NASA technology key component of new diagnostic aid from DynaDx

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NASA technology will now be available to the medical community to help in the diagnosis and prediction of syndromes that affect the brain, such as stroke, dementia, and traumatic brain injury.

DynaDx Corporation of Mountain View, Calif. has released the Multimodal Pressure-Flow (MMPF) technique for analysis of dynamic cerebral autoregulation—the ability of cerebral vessels to maintain a constant blood flow despite changes in arterial blood pressure—that incorporates the Hilbert-Huang Transform (HHT) technology licensed from NASA's Goddard Space Flight Center in Greenbelt, Md.

DynaDx obtained exclusive rights to HHT, an algorithm used to analyze nonlinear, nonstationary signals, from Goddard in the first ever sale of a government-owned patent license conducted through a public auction of intellectual property.

MMPF is a unique computational method for analyzing and evaluating autoregulatory dynamics, based on instantaneous phase analysis of nonlinear and nonstationary signals from blood pressure and cerebral blood flow velocity oscillations.

Medical professionals can use the data from MMPF to create a reliable index of cerebral autoregulation, and to help identify impairment of cerebral vasoreactivity, which is caused by medical conditions such as traumatic brain injury or stroke and is associated with other conditions such as hypertension and diabetes.

The Web-based MMPF data-analysis product has potential use for medical diagnosis and prediction in a wide range of clinical settings. One possible application is a portable device for use by medical personnel at sporting events to identify the extent of head trauma in athletes.

"We are very excited about MMPF and its potential to vastly improve existing methods used for diagnosis and prediction of syndromes that affect the brain," said Yanhui Liu, PhD and CEO of DynaDx. "HHT is essential for providing fast and reliable results, and we could not have developed MMPF without it."

A primary role of Goddard's Innovative Partnerships Program (IPP) Office is to help transfer NASA technology to the commercial marketplace and facilitate the creation of products that will ultimately benefit the agency and the public at large. HHT, which was developed by NASA, is being used to help improve the diagnosis and treatment of conditions of the brain, such as traumatic brain injury. The partnership with DynaDx is groundbreaking because it stemmed from a process that has successfully blazed a new trail to commercialization.

The exclusive license for HHT, composed of a portfolio of ten U.S. patents and one domestic patent application, was part of a lot auctioned by Ocean Tomo Federal Services, LLC on October 30, 2008. The auction was Ocean Tomo's largest to date, with over 500 in attendance.

"Government labs and businesses have been paying close attention to the auctioning of Goddard technologies through Ocean Tomo and the process that was used to license HHT to DynaDx," said Goddard Chief Patent Counsel Bryan Geurts. "When our lot sold at the auction, there was applause from the audience. Now that DynaDx has unveiled this new product, we have stronger indicators that the model works."

The primary benefit of the public auction through Ocean Tomo is that it

makes the IP licensing process quicker and easier, saving time and resources for small companies like DynaDx. The process is well defined and clear from the beginning, allowing companies to make a quick decision about whether to obtain the license on a defined timeline.

"NASA and DynaDx stand to benefit from our unique partnership, but the long-term benefits will be much broader," said Darryl Mitchell, a technology transfer manager in Goddard's IPP Office, which facilitated the licensing arrangement. "The public auction process will encourage collaboration between labs that have developed similar technology to provide attractive lots for bidders. This will maximize the value of technology research in federal labs for taxpayers and the nation."

More information: For more information, the Web-based MMPF data analysis product can be accessed at: www.dynadx.com/MMPF/

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