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## **Largest-Ever Chronic Fatigue Syndrome Research Initiative Announced by CFIDS Association of America**

CHARLOTTE, North Carolina—December 3, 2008. The four million Americans who suffer from chronic fatigue syndrome (CFS) have new reason for hope today with the announcement of an unprecedented research program to help identify biomarkers to improve diagnosis and treatment of CFS. The announcement was made by the CFIDS Association of America, which is funding the program, called the Accelerate CFS Research Initiative.

The initiative was made possible by the successful completion of a yearlong, million-dollar fundraising campaign, the largest research campaign for CFS to date in the United States. The CFIDS Association has funded more than \$5.4 million in research since 1987, making it second only to the federal government in CFS research spending.

“The campaign is enabling us to develop a revitalized research program for CFS,” said Kimberly McCleary, president and CEO of the CFIDS Association. “Today, the Accelerate CFS Research Initiative has already resulted in research grants totaling \$647,940 to six research teams in the U.S. and Canada. This will lead to an international network of scientists who routinely collaborate and communicate to accelerate the pace of CFS research.”

The grants were awarded following a rigorous process that included a review of proposals by 44 independent experts for scientific merit and by CFIDS Association board members for strategic merit. “We were very impressed with the number and caliber of grant proposals we received this year, which signals a heightened level of interest in CFS research,” said Suzanne Vernon, PhD, the CFIDS Association’s scientific director. “And most of the grant recipients, while experts in their respective fields, are new to CFS research. It’s critical to attract new investigators to CFS research in order to propel the field forward.”

The grant recipients are:

- **Gordon Broderick, PhD, associate professor in the Department of Medicine at the University of Alberta in Canada.** Broderick, a chemical engineer and leader in bioinformatics, will lead a cross-disciplinary team from four institutions to study adolescent patients who became ill with CFS after contracting infectious mononucleosis, which is caused by the Epstein-Barr virus. By studying the immune and endocrine response in patients from the time they get infectious mononucleosis to the development of CFS and through the first 24 months of illness, the researchers hope to identify biomarkers for early disease and for disease progression. These markers are essential for early detection and diagnosis, and may point to novel treatment courses.
- **Kathleen Light, PhD, a research professor at the University of Utah Health Sciences Center.** Light and her team will try to uncover the mechanisms involved in the chronic pain that afflicts 40%-70% of CFS patients. This study will confirm or negate preliminary evidence Light gathered during an NIH-funded study demonstrating that

receptors located on blood cells are increased and overactive in people with CFS, causing increased pain sensitivity. Light theorizes that increases in specific receptors following exercise may be blood-based biomarkers for CFS and could lead to a medical test to identify CFS patients. The study will also examine a combination of blood receptors to help identify subtypes of CFS and guide treatment of specific patient subgroups.

- **Marvin Medow, PhD, associate director of the Research Division of the Department of Pediatrics at New York Medical College.** Medow and his colleagues will investigate whether increased pooling of blood in the abdomen of CFS patients results in reduced cerebral blood flow. Medow will examine physiologic and oxidative stress changes associated with disturbance in blood flow. These results will help determine if alterations in blood flow affect brain metabolism.
- **Bhubaneswar Mishra, PhD, a computational biology expert and professor at the Courant Institute of Mathematical Sciences at NYU.** Mishra will use state-of-the-art bioinformatics and computational biology tools to create an agnostic computational model of CFS—a kind of “Google for CFS” that will be part database, part knowledge-base, part research network. This new resource will provide a “systems view” of CFS that accumulates published CFS literature and experimental data to disentangle complex relationships among reported findings and discover causes of CFS.
- **Sanjay Shukla, PhD, a microbiologist and research scientist at Marshfield Clinic Research Foundation.** Shukla and his team are using metagenomics to determine if the ratio of good to bad intestinal bacteria in CFS patients is altered, and whether this imbalance in gut bacteria may be responsible for triggering CFS symptoms. Recent advances in metagenomics have demonstrated the significance of altered gastrointestinal bacteria in illnesses like HIV, diabetes, Crohn’s disease, inflammatory bowel disease and ulcerative colitis. Shukla theorizes that CFS patients also have an imbalance of good and bad intestinal bacteria, resulting in enhanced intestinal permeability—called leaky gut—allowing bacteria to move across the protective intestinal barrier and causing chronic inflammation and immune activation in CFS patients. The study will rigorously examine these issues and investigate whether exercise may worsen this bacterial translocation, helping contribute to postexertional malaise in CFS. This study will contribute to our understanding of the relationship between the human microbiome and CFS. It may also produce evidence for new treatments, including the use of probiotics.
- **Dikoma Shungu, PhD, a physics professor and research scientist at Weill Medical College of Cornell University.** Using a brain scanning technique called magnetic resonance spectroscopy, which not only provides a picture of the brain but also detects and measures various brain chemicals, Shungu and his team will build on a preliminary study showing that brain fluid of CFS patients contains significantly elevated levels of lactic acid, or lactate, a substance important in metabolism. (Results from this preliminary study, also funded by the CFIDS Association, were published in October 2008 in the journal *NMR in Biomedicine*.) The investigators will also determine whether lactate levels are higher in CFS patients because their brains contain high levels of toxic compounds that cause a condition called oxidative stress, which could implicate chronic inflammation, or because mitochondrial dysfunction is causing their brain energy production to malfunction. If this study is successful, brain lactate levels could provide an objective diagnostic biomarker for CFS and evidence of a metabolic problem in these patients.

The research studies being funded this year are interconnected in many ways. “Not only will several of the investigators collaborate directly, all of them will be sharing their data with each other and with other scientists,” Vernon said. “This is essential if we are to make rapid progress in unraveling the complexities of a multisystem illness like CFS and in providing medical professionals with better diagnostic and treatment tools to improve patients’ lives.”

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