Stroke blood test that could increase use of most effective treatment five-fold

London, 18th September 2012: Researchers at the University of Geneva (UNIGE), in collaboration with UK company Proteome Sciences plc (PS) describe a simple blood test that could substantially increase the number of patients eligible for highly effective ischaemic stroke therapy in a landmark paper "Blood Glutathione S-Transferase-π (GSTP) as a Time Indicator of Stroke Onset", published today in the journal PLoS ONE (http://dx.plos.org/10.1371/journal.pone.0043830).

Ischaemic stroke (which accounts for around 85% of strokes) can only be treated effectively with the 'clot busting' drug, rt-PA, if administered within a time window of up to 4.5 hours after symptoms start in the UK (up to 3 hours in the US). Approximately 35% of stroke victims are currently ineligible for treatment with rt-PA as they do not know the time of onset because the stroke occurs during sleep or the onset symptoms may not have been obvious. This blood test enables doctors to determine the time window in which a stroke has occurred and could give many of these individuals access to this crucial treatment.

The University of Geneva study reports the outcome of a long-running trial of 29 blood proteins that Proteome Sciences and its partners have previously identified as early markers of brain damage associated with stroke. In particular, the authors sought to identify readily available protein markers that help establish the time of onset of the stroke as an aid to select appropriate thrombolytic treatment. This will be particularly useful in cases where patients do not know when the stroke occurred. One protein, GSTP, showed an almost instantaneous increase in the blood of stroke patients, peaking at 3 hours after onset and returning to normal levels within approximately 6 hours.

Extrapolating the results of this study retrospectively across 555 patients who were admitted to the Geneva Hospital in 2006/7 with suspected stroke, but who did not know when their stroke symptoms started, indicates that testing for GSTP on all suspected stroke victims at admission, or preferably during initial assessment during transport to the hospital, could result in as many as five times more people being eligible for the highly effective rt-PA treatment for ischaemic stroke.

Leader of the study, Prof. Jean-Charles Sanchez, said: "This is a major step towards improving the management of ischaemic stroke patients using the drugs that we already have available. A simple blood test that matches the therapeutic window of rt-PA is a major advance that we encourage clinicians, pharmaceutical and diagnostics companies to unite to rapidly bring this into routine practice to improve patient outcomes."

Dr Peter Coleman, Deputy Director of Research at The Stroke Association said: "When a stroke strikes time lost is brain lost, meaning that getting to hospital and receiving treatment quickly is absolutely essential. At the moment, suspected stroke patients should receive a brain scan as soon as possible to confirm which type of stroke they have had and determine the best treatment for them.

"A test such as this which could be used to quickly diagnose a stroke, possibly before a patient arrives at hospital, could speed up the treatment process and potentially improve outcomes. Stroke Association welcomes new technologies that can speed up diagnosis or improve diagnostic accuracy for people with a suspected stroke."

Dr. Ian Pike, Chief Operating Officer of Proteome Sciences, noted: "With a potential five-fold increase in the number of patients having access to the most effective form of ischaemic stroke treatment, this simple blood test will most importantly make the recovery time shorter and reduce the level of resulting disability for substantial numbers of stroke victims previously ineligible for drug therapy, whilst significantly reducing the cost of long term treatment and care.

"Following our license with Randox to develop a stroke test earlier this year, we expect to complete additional licenses with both diagnostic and pharmaceutical companies to ensure the technology is developed as quickly as possible to be used as a diagnostic tool for the use of rt-PA as a treatment."

Dr. Alan Cookson, Licensing Officer from of UNIGE's Technology Transfer Office UNITEC, commented "This breakthrough has been made possible through effective academic-industry partnership and provides an opportunity for utilization of innovation to secure both commercial value and potentially life-changing patient care benefits."

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Notes to Editors:

Stroke facts

Globally 5.5 million people die from stroke annually. It is the third leading cause of death and the leading cause of disability with a $43 bn annual cost in the USA. In the UK an estimated 150,000 people a year have a stroke; one person every five minutes. There are over 1 million stroke survivors of which around 200,000 require daily assistance and it is estimated that the total annual cost of stroke in the UK is £8.9 bn.

The treatment of ischaemic stroke

Ischaemic strokes are caused by a blockage of the arteries in the brain leading to oxygen starvation and death of brain cells adjacent to the blockage. The use of thrombolytic treatments such as recombinant tissue plasminogen activator (rt-PA) can re-establish blood flow by digesting the blockage and provides significant clinical improvement with reductions in time of hospital stay and severity of subsequent neurological damage. However, it also has a potential risk of causing bleeding in the brain if not used carefully and there is a narrow window when such therapy can be safely administered with current regulatory guidelines setting a limit of 3- 4.5 hours after onset of symptoms.

However, in June, the results of a major trial of rt-PA treatment in over 3,000 patients, conducted by University of Edinburgh, were published in the Lancet, suggested that whilst benefit is clear in those treated within 3 hours, there was also a benefit for those treated later. This study indicates a need for more objective parameters to allow individualised decisions on use of rt-PA in ischaemic stroke up to a maximum time of 6 hours. The results of the UNIGE study published today suggest that the status a GSTP blood test could form the foundation of such an objective assessment.

About Proteome Sciences

Proteome Sciences is a global leader in applied proteomics and peptidomics offering high sensitivity, proprietary technologies for protein and peptide biomarker discovery, validation and assay development. Its PS Biomarker Services™ uses isobaric and isotopic Tandem Mass Tag® (TMT®) workflows developed on the latest Orbitrap Velos and TSQ Vantage mass spectrometers to deliver rapid, robust and reproducible biomarker assay development for customers in the pharmaceutical, diagnostic and biotechnology sectors. Services are provided from its ISO 9001: 2008 accredited facilities in Frankfurt, Germany. By combining Selected Reaction Monitoring (SRM) and TMT® workflows highly multiplexed assays can be developed rapidly and are suitable for screening hundreds of candidate biomarkers in larger validation studies and can be transferred for immunoassay development. The Company's own research has discovered a large number of novel protein biomarkers in key human diseases and is focused mainly in neurological/neurodegenerative conditions and in cancer. It has discovered and patented blood biomarkers, including Alzheimer's disease, stroke, brain damage and lung cancer for diagnostic and treatment applications that are available for license or are already outlicensed. Proteome Sciences, based in Cobham, UK, with facilities in London and Frankfurt, delivers outsourced proteomics services and proprietary biomarkers/biomarker assays to pharmaceutical, biotechnology and diagnostics companies.

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