

Proteomics partnership

Proteome Systems, Shimadzu and Kratos are working together to solve a key problem of proteomics involving linking sample array through 2D gels to the mass spectrometer. Our approach includes simplification of conventional sample excision and handling using Shimadzu's patented gel excision technology (US patent 5,587,062), as well as a revolutionary new approach to proteomics. Instead of bringing proteins to analytical systems, we take chemistry to arrayed proteins using patented 'Chemical Printing' techniques based on Proteome Systems' patent application WO 98/47006.

The chemical printing technology is being developed to link Proteome Systems' advanced array techniques, with Kratos' state of the art MALDI mass spectrometer which includes curved field reflectron technology (US patent 5464985).

Chemical Printing

In collaboration with MicroFab Technologies (Plano, Texas, USA) chemical reagents are printed, using piezoelectric devices, onto the arrayed proteins (blotted to membranes) *in situ*, rather than taking the proteins to the chemistry. The chemical printing technology is amenable to sample archiving where further characterisation will be possible at a later date.

Array technology

Proteome Systems has refined and simplified 2D gel technology to enable high throughput, preparative array of complex mixtures using sample prefractionation and narrow range pH gels to tease out complex samples over a range of 2D gels. In this way rare proteins can be concentrated and particular classes of proteins (eg: membrane proteins) focused upon.

Mass spectrometry for protein identification and characterisation

The new AXIMA-CFR from Kratos combines high resolution, sensitivity and mass accuracy using patented curved field reflectron technology. This combination provides the user with a high performance instrument

to meet the demands of modern biochemical analysis. The proteomics software package helps the interpretation of spectral data for rapid protein identification and post-source decay can be simply used for rapid fragment analysis. This represents a new dimension in MALDI mass spectrometry.

Proteome Informatics

Proteome Systems emphasises a 'systems' approach to proteomics. Nowhere is this more evident than in our informatics platform. We are developing new tools for data analysis, new automated ways of data collection and manipulation and new ways of integrating the various databases that make up a proteomics portfolio.

A new force in proteomics instrumentation

The business model for the Proteome Systems-Shimadzu-Kratos partnership ensures the rapid production and commercialisation of novel instrumentation by taking advantage of Shimadzu and Kratos' engineering and marketing expertise (especially in mass spectrometry) and by demonstrating the application of these technologies to discovery projects at Proteome Systems.



Proteome Systems: using proprietary proteomic technology and informatic platforms as an integrated pipeline for discovery

Proteome Systems is dedicated to drug discovery and advancing agbiotechnology using novel proteomics technology and informatics, which together form our proteomics discovery platform. Our systems approach enables high throughput, comprehensive proteomic analysis of biological samples including microbes, plants and animals.

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For further details of how Proteome Systems partners in discovery research.

Company Profile: Proteome Systems Limited

Proteome Systems is a leading proteomics-based discovery and development company located in Sydney, Australia. The company was founded in January 1999 and today, Proteome Systems employs 35 scientists, has established partnerships with high-profile instrument and discovery companies, holds key intellectual property in the field of proteomics relating to its technology platform and has licensed its first proteome informatics product to GeneBio, Switzerland. Our strategic partners include Dow AgroSciences, Shimadzu Corporation and MicroFab Technologies. Proteome Systems is dedicated to using proteomics to answer big questions in biology.

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Company Profile: Shimadzu Corporation

Founded in 1875, Shimadzu has grown into a multi-billion dollar corporation with vast research, development, manufacturing, marketing and training resources not only in Japan but throughout the world. In 1999 Shimadzu formed a new biotechnology Department 'Life Sciences' and established a core biotechnology group with the responsibility for the development and manufacture of products, including the AXIMA-CFR MALDI mass spectrometer and the RISA384 DNA sequencer, to address the emerging proteomics and genomics markets. The RISA384 is currently being implemented for high throughput DNA sequencing at Shimadzu's Genomics Research Facility, located in Kyoto Japan. Shimadzu has offices in Japan, Germany, Singapore, Australia, Russia, China, England, Argentina and the United States with distributors in over 70 other countries around the world.

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Company Profile: Kratos Analytical

Kratos is a wholly owned subsidiary of the Shimadzu Corporation. Shimadzu/Kratos Analytical were pioneers in the discovery and manufacture of MALDI-TOF MS, a technology that has transformed biochemical analysis over the last 10 years. Kratos Analytical has just launched its latest high performance instrument, the AXIMA-CFR, custom designed for high throughput proteomics.

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