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ASIA EDITION

Agilent drives innovation in mass spectrometry & chromatography

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Singapore: Agilent Technologies, which was founded in 1999, is synonymous with the R&D of liquid chromatography/gas chromatography/mass spectrometry (GC-MS) equipments. It is accredited with the development of some of the most innovative GC-MS devices including the first bench-top inductively coupled plasma/mass spectrometry (ICP-MS) in 1994 and the first bench-top quadruple liquid chromatography/mass spectrometry (LC-MS), 1100 Series LC-MS in 1997.

The use of mass spectrometers as the detectors in gas chromatography dates back to the 1950s. In the 1970s, there was an urgent need for instruments to detect nitrogen containing compounds as the use of anabolic steroids became widespread. Agilent's gas chromatography and mass selective detector (GC-MSD) was deployed to testing facilities across the world to support some of the world's most prestigious sporting competitions, including the Olympic Games, the Soccer World Cup and the Tour de France.

In response to the increasing needs of biotechnology companies to test for pesticides in fruits and vegetables at the parts per billion level, Agilent launched the world's first triple quadrupole gas chromatography/mass spectrometer (GC-QQQ MS/MS) in 2008. In view of the shifting industry needs, Agilent introduced the first quadrupole time-of-flight (Q-TOF) GC-MS system in 2011 for biotech firms to conduct structural studies on street drugs. To date, no other measurement company has launched a similar product to the Agilent 7200 GC/Q-TOF.

Trend setter in liquid chromatography

Liquid chromatography (LC)/MS is widely used for peptide and glycoprotein mapping and in other protocols that require very high sensitivity and selectivity. In 2005, the company achieved a breakthrough in LC-MS with the launch of the first high-performance liquid chromatography (HPLC)-chip/mass spectrometry system, which significantly increased the speed, ease and productivity in proteomics and glycomics research. Agilent later added its proprietary Ion Implantation (II) technology to the second generation HPLC-Chips, extending life expectancy beyond 1,000 injections, thus helping the biotech firms to benefit from lower cost-per-experiment and enhanced chip-to-chip and run-to-run reproducibility.

In 2010 and 2011, the company improved the process of atmospheric pressure ion sampling with the launch of the 6490 Triple Quadrupole LC/MS System and the 6550 Quadrupole Time-of-Flight LC/MS system with iFunnel technology, driving huge sensitivity gains for most applications.

What the future holds for Agilent

In view of the industry's shift of interest towards the inductively coupled plasma (ICP)/MS devices, Agilent entered into research collaborations with institutions like the University of Technology Sydney (UTS) to study the impact of metals on biological systems, such as the role of metal compounds as predictors of stroke damage.

Industry recognition

Agilent Technologies' continued innovation has been widely recognized by the biotechnology, academic research and chemistry community. The company's 8800 ICP-QQQ was recently named the Best New Spectroscopy Product in the 2012 Scientists' Choice Awards. Today, the 8800 ICP-QQQ is the only instrument of its kind that provides superior performance, sensitivity and flexibility when compared with single quadrupole ICP/MS technology.