The Heinz C. Prechter Bipolar Research Fund at the University of Michigan is one of the many legacies of Heinz Prechter, a Michigan man who truly changed the world. His family, Wally, Paul, and Stephanie, carry on his legacy of creating a better world through the Fund. Hardly a day passes without a remembrance of Heinz. A study participant, a supporter, someone attending a clinic appointment tells us they met Heinz and they remember a moment with him.

The flagship Prechter Longitudinal Study of Bipolar Disorder reflects the participation and contributions of thousands! Through the experiences volunteered by so many, we will gain greater knowledge and understanding to form the base for improved treatments.

Though more than 1,000 individuals volunteered for the Longitudinal Study, we have not lost our focus on the individual. The illness patterns of individuals with bipolar disorder vary considerably. Some individuals have frequent recurrences of significant symptoms; others have minimal symptoms over time and little interference with personal, social or vocational life. Bipolar disorder is not one illness. We talk of BPI and BPII but there are undoubtedly many subtypes and variations of this disease; the more severe forms include suicide.

For this reason and many others, predicting and preventing episodes in the bipolar individual is a priority. Our collaborators in the College of Engineering led by Emily Provost, Ph.D., have created ground-breaking software for smart phones to capture outgoing speech on the phones and upload to a central server to analyze the acoustic patterns of speech in order to predict impending mood changes. 

This project has captured attention nationwide and we have had several media interviews on this topic. We are also working on research at a cellular level. Our stem-cell program is the vanguard of biological research. Our studies in the labs of Sue O'Shea, Ph.D., are the first reports of a cell-based model of bipolar using cells derived from patients. The signaling mechanisms between nerve cells is abnormal but is normalized with lithium. This offers a model to study cell function, helping us to discover new molecules and create new medications based on this research. Participate and contribute to research — solutions reduce stigma.

Live well,

[Signature]

Melvin G. McInnis, M.D., FRCpsych
Thomas B. and Nancy Upjohn Woodworth
Professor of Bipolar Disorder and Depression
Professor of Psychiatry
Principal Investigator,
Heinz C Prechter Bipolar Research Fund

What does the Prechter logo mean?
The blue ribbon “P” is surrounded by a white circle. It represents the cycle of the illness. Always in search for balance and wellness in life, patients with bipolar disorder alternate between the poles of “mania” and “depression.” The blue ribbon breaking through the circle signifies the Fund’s goal to advance breakthrough medical research to develop cures for the illness.
Dear Friends:

Thank you, as always, for your faithful support of the Heinz C. Prechter Bipolar Research Fund! This is a pivotal year for the Fund, as we embark on the task of a bold fundraising campaign to ensure its sustainability and bright future under the direction of Dr. Melvin McNinnis and Research Manager Gloria Harrington. I’m excited to announce that, to ignite the pace of new knowledge and treatments for bipolar illness, all gifts are being matched, dollar-for-dollar, by a generous donor, so there has never been a better time to make a donation to the Heinz C. Prechter Bipolar Research Fund. I hope you will share this news with others who might be considering becoming donors, in order to inspire them into action. We are extremely pleased and excited that our first stem cell study results were announced on a nationwide audience on March 25! They show that nerve cells created from bipolar skin cells behave and respond to lithium differently, and that knowledge opens doors to potential new and customized treatments for patients.

I know the future of the Heinz C. Prechter Bipolar Research Fund is bright and promising and, thanks to all of your support, we are able to see the light at the end of the tunnel! Most Sincerely,

Waltraud E. Prechter
Founder, Heinz C. Prechter Bipolar Research Fund

VICTORS FOR MICHIGAN

Meet Our Team: Sebastian Zoellner

The term “Big Data” has a lot of connotations. To some, it may conjure the appropriation of personal data by large corporations — but in truth, Big Data really just means the availability of large amounts of data, and there are many instances where having that data is a good thing. One such example is the Heinz C. Prechter Longitudinal Study of Bipolar.

The data used in this study come from multiple biological and clinical domains gathered over several years of assessments and observations from each of 1040 individual participants. The key word here is participants. This study never would have happened without them. These volunteers offered their personal data in the interest of this study and the new treatment strategies that we may be able to develop as a result. That’s where big data makes a big difference — because the more data we have, the more accurate the study will be. From these generous individuals, we were able to generate literally hundreds of billions of data points. That’s where Big Data really just means the availability of large amounts of data, and there are many instances where having that data is a good thing. One such example is the Heinz C. Prechter Longitudinal Study of Bipolar.

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Meet Our Team: Sebastian Zoellner

The Heinz C. Prechter Bipolar Research Fund at the University of Michigan Depression Center represents the future of bipolar research. No other program has its clinical, genetic and biological depth. The studies launched via the Prechter Fund are laying the foundation to transform complex brain-behavior mysteries into hope for the millions who are afflicted.

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Stem Cells – the Vanguard of Biomedical Research in Bipolar Disorder

Prechter scientists publish a stem cell model of BP

New stem cell research on bipolar disorder, conducted by the University of Michigan Medical School and the Heinz C. Prechter Bipolar Research Fund, is uncovering molecular mechanisms of this disabling illness.

In the March 25 issue of Translational Psychiatry, a team of researchers led by Sue O’Shea and Melvin McInnis published the report of the first stem cell lines generated from patients with bipolar disorder.

When the scientists prompted the stem cells to become neurons, they found significant differences in signaling and development in brain cells from patients compared to healthy controls.

“This is an important and exciting study,” said Chris Ross, Director of the Molecular Neurobiology Laboratory at the Johns Hopkins University, who was not involved in the study. “This work will help us better understand the disease and more importantly, develop new treatments for the more than six million Americans with bipolar disorder.”

The Potential of Stem Cells

It starts with a skin biopsy the size of a pencil eraser. These cells are grown with pluripotency factors (a combination of genes) – the Vanguard of Biomedical Research.

Neural differentiation and signaling

Nerve cells from people with bipolar have different receptors and channels related to calcium signaling—a key aspect of nerve development and signaling. Independent genetic research has implicated calcium channels as contributors to the disease.

Lithium, a medication often very effective in the management of bipolar disorder, appeared to normalize the signaling process among patients.

“Signals between nerve cells are fundamental to brain functioning,” McInnis points out. “A model for brain functioning opens the door for developing and testing novel treatments.”

Developmental Diversions

Although the symptoms of bipolar disorder typically emerge in late adolescence or early adulthood, the underlying brain abnormalities seem to be present much earlier. In the current study, O’Shea, McInnis and colleagues found evidence that developing cells from bipolar patients had differences akin to a transposition of a ZIP code that alters the destination of the cell. Are individuals with bipolar disorder “wired differently”? Potentially.

The findings from these studies have implications beyond bipolar disorder. “This is a very promising demonstration of the potential value of cellular models of brain diseases,” says Roy Perlis, M.D., Ph.D., Medical Director of the Bipolar Clinic and Research program at Harvard. “It’s a technology that will change how we study these diseases, and while we still have a lot to learn, this paper provides a glimmer of what may be ahead.”

What lies ahead is an expansion of the current study. More cell lines are under development, the team is expanding and collaborations established to replicate findings and establish the best bipolar model possible.
Living with Bipolar — a Fundamental Approach

It’s common sense that diet and exercise relate to physical health. But can diet and exercise help manage bipolar illness?

“Good scientific studies indicate yes,” says Simon Evans, Ph.D., co-author of BrainFit for Life. “Studies show that a poor diet can increase the risk of major depression and that exercise can actually act as an antidepressant. Poor eating habits and sedentary behavior can cause weight gain and increase risk of heart disease and diabetes. What’s less obvious is that they also relate to mental health.” Visit choosemyplate.gov to find tips for eating healthy on any budget and achieving appropriated levels of physical activity for any age.

Sleep Matters Too

“Sleep is also a key factor,” Evans adds. “We all know that we don’t feel as well when we don’t get enough sleep, but science also shows us that disrupted sleep can wreak havoc on our physical health as well, making us more likely to gain weight and even crave unhealthy sugary foods. For many, getting enough quality sleep is just a matter of prioritizing, but for others it’s a real problem that would benefit with the aid of bringing a sleep professional into the treatment team.”

Stick to the Basics

Evans points out that a focus on the fundamentals of health can lessen the burden of disease and potentially improve responses to medications or even reduce the need for medications. “The best part is that we all have a good deal of control over these fundamentals and we can choose to bring them to the forefront of any treatment plan,” he adds. “It really doesn’t have to be complicated. If you stick to basic advice, be skeptical of new health fads, keep your guilty pleasures in moderation, and stop looking for a shortcut, you’ll do fine. I like to use the analogy of a sports car. Often times health care providers will be like mechanics, helping you tune up your body. In the case of mental health disorders, drugs may help tune your brain chemistry to run more smoothly. But if, when you drive away, you choose to put sludge in your gas tank, the best tune up in the world will have limited value. The fundamentals of diet, exercise and sleep will help your health care provider help you much more effectively.”

Simon Evans, Ph.D. is the co-author (with Paul Burghardt, Ph.D.) of BrainFit for Life, which can be found on amazon.com.

We hear this frequently in the clinics and emergency rooms. Such observations by families and friends led investigators in the Prechter Longitudinal Bipolar Study to the hypothesis that the changes present in speech may be detected even earlier by computer analyses and used to anticipate and prevent an emerging manic or depressive episode. The PRIORI project is collaborative research between psychiatrists, social workers, and computer scientists to identify acoustic features of speech that associate with mood changes.

Prediction and prevention of bipolar episodes will intercept the consequences that change the lives of so many — including lost jobs, failed relationships, financial disasters and suicide.

Why speech?

Speech is how we represent what is happening in our mind and emotions. And it’s not just what we say, but how we say it. Listening involves paying attention to the tone and nature of what is being said. (Any parent of a college student will know the mood of their child can be predicted.)

How it works:

PRIORI is novel and highly innovative. Rather than depending on the person filling out a mood rating or responding to a text, information is gathered over the course of daily activity — talking on the phone. The system runs seamlessly in the background on a device that has become an essential part of our daily lives, our smartphone. A new scientific term has evolved to describe how this data is gathered: ecological momentary assessment. It means gathering information at the moment in an ecological manner, integrating into the working environment of the individual. This is a radical change in data gathering for health monitoring and assessment.

The preliminary results of PRIORI were recently published and have been reported upon by numerous media outlets. PRIORI has enormous potential and research continues. The next phase is to determine the sensitivity of the program and how early mood changes can be predicted.

The importance of listening: the PRIORI Project

“Doctor, I could hear it in her voice, and I knew the mania was around the corner.”

“S”udies show that a poor diet can increase the risk of major depression and that exercise can actually act as an antidepressant.” — Simon Evans, Ph.D.
MISSION
To provide a repository of longitudinal clinical, genetic, and biological data to investigators worldwide for collaborative research on the causes, prevention, and treatment of bipolar disorder.

VISION
To personalize treatment of bipolar disorder and prevent recurrences to enable those with bipolar disorder to lead healthy and productive lives.

A Special Thanks — and a Heads-Up for Those With an Eye for Style
Thanks to Suzen Kingston and the entire L.K.Bennett team in the Somerset Collection for their generous support of the Prechter Fund through two spectacular shopping events this past year.

Mark your calendars for the next event in their store on November 20th. Visit prechterfund.org for full details, and we’ll see you at L.K.Bennett Somerset on November 20!