

## Brain-Computer Interface Technology Licensed to Missouri Firm

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Invented at State Health Lab, the Technology Could Potentially Help Severely Disabled People Learn to Operate Computers, Wheelchairs, Prosthetic Limbs

ALBANY, N.Y. (March 25, 2009) - Brain-computer interface (BCI) technology jointly invented by researchers in the Department of Health's Wadsworth Center laboratories and at Washington University has been licensed to Neuroolutions Inc.

The licensing agreement was developed by Health Research Inc., a not-for-profit corporation that facilitates technology transfer of basic research for the Department of Health.

Neuroolutions, of St. Louis, Mo., a newly formed company, will develop and commercialize medical devices that directly harness the brain's electrical signals for communication and control systems for people with severe motor disabilities. Potential applications range from controlling prosthetic limbs to operating wheelchairs or computers.

BCI systems employ sophisticated computer algorithms to translate brain waves into physical outputs, such as moving a cursor on a computer screen. Neuroolutions' system uses wireless technology placed on the surface of the brain to transmit electrocorticographic (ECoG) signals from the motor cortex (the brain area that controls movement). ECoG provides cleaner signals and enables finer control, such as potentially allowing movement of five individual fingers of a prosthetic hand. The device under development also carries less risk than BCIs that surgically implant electrodes in the brain and requires less training than for systems that employ scalp-recorded brain waves.

Wadsworth Center's principal collaborator with the neurologists and biomedical engineers at Washington University is research scientist Gerwin Schalk, Ph.D. He is a BCI signal processing expert and chief architect of BCI2000©, a BCI research and development platform used by more than 200 laboratories worldwide. His Washington University partners have tested the technology in 20 patients who were undergoing surgery for treatment of epilepsy.

"Collaborating with clinicians and others at Washington University has helped move BCI technology another step forward. Within the next decade, I anticipate an array of brain-controlled devices such as hand or even finger prostheses," said Dr. Schalk.

State Health Commissioner Richard F. Daines, M.D., said, "The Wadsworth Center has benefitted significantly from Health Research Inc.'s expertise. Their assistance with this brain-computer interface licensing agreement means that this innovation is closer to making a difference in people's lives."

Dr. Schalk, who holds an adjunct assistant professor appointment at Washington University, is a member of the laboratory of BCI pioneer Jonathan R. Wolpaw, M.D., chief of the Laboratory of Neural Injury and Repair at the Department of Health's Wadsworth Center. Dr. Wolpaw's group has been on the forefront of BCI research since the field's earliest days. Their portable, non-invasive BCI system now is used by a half-dozen individuals in their homes, and a multi-site clinical trial of the system is planned.

Ascension Health Ventures (AHV) of St. Louis, general partner of CHV II, L.P., a strategic healthcare venture fund focused on medical device, technology and service sectors, participated in the Neuroolutions financing along with BioGenerator, also a St. Louis-based venture fund. Neuroolutions' commercial advancements and royalty revenue will be shared with DOH's Wadsworth Center and Washington University to support continued scientific research.

About the Wadsworth Center of the New York State Department of Health

Wadsworth Center is the research-intensive laboratory of the New York State Department of Health. Wadsworth scientists study public health issues, from drug resistance to emerging infections and environmental toxicants. They use novel methods and state-of-the-art technologies to investigate basic

biological processes that contribute to human health and disease. As the state's public health reference laboratory, Wadsworth also provides analytical services, and conducts programs in clinical and environmental laboratory quality assurance and accreditation.

#### About Neuroolutions

Neuroolutions is a privately held company that is developing an electrocorticography-based brain computer interface for treatment of motor impairment. The company has licensed technology from Health Research, Inc. and Washington University in St. Louis.

#### About Health Research, Inc.

Health Research, Incorporated (HRI) is a 501(c)(3) not-for-profit corporation affiliated with the New York State Department of Health (DOH) and the Roswell Park Cancer Institute (RPCI) a leading cancer research center located in Buffalo, NY. HRI's mission is to assist DOH and RPCI to effectively evaluate, solicit, and administer external financial support for DOH and RPCI projects, and to disseminate the benefits of DOH expertise through programs such as technology transfer.

#### About Washington University

Washington University in St. Louis is counted among the world's leaders in teaching and research, and draws students and faculty to St. Louis from all 50 states and approximately 120 nations. Founded in 1853, the University is highly regarded for its commitment to excellence in learning. Its programs, administration, facilities, resources, and activities combine to further its mission of teaching, research, and service to society. Washington University School of Medicine is one of the leading medical research, teaching and patient care institutions in the nation, currently ranked third in the nation by U.S. News & World Report. Through its affiliations with Barnes-Jewish and St. Louis Children's hospitals, the School of Medicine is linked to BJC HealthCare.

#### About Ascension Health Ventures

Ascension Health Ventures [www.ascensionhealthventures.org](http://www.ascensionhealthventures.org) was launched in 2001 as a wholly-owned subsidiary of Ascension Health. AHV's role has been to construct and manage a strategic portfolio of investments that deliver a venture investment return, have the potential to transform the healthcare industry and significantly enhance the quality of patient care. CHV II, LP, a limited partnership between Ascension Health, Catholic Health Initiatives, Catholic Health East and Catholic Healthcare West, has been formed to expand this strategic investment initiative to other Catholic healthcare systems. AHV is the general partner of CHV II, LP.

#### About BioGenerator

BioGenerator is a philanthropic venture fund with the mission to create sustainable new plant & life science companies in the St. Louis region. BioGenerator works to identify promising university-based life science technologies, then provides the seed funding and other professional support to help turn the technology into early-stage companies. Major contributors to BioGenerator include the Danforth Foundation, the James S. McDonnell Foundation, Monsanto, Bunge North America, CORTEX, and the State of Missouri.