

News Spectrum

INDUSTRY

PerkinElmer Inc. (Boston, MA) has bought the assets relating to a proteomics labeling technology from platform technology developer **Agilix Corp.** (New Haven, CT) for an undisclosed sum.

The technology allows simultaneous quantification of protein molecules from multiple samples during mass spectrometry experiments.

► **Waters Corp** (Milford, MA) and **Thermo Electron Corp** (Waltham, MA) have entered into a collaborative agreement to combine Waters' ultra high performance liquid chromatography (uHPLC) technology with the full range of Thermo's mass spectrometers.

The technology convergence was partly customer-driven, according to **Gene Cassis**, Waters' vice president of investor relations, who told Instrumenta that many of Waters' customers were already combining the UPLC system with MS technology from other vendors.

RESEARCH

The **Oregon Health & Science University's** (Portland, OR) new **Advanced Imaging Research Center** has bought a 12 Tesla magnet that will serve as the centerpiece for a cut-

ting-edge magnetic resonance imaging system. The magnetic field of the magnet is 120,000 times that of the Earth, and is one of the strongest in the world.

"This state-of-the-art 12T system will provide some of the clearest, and likely some of the most useful images in the history of MRI science," said **Charles Springer**, director of the research center.

Researchers will use the powerful MRI system for human health studies in rodents on neurological diseases such as multiple sclerosis, Alzheimer's and stroke. The system will also benefit the blood-brain barrier program at the University.

The magnet weighs about 12 tons and the inner diameter of its cylindrical bore is 31 centimeters. It was bought with the help of a \$1.75 million grant from the **W. M. Keck Foundation** (Los Angeles, CA). The only other facility in the world that has a 12T MRI system is the **National Institutes of Health** (Bethesda, MD).

► Researchers at **New York University** (New York, NY) and the **University of Linz** (Linz, Austria) have developed a completely non-invasive MRI imaging method. Their low-energy nuclear magnetic resonance technique, which forms the basis for MRI, does not require radio frequency radia-

Market Profile: Ion Trap Time-of-Flight (IT-TOF) Mass Spectrometry

The world of mass spectrometry has been evolving at an astounding rate as developers push what is an inherently powerful analytical technique to even higher levels of capability. Numerous configurations of tandem mass analyzers have been commercialized, with one of the most recent being ion-trap time-of-flight.

Ion-trap time-of-flight (IT-TOF) is essentially a variant of the quadrupole TOF, and was developed to meet the need of those scientists who need MSⁿ capability with the precursor ion selection and the high-resolution capabilities that traditional Q-TOF provides. IT-TOF is therefore able to provide powerful structural analysis of compounds in complex matrices, in addition to highly accurate mass measurement, making it useful in applications such as biomarker discovery, metabolite ID, proteomics research, clinical research, drug development, and forensics.

The first commercially available IT-TOF was the Radiance Pro, which was developed by Syagen in 2001. It was a relatively low-cost system that was marketed for security and forensics applications. Although the Radiance Pro has since been discontinued, the same IT-TOF technology is included

in Syagen's new Guardian portal inspection system. Shimadzu's Kratos division introduced the AXIMA-QIT in 2002, which was a MALDI-IT-TOF system, followed in 2005 by Shimadzu Biotech's introduction of its LC-IT-TOF. Hitachi has also developed an LC-IT-TOF system, which uses a linear ion trap design, and is now in the process of introducing its system worldwide.

IT-TOF accounted for about 5% of the more than \$230 million Q-TOF market in 2005, but should see strong double-digit growth. The entrance of any one of the top mass spectrometer suppliers into this market segment

would magnify initial growth.

The foregoing data were extracted from SDI's market analysis and perspectives report entitled *Mass Spectrometry: Ultra-High Performance and Innovation Reshape the Market*. For more information, contact Stuart Press, Senior Consultant, Strategic Directions International, Inc., 6242 Westchester Parkway, Suite 100, Los Angeles, CA 90045, (310) 641-4982, fax: (310) 641-8851, www.strategicdirections.com.

Q-TOF Mass Spectrometry Market, 2005



tion that deposits heat in patients and medical staff.

While MRI does not pose health risks to subjects, this method completely eliminates patients' exposure to irradiation. It also paves the way for lighter MRI systems.

➤ Researchers from the **University of Barcelona** (Barcelona, Spain) have found the oldest evidence of Egyptian white wine using LC-MS-MS to examine residues from wine amphorae excavated from King Tutankhamun's tomb. This pushes the date of the oldest white wine back to around 1330 BC, whereas earlier it was thought to date back to 170-230 AD.

Before this work, the researchers had found red wine in amphorae from several burial chambers, including Tutankhamun's. They confirmed the presence of red wine in two steps. First, they found tartaric acid, a simple organic acid rarely present in natural sources other than grapes; then they detected a chemical called malvidin that imparts red color to wine.

But in their latest work, they did not find evidence of malvidin in amphorae that contained tartaric acid. This, combined with the color of the residue, led them to conclude that the vessels contained white wine.

➤ Researchers at **IBM** (Armonk, NY) have developed a new method to study and control magnetism at its fundamental atomic level. The technique, called spin-excitation spectroscopy, could find potential application in new materials, computer circuits, computing devices, and data storage.

"We can now position atoms and then measure and control their magnetic interactions within precisely designed structures," said **Andreas Heinrich**, research staff member at IBM's **Almaden Research Center** (San Jose, CA).

Using IBM's low-temperature scanning tunneling microscope, the researchers can move atoms into position and then measure interactions between their atomic spins. For instance, they created chains of up to 10 manganese atoms on an electrical insulating surface, and then meas-

ured changes in magnetic properties as new atoms were added. They found that chains with an even number of atoms display zero net magnetism, while odd number chains show net magnetism.

➤ Chinese researchers have employed proton nuclear magnetic resonance to identify the active ingredients of a plant root that is used in one of the most common tonics of Chinese herbal medicine.

Knowing **Huángqí's** active ingredients could lead to new pharmaceuticals that could cure a range of illnesses—the herbal tonic is supposed to work against cancer, diabetes, nephritis, and inflammation. In clinical tests, the plant root extracts have shown physiological activity in liver protection, antioxidant and antiviral properties, a lowering of blood pressure, and have stimulated the immune system.

The researchers, hailing from the **Peking University Health Science Center** (Beijing, China) and **China Academy of Chinese Medical Sciences** (Beijing, China) used one- and two-dimensional NMR to elucidate the structures of **Huángqí** extracts. They found a compound, **pratensein**, that was previously unknown.

➤ Researchers at the **Indiana University School of Medicine** (Indianapolis, IN) have found that a uniform nationwide panel of newborn screening tests would save cost as well as lives. They analyzed the prospect of screening using tandem mass spectrometry, which can test for several disorders at the same time.

For the past 40 years, all U.S. states and territories have used mandatory screening for certain disorders. But the number of conditions screened differs depending on the state, ranging from less than 10 in Texas to 53 in Washington, D.C.

The researchers focused on eight of the most commonly performed tests. They found that six were cost saving, while two were cost effective but not cost saving.

COMPANY NEWS

Ametek Inc. (Paoli, PA) has combined

the EDAX business unit of its process and analytical instruments division with its new acquisition, **Spectro Analytical Instruments GmbH & Co** (Kleve, Germany), to form a new materials analysis division.

Alan Devenish, who was previously EDAX's business unit manager, will head the new division. **Manfred Bergsch** will serve as division vice president and unit manager of the Spectro unit.

The division will be headquartered in Mahwah, NJ, while manufacturing operations will be located in Kleve, Germany and in Marble Falls, TX.

➤ **Bruker BioSciences Corp** (Billerica, MA) has entered into a definitive agreement to purchase all of the stock of molecular spectroscopy company **Bruker Optics, Inc.** (Billerica, MA) for \$135 million. Of this, approximately \$79.2 million will be paid in cash and \$55.8 million will be paid in Bruker BioSciences stock.

The combined life science and analytical systems company will make a range of MS, x-ray analysis, and molecular spectroscopy technology platforms for chemical and materials analysis and proteomics. It is expected to generate more than \$400 million of revenue in 2006.

➤ **Aspctrics, Inc.** (Pleasanton, CA) has announced plans to establish operations in Europe in the third quarter of 2006 as part of its business growth.

Aspctrics manufactures encoded photometric infrared spectroscopy analyzers, which are designed to capture full spectrum information in the infrared region. They are developing applications such as ambient air and stack gas monitoring, hydrocarbon processing, engine emission analysis, and semiconductor processes. ■

Erratum

The title of *Spectroscopy's* May supplement was incorrect on the cover. It should have read: "Current Trends in Mass Spectrometry."

Spectroscopy apologizes for any confusion this has caused.