FOR IMMEDIATE RELEASE

“Burke Medical Research Institute Awarded National Institutes of Health Grant for Pioneering Spinal Cord Injury Research”

WHITE PLAINS, N.Y. – Aug. 29, 2013 – Spinal cord injury is a cause of serious and long-term disability in the United States, with approximately 250,000 Americans living with spinal cord injury. Unlike traditional spinal cord rehabilitation that focuses primarily on compensatory skills, Burke Medical Research Institute aims to move past this construct and help patients regain movement and work toward independence.

It is with this mission in mind that Burke Medical Research Institute—the research entity of the Burke Rehabilitation Center—has pursued and attained a two-year, $525,824 scientific research grant for spinal cord injury rehabilitation research from the National Institutes of Health (NIH). The NIH is the nation’s medical research agency—supporting scientific studies resulting in important discoveries that improve health and save lives.

With approximately 10,000 - 12,000 new spinal cord injuries per year that leave many survivors to cope with paralysis, finding novel treatments through research can significantly improve thousands of lives.

This new NIH funding will allow Burke to evaluate the clinical benefit of an innovative non-invasive protocol to modulate spinal excitability, termed Spinal Associative Stimulation (SAS) in spinal cord injury patients with incomplete injury. Induction and guidance of neural plasticity using non-invasive techniques is one of the most exciting and rapidly developing fields of research in neurological rehabilitation. This proposal aims to investigate a therapeutic possibility of SAS, a paired associative stimulation of transcranial magnetic stimulation (TMS) and peripheral nerve stimulation that targets the spinal cord.

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The focus of the study is to increase spinal excitability, strengthen spared connections following the injury, and consequently voluntary activation of the legs muscles; leading eventually to help people suffering from spinal cord injury, in chronic stages after the injury onset.

"The promising therapeutic value of combined non-invasive stimulation therapies, to enhance motor and functional recovery following incomplete spinal cord injury will be further advanced with this research," explains Dylan Edwards, Ph.D., P.T., principal investigator of this study, and director of the Non-Invasive Brain Stimulation and Human Motor Control Laboratory at Burke Medical Research Institute and assistant professor of neurology and neuroscience at Weill Cornell Medical College. ‘We have shown for the first time, a robust method of modulating spinal excitability in a manner resembling spike-timing plasticity. The significance is that residual corticospinal tract fibers, present in many of the most severely affected spinal cord injury patients, are likely to engage more responsive spinal networks after the paired stimulation protocol (SAS), and thus increase voluntary activation of weakened muscles.’

It is the hope that the stimulation will improve clinical function in chronic spinal cord injury patients when performed over time.

Along with Dr. Edwards, Alvaro Pascual-Leone, M.D, Ph.D., from Harvard University, is serving as the other principal investigator, and Mar Cortes, M.D., research scientist at Burke Medical Research Institute and instructor of neurology and neuroscience at Weill Cornell Medical College, serves as co-investigator.

Along with potentially optimizing motor recovery in patients with spinal cord injuries, the study results may ultimately have broader applications in other neurological disorders. According to Rajiv R. Ratan, M.D., Ph.D, executive director of Burke Medical Research Institute and professor of neurology and neuroscience at Weill Cornell Medical College, “The combination of neuromodulation protocols (aiming to induce plastic changes at the spinal level), behavioral training (such as robotics, aiming to promote activity dependent plasticity) and drug-therapies may be the future of spinal cord rehabilitation.

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“This work will make important contributions in the field of modulating plasticity in the promotion of recovery from brain and spinal cord injury,” Dr. Ratan continues. “It could change the way we approach rehabilitation and ultimately help patients recover.”

Burke Medical Research Institute has begun recruiting patients for the study. If you or someone you know has an incomplete spinal cord injury resulting in paralysis or loss of mobility of your legs, you may be eligible to participate in the study. The brain stimulation is a safe and painless technique. For additional information, please contact Dr. Cortes via email at mac2083@med.cornell.edu or by phone at (914) 368-3181.

Funded by grants and private donations, Burke’s Medical Research Institute is academically affiliated with Weill Cornell Medical College and engages in cutting-edge basic, translational and clinical research to bring about new knowledge that can become the basis for future rehabilitation therapies in the areas of stroke, traumatic brain injury and spinal cord injury and other neurological conditions. The institute strives to assist patients to recover more fully, not just decrease disability, which has been the focus of mainstream rehabilitation research historically. To that end, it also has recently added new research laboratories in the areas of motor recovery and vision restoration.

Burke Rehabilitation Center comprises the Burke Rehabilitation Hospital and Burke Medical Research Institute. The former is a private, not-for-profit, acute rehabilitation hospital that is the only hospital in Westchester County dedicated solely to rehabilitation medicine. Founded in 1915, Burke offers both inpatient and outpatient programs for those who have experienced a disabiling illness, traumatic injury or joint replacement surgery. Along with the hospital’s world-renowned doctors and therapists providing state-of-the-art treatment, Burke Medical Research Institute scientists explore the frontiers of rehabilitation medicine. All share the Burke mission to ensure that every patient makes the fullest possible recovery from illness or injury regardless of their ability to pay. For additional information on Burke Rehabilitation Center, please visit burke.org.

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