Stanford MEDICINE | Department of Psychiatry and Behavioral Sciences

Research Translation Accelerator Program (RTAP)

A HIGH-IMPACT PHILANTHROPICALLY-DRIVEN RESEARCH ACCELERATOR TO TRANSFORM HEALTH AND WELLBEING

Transformative advances emerge from novel ideas, rigorous evidence-based research, and the philanthropic support to bring them to market. Stanford's platform for bringing new discoveries and treatments out of the lab and into the world has led to some of the most successful companies, technologies, and medical treatment advances. This institutional expertise encourages faculty to come forward with bold ideas knowing they have the university's backing.

The Research Translation Accelerator Program (RTAP) in the Department of Psychiatry and Behavioral Sciences is one example of how institutional and philanthropic support drives the incubation and transfer of the most innovative ideas out of the lab and into the broader world through commercial translation. RTAP was established to fill a critical funding gap by creating a bridge between academic research and commercial implementation. This bridge unleashes great potential to make transformative improvements in mental health and wellbeing.

Driving Innovation and Implementation

Vetted by a scientific selection committee, the following inaugural projects address an unmet need through a creative and tractable solution and were judged to have transformative potential and high likelihood of success.

Wearable Imaging: Tracking Brain Function "In the Wild"

Faculty lead: SM Hadi Hosseini, PhD, Assistant Professor
Goal: Develop a cost-effective functional brain imaging system that is wearable, wireless, and smartphone operated

Human brain imaging has provided an unprecedented window into the functioning of the brain in health and disease and has mapped brain circuits to mental capacities. The bedrock of this work over the past 25 years uses functional MRI (fMRI) in specialized research contexts. However, fMRI is costly, and restriction to academic research labs has limited its broad application. Imagine a new device that costs $100 vs $2 million.

Hadi Hosseini and his engineering collaborator, Audrey Bowen, are developing a wearable brain imaging device for measuring and tracking brain function "in the wild." Using optical imaging, it allows localized detection of brain activity. Currently built as a prototype model, this cost-effective device can collect functional brain imaging data on a smartphone—at rest, during sleep or exercise, and while performing cognitive tasks. RTAP funding will support optimization and validation of this new technology toward early diagnosis, monitoring response to treatment, and promoting overall brain health. Initially, the work will focus on profiling healthy brain function, ADHD, Alzheimer's, and depression.

Revolutionizing Detection of Autism: A Laboratory-Based Diagnostic Test

Faculty lead: Karen J. Parker, PhD, Associate Professor
Goal: Develop the first commercially available laboratory-based diagnostic test for early detection of autism

Autism is one of the most devastating and prevalent of childhood medical conditions. It is currently diagnosed based on behavioral criteria due to lack of objective biological markers of the disease. Although autistic symptoms are often evident by 18 to 24 months of age, the average age of an autism diagnosis in the United States is four years of age—well past the time when behavioral interventions are likely to be maximally beneficial.

Karen Parker and her team have pioneered the detection of autism based on a child's biological markers. They can detect autism in behaviorally symptomatic children and in children before the disorder manifests behaviorally. The proposed project will extend these promising findings to include state-of-the-art proteomic analysis tools to develop the first multidimensional biomarker panel for early detection of autism. Once commercialized, this sensitive and specific laboratory-based diagnostic will revolutionize the evaluation and treatment of autism through earlier detection, more timely intervention, and identification of "drugable" targets for novel pharmacological development.

"As science endeavors to understand and broaden our potential for human flourishing, psychiatric research represents one of our most urgent and high-impact ventures. We have a dual responsibility to understand the well and unwell sides of life and to translate knowledge into evidence-based strategies that transform lives."

— **Laura Roberts, MD**
The Katharine Dexter McCormick and Stanley McCormick Memorial Professor in the School of Medicine

Chairman, Department of Psychiatry and Behavioral Sciences

Train Your Brain for Healthy Eating: Targeting Neural Circuits to Sustain Weight Loss and Prevent Obesity

Faculty leads: Cara Bohon, PhD, Assistant Professor and Eric Stice, PhD, Professor
Goal: Develop a computer-based brain training program for weight loss and obesity prevention

Obesity is the second leading preventable cause of death in western countries, yet current prevention and treatment options have limited effectiveness. What if we could train our brains to devalue high-calorie, unhealthy foods? That is the premise behind a novel approach to obesity prevention and weight loss being developed in the labs of Cara Bohon and Eric Stice.

People whose brains show greater reward and attention response and less inhibitory response to high-calorie foods have a propensity for future weight gain. The brain training approach works because it capitalizes on neural circuitry connections to develop a new method of reducing cravings for unhealthy foods. Funding would support the development of a computer-based program to retrain the brain's response to food cues. This approach would enable sustainable dietary changes and weight loss, thus reducing risk factors for heart disease, diabetes, and joint pain while improving overall health and wellbeing.

Accelerate Solutions and Create Impact Through Philanthropy

Your support of RTAP, the Research Translation Accelerator Program, will bring life-saving diagnostic and treatment innovations to the world at an accelerated pace. You can participate in a pooled fund or target support toward a specific project. Every gift supports tangible programs, funds next-step product development, and ultimately improves the health of millions of people worldwide.

There is no health without mental health.

Contact Us

Deborah Stinchfield | *Philanthropic Advisor, Psychiatry and Behavioral Sciences*
dstinchfield@stanford.edu | 650.725.1073
medicalgiving.stanford.edu | med.stanford.edu/psychiatry.html