th</sup> anniversary of this grant program which invests in worthy, innovative neuroscience research.

The panel consisted of past and current seed grant recipients. Answering questions posed by moderator and BRF Executive Director, Terre Constantine, they explained how BRF funding enabled them to publish articles and obtain additional funding, advancing the understanding of the brain. All three panelists emphasized that BRF's support was critical to get new projects off the ground—especially in this current funding climate when the NIH funding rate can be as low as 6%.



From left, panel participants Orly Lazarov, Ph.D., Dane M. Chetkovich, M.D., Ph.D., Jill A. Morris, Ph.D.



From left, evening co-chairs John Simon, Millie Rosenbloom Simon, Tom Heagy, Linda Heagy, Executive Director Terre Constantine, Ph.D., and co-chairs Suzanne M. Kopp-Moskow, Michael Moskow



Miles White, Chairman of the Board and CEO of Abbott, and event co-chair Suzanne M. Kopp-Moskow presenting the Discovery Award for Community Service to Aon's President and CEO Greg Case



Virginia Bobins and Norm Bobins receive the Philanthropic Leadership Award from event co-chairs Millie Rosenbloom Simon (left) and Linda Heagy



Lisa and Jeff Aronin



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Dinner sponsors made contributions of \$5,000 or more to host tables and ensure that the BRF's Seed Grant Program will be well funded for 2012. The sponsors were:

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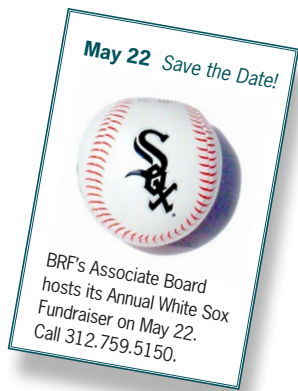
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On January 20, 2012, the BRF sponsored its 12th Annual Neuroscience Day. This event is held every year to promote the interaction of neuroscientists and to learn about new, exciting research through poster presentations and lectures. This unique forum provides members of the Chicagoland neuroscience community the opportunity to share research interests and stimulates scientific interactions between laboratories.

Neuroscience Day begins with poster presentations by graduate students and postdoctoral fellows. Posters are from a variety of areas of study, including Alzheimer's

disease, depression, epilepsy and schizophrenia. The posters give a brief summary of recent research that the students and fellows conducted. Each participant is on hand to explain their work. Judges from various Chicago institutions grade the posters and the top presenters are awarded \$500 for their outstanding work.

Scientific lectures followed the poster presentations.

The speakers were:  
**David J. Freedman, Ph.D.,**  
*The University of Chicago*

**Dimitri Krainc, M.D., Ph.D.,**  
*Harvard University*

**Jeffrey D. Rothstein, M.D., Ph.D.,**  
*Johns Hopkins University*

**Catherine S. Woolley, Ph.D.,**  
*Northwestern University*

**Sangram S. Sisodia, Ph.D.,**  
*The University of Chicago*, was the moderator for this event.

## Winners of the Poster Presentation

Graduate students:

**Scott DeBoer,**  
*The University of Chicago*  
**Marina Yasvoina,**  
*Northwestern University*

Postdoctoral fellows:

**Kulandaivelu Vetrivel,**  
*The University of Chicago*  
**Marija Cvetanovic,**  
*Northwestern University*