

MEDIA RELEASE

Proteomics
International



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Discovery of 13 validated diabetes biomarkers to be commercialized

After three years of collaborative research involving patients from The Busselton Health Study, Proteomics International announced the discovery of 13 analytically validated protein biomarkers for a significant complication of diabetes – diabetic nephropathy (kidney disease). In a presentation at the Human Proteome Organisation's World Congress in Sydney, Australia, Dr Richard Lipscombe, Managing Director of Proteomics International, revealed the findings that could benefit many of the 250 million people worldwide who have diabetes.

The number of diabetic sufferers has doubled in the last decade with the total expected to top 430 million by 2030 (*International Diabetes Federation*). 10-20% of people with diabetes will die of kidney disease (renal failure).

"Applying our uniquely accredited proteomics biomarker expertise to patient samples (plasma) from the Busselton Health Study and the Fremantle Diabetes Study allowed us to analyse three well characterized clinical cohorts of selected disease groups (adults who had Type II diabetes and diabetic nephropathy)" said Dr Lipscombe. "The protein biomarkers that we found could now allow for the prediction of those patients who would progress to the development of kidney disease and provide new targets for drug therapies that prevent the onset of this serious complication."

Proteomics International is actively seeking partners to further qualify and commercialise its patented diabetes biomarker portfolio. The company collaborates with Dr Tim Davis, Professor of Medicine at the University of Western Australia, and is part of the Western Australian Centre for Food and Genomic Medicine examining many aspects of diabetes including the early onset of type 2, obesity, hypoglycemia, and complications arising from type 1. Prof Davis explained, "When looking for biomarkers the challenges are to obtain very detailed individual data from the participants to get rid of potentially confounding variables when looking at associations. The strength of the Busselton Health Study is we have a wealth of retrospective clinical and laboratory information on top of the comprehensive data we collected."

The protein biomarker discovery and validation approach included the analysis of pooled plasma samples for differential protein expression, i.e. proteins that are found at different levels in the diabetic disease state relative to the normal diabetic state. *Candidate biomarkers were identified* from iTRAQ labelled samples by 2D-LC MALDI TOF/TOF mass spectrometry, an emerging technique in proteomics. This discovery phase identified 130-200 proteins per cohort and across all studies over 50 proteins showed significant differences in concentrations. *Biomarker candidates were validated* in a second approach using the advanced mass spectrometry technique Selected or Multiple Reaction Monitoring (SRM/MRM) to carry out concentration analysis on individual patient plasma samples. Statistical data analysis of the validation phase identified 13 putative protein biomarkers for diabetic nephropathy across the studies, including proteins involved in metabolism, inflammation and oxidative stress. The complexity of the diabetic kidney disease suggests that there would not necessarily be one biomarker but a set of biomarkers (signature) in varying degrees to characterise the diabetic nephropathy state. These biomarkers can be used as diagnostic tools or new drug targets.

About Proteomics International Pty Ltd

Proteomics International is both a drug discovery company and contract research service provider, focused on sophisticated analysis for the biological research market. Proteomics International combines the most advanced high throughput mass spectrometry instrumentation (MALDI TOF-TOF and LC-MS/MS) and a team of qualified scientists with proven expertise in protein and peptide chemistry. **Proteomics International is the only company globally to achieve laboratory accreditation to International Standard ISO/IEC 17025:2005 for provision of proteomics services.** The accreditation is a widely used benchmark for US Federal testing facilities and strengthens the company's licensing position to deliver drug development data that is of the highest scientific integrity. The company has two focal research activities: new peptide drugs from venoms, and the discovery and use of biomarkers; both analyses build upon its proprietary transformative *Bioven* process. The company is at the leading edge of protein analysis with several of its publications achieving best in class levels of sensitivity (<http://www.proteomics.com.au/publications.aspx>). Skills developed from these research programs are incorporated into the sophisticated suite of specialist contract research techniques provided to clients. High quality, quick and affordable protein identification, analytical and characterization services are routinely provided. Proteomics International is based in Perth, Western Australia and has established itself as an industry leader in the delivery of contract research and lead molecule discovery in the Asia Pacific region.

About the Centre for Food and Genomic Medicine (CFGM)

The CFGM is a world-class research facility that harnesses the power of plants and genetics to tackle the twin epidemics of diabetes and obesity, known as "diabesity". Established in 2006 with \$4.5 million seed funding from the Government of Western Australia, the Centre brings together scientists from the biotechnology, medical research, agriculture and food technology sectors to investigate new ways of beating these growing health conditions.

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