

New Products & Topics

Environmental Project

Shimadzu's Vigorous Support for United Nations University Environmental Management Projects

Since 1996 Shimadzu has been supporting the first and second stages of a global environment conservation project conducted by the United Nations University. Some of the project's research findings on environmental pollution monitoring in the East Asia region have been used in developing global environmental conservation measures. Recently Shimadzu has decided to continue its support for a new three-year project conducted by the UN University commencing in FY2002. This new project constitutes the third stage of the entire environmental conservation project entitled "Environmental Monitoring and Governance in the East Asian Coastal Hydrosphere." Rector of the UN University, Professor Hans van Ginkel, and President of Shimadzu, Mr. Hidetoshi Yajima, signed a letter of agreement relating to Shimadzu's sup-

port on July 15 at the headquarters of the UN University (Tokyo).

This new project investigates and monitors the extent of pollution by Persistent Organic Pollutants (POPs) in rivers and fresh water bodies in the coastal areas of East Asia. Using the collected data, the project will then focus on developing early warning systems to prevent and limit environmental contamination. Major research institutes from nine countries — Japan, China, Singapore, South Korea, Thailand, Indonesia, Malaysia, Vietnam and the Philippines — are participating in the project. As in the first two stages of the project, Shimadzu provides grants to help fund the project, lends analytical equipment for use in the research, supports symposiums and cooperates in training workshops.



The UN University presented a letter of appreciation to Shimadzu for its support for "Environmental Monitoring and Governance — EDC (Endocrine Disrupting Chemicals) Pollution in the East Asian Coastal Hydrosphere," the second stage of the entire project conducted between FY1999 and FY2001

On July 8, Prof. Hans van Ginkel presented Mr. Yajima with a letter of appreciation for Shimadzu's support of the second stage of the project. Shimadzu is the only private company participating in the project.

Joint Research

Shimadzu Invests in Agenica Research — a Singaporean Biotechnology-venture Specializing in Cancer Research

Shimadzu has decided to invest in a joint research project with Agenica Research Pte Ltd., Singapore. Agenica is a biotechnology-venture company specializing in cancer research. Headquartered within the premises of the National Cancer Centre, Singapore (NCC), Agenica has a total of 17 employees as of April 2001. Shimadzu has invested S\$ 2.736 million (approx. 200 million yen), controlling approximately 5.6% of Agenica shares. This is Shimadzu's first external investment in a biotechnology venture.

As a center of advanced research in life

science, NCC is currently working hard to create a database of cancer-related information relating specifically to Asian races. The database includes information such as new carcinogenic genes, as well as family histories, lifestyles, and clinical histories of patients.

Agenica Research was established in April 2001 through a joint capital investment by NCC Technology Ventures Pte Ltd., a subsidiary of NCC, and Mitsui & Co., Ltd., Tokyo, Japan. Since its foundation, Agenica has been focusing on constructing a detailed database on can-

cer development, as well as developing new diagnosis methods.

Shimadzu will conduct joint research projects with Agenica. Results of the projects will be incorporated into Shimadzu's life science business, strengthening our competitive edge. Research will be conducted in the following.

- Developing new proteomics technology and accumulating application data based on cancerous specimens and associated clinical data
- Constructing a cancer-related protein expression database

Event

Shimadzu Biotech at ASMS

50th ASMS Conference on Mass Spectrometry and Allied Topics June 2-6 2002, Orlando, Florida, US

The 50th meeting for the American Society for Mass Spectrometry (ASMS) continues to reflect the considerable contribution of mass spectrometry to a fascinating diversity of disciplines ranging from physics, chemistry, surface science, earth and planetary science, molecular biology and medicine. As R. Graham Crooks (Purdue University, West Lafayette, IN, US) described in his plenary lecture 'more than a tool, mass spectrometry is emerging as a separate discipline with an intrinsic subject matter and conceptual basis'.

In recent times the subject matter that has dominated mass spectrometry is proteomics. This meeting was no exception.

It is the holistic view on the proteins – proteomics – that is considered to be the key technology for understanding functional analysis in the immediate future. To address the need for greater information on biological networks mass spectrometry continues to provide advanced intelligent tools for high throughput analysis with enhanced knowledge systems.

This theme was reflected by the presentations held at the Shimadzu Biotech Technical Seminar attended by over 200 international scientists with keynote lectures by Professors Vern Rheinhold (Sequential Carbohydrate Disassembly with a MALDI-QIT-ToF MS; Department of Chemistry, University of New Hampshire, US), Vito G. DelVecchio (Proteomics of Brucella species; Institute of Molecular Biology and Medicine, University of Scranton, PA, US) and Gerard Hopfgartner (Parallel and Linear Approaches in High Throughput LCMS; Laboratory of Analytical Chemistry, University of Geneva, Switzerland). The



Key speakers at Shimadzu Biotech Technical Seminar

- from right,
- Dr. Hopfgartner; Univ. of Geneva
 - Dr. Rheinhold; Univ. of New Hampshire
 - Staff from Lumicyte
 - Dr. DelVecchio; Univ. of Scranton
 - Staff from Kratos

seminar also focused on the technology platforms from our strategic alliance with Proteome Systems (Gels and Chips: Innovation in the Processing of Proteins Separated by Gel Electrophoresis) and Lumicyte (Biochips: Delivering on a Promise).

Throughout the ASMS scientific program Shimadzu Biotech hosted evening discussions between international scientists and our Proteomic Alliance partners, Sigma-Aldrich and Proteome Systems. Our innovative solutions-driven approach in solving biological problems was captured by combining our unique designs in quadrupole mass spectrometry and quadrupole ion trap time of flight technology together with enabling technology in sample preparation following our collaboration with Proteome Systems using specialized chemistry from Sigma-Aldrich.

As part of the scientific forum we presented our latest scientific applications ranging from 2D LC/MS to web enabled software for mass directed fraction col-

lection in preparative mass spectrometry (PsiPort™), integrated column switching in LC/MS for high throughput screening, Xcise™ for automating gel processing for MS analysis, novel insights into carbohydrate chemistry and biomarkers in the structural examination of potential biomarkers for methicillin resistant Staphylococcus aureus using MALDI QIT TOF. One final comment from R. Graham Crooks 'Increasingly, if it can't be done by mass spectrometry, it may not be worth doing.'



User mixer in Shimadzu Biotech booth

New Product

NSA-3080 Continuous Emission Monitor Flue Gas Total Monitoring System

Shimadzu has been manufacturing flue gas monitoring systems for almost 30 years. The NSA-3080 Continuous Emission Monitor (CEM), the product of accumulated expertise, is a unit that simultaneously analyzes five flue gas components: NO_x, SO₂, CO, CO₂, and O₂. The NSA-3080 combines two methods of analysis: the ratio non-dispersive infrared method, for the measurement of NO_x, SO₂, CO, and CO₂, and the magnetic wind method for O₂. It also employs the direct sampling method to ensure highly accurate measurements. The analyzer additionally features such functions as the transfer of analysis status via contact signals, digital outputs essential for continuous monitoring, and signal output using up to 10 circuits. This new model is therefore suitable for continuous flue gas monitoring of sources of sulfur

oxides and nitrogen oxides, including thermal power plants, oil refineries, steel-manufacturing plants, and garbage incinerators.

In Japan, continuous flue gas emission monitoring equipment is widely used for complying with the Clean Air Act, which obligates the measurement of pollutants. In China and Southeast Asia, the demand for flue gas monitoring has been increasing in recent years. This is especially true in China (which will host the 2008 Olympics), where growing environmental concerns are keeping pace with the country's remarkable recent economic growth. In its effort to readily respond to the demands of the Chinese market, Shimadzu has established a production facility in Suzhou, Jiangsu Province, where the company began manufacturing the flue gas analyzer in April 2002.



The NSA-3080 flue gas monitoring system integrates 30 years' know-how and expertise.

In China and Southeast Asia, there is a growing demand for total monitoring systems linked to a data processing computer that measure gas concentrations of sulfur oxides and nitrogen oxides, as well as other factors such as dust, flow rate, temperature, pressure, and water content. Shimadzu is committed not only to meet these demands but also offer central monitoring systems that simultaneously analyze flue gas emission from multiple facilities.

New Product

FTIR IRprestige-21

Mid-range Instrument with Excellent S/N Ratio, Sensitivity, Accuracy, and Expandability.

Shimadzu has released the IRprestige-21 Fourier Transform Infrared Spectrophotometer (FTIR), which boasts the highest S/N ratio for this class. (S/N ratio is the key factor influencing the performance of FTIR.) It also features high sensitivity and accuracy, as well as improved expandability and operability.

FTIR, with its short measuring time and higher wavelength accuracy and sensitivity (than grating spectrophotometers), is used for the structural analysis of substances in the fields of chemistry, pharmaceuticals, electronics, and semiconductors.

The IRprestige-21 achieves high sensitivity and accuracy, thanks to a newly developed high-sensitivity detector and

high-throughput optical elements, and obtains excellent data in a short time. It also offers a high degree of expandability by allowing the user to change the beam splitter according to the analysis targets. This enables measurements over a wide range of wavelengths, from near-infrared to far-infrared.

The IRprestige-21 is equipped with validation software, in conformity with the European Pharmacopoeia (EP) and American Society of Testing and Materials (ASTM), making it particularly effective for determining the ingredients of pharmaceuticals. This software ensures safety by requiring the input of a user name and password in order to login, and allows the use of electronic recording



IRprestige-21 Fourier Transform Infrared Spectrophotometer

and electronic signatures, thereby enabling the creation and management of electronic data in accordance with EP and ASTM. The Windows 2000-compatible 32-bit IRsolution software also contributes to enhance the operability of the instrument.

Shimadzu started retailing the general-purpose FTIR in 1984. Now, with the release of the middle-range analyzer IRprestige-21, Shimadzu is posed to further extend its product line-up, pioneering new applications for FTIR, including pharmaceutical ingredient determination and film thickness measurement in the semiconductor industry.