



Agilent Research Laboratories: Powering the Breakthroughs of Tomorrow

Agilent Research Laboratories at a glance

About: Agilent Research Laboratories (also called Agilent Labs) is the central research unit within Agilent Technologies that researches and develops the technologies that will power the breakthroughs of tomorrow, and enable Agilent customers to answer new questions at the leading edge of life science, diagnostics and the applied markets.

Established: In 1966, when part of Hewlett Packard, but retained after the spin off in 1999 as Agilent Labs.

Contribution: Agilent Labs has played a big role in laying the groundwork for the company's transformation from a leading electronics company to a leading life sciences and diagnostics company. Technologies developed in Agilent Labs, which have been transferred to Agilent's businesses for commercial product launches, include capillary electrophoresis, DNA microarrays, time of flight (TOF) mass spectrometry, metabolomics, oligo FISH and chemically synthesized RNA for CRISPR/Cas genome editing and control.

Power in purpose

The purpose of Agilent Labs is to power the growth of Agilent Technologies through breakthrough science and technology, and to look beyond the evolution of current products and platforms to create the technologies and applications that will become the foundation of tomorrow's successes. As part of the valued partnership with Agilent's global R&D teams, Agilent Labs has remained committed to the science and technology that has benefited the long-term enablement of the company's customers, even during difficult business cycles.

A broad remit

As a centralized corporate research lab, Agilent Labs has a broad remit, encompassing synergies across Agilent and seeding new businesses to create competitive differentiation and compelling value for current and future customers and shareholders.

To accomplish these goals, Agilent Labs looks to attract and retain top technical talent, collaborate extensively with global research leaders in academia, government and industry, and promote a culture of innovation and teamwork across its highly multi-disciplinary staff of life scientists, physical scientists and engineers. The majority of Agilent Labs' research is located in the United States in Santa Clara, California, with additional locations in Boulder, Colorado and in Tel Aviv, Israel.



A contributing member of the scientific community

Throughout its history, Agilent Labs and its predecessor, HP Labs, have had a heritage of inventing a long and broad line of successful new technologies. Many of these innovations have been the starting points for major businesses.

The following are some of the product introductions since 2000 that were enabled by, or incorporate, Agilent Labs technology breakthroughs in support of Agilent's businesses in the Life Science, Diagnostics and Applied Chemical markets*:

2000 – 2004

- Agilent introduces the world's first LC Chip-MS polymer microfluidic device for protein analysis, which enables the automatic and fully integrated digestion of proteins and separation of peptides.
- Agilent introduces its DNA microarray platform, including the highest sensitivity microarrays, based on inkjet technology, and image-processing software, which enables breakthrough automated quantitative analysis.
- Agilent launches its Synapsia Informatics software, which enables researchers from different scientific disciplines to integrate diverse collections of experimental results and analytical information from internal and external sources.

2005 – 2009

- Agilent introduces its SureSelect Target Enrichment System, which streamlines DNA-sequencing research by enabling scientists to focus on genomic areas of interest with next-generation sequencing instrumentation.
- Agilent launches the 6220-Accurate-Mass (AM) TOF and 6520 AM QTOF LC-MS systems, which leverage analog to digital data converters originally developed for Agilent's best-in-class oscilloscopes.
- Agilent introduces its Array CGH, a molecular technology breakthrough that uses microarrays to identify multiple and missing pieces of chromosomes in cancer cells compared with normal cells.
- Agilent expands probe content for CGH microarrays, which enables detection of copy number variations throughout the genome (including regions of copy number variation amongst normal populations).
- Agilent introduces an innovative chemistry and probe design for microarray-based microRNA profiling.

2010 – 2014

- Agilent extends Gas Chromatograph performance through Inert Flow Path (IFP) components, which ensure a reliable IFP for higher sensitivity, accuracy, and reproducibility, particularly for trace analysis.
- Agilent introduces the Ion Mobility Quadrupole TOF system visualization software.
- Agilent introduces its microarrays for measuring coding and long non-coding RNAs together.
- Agilent introduces its SureFISH probes, which are the next generation of fluorescent *in situ* hybridization (FISH) assays that deliver a comprehensive menu of the industry's highest resolution probes for a wide range of molecular analysis applications.
- Agilent extends the chip-LC portfolio with the introduction of mAb-glyco Chip Workflow, which enables significant performance improvement and faster, easier glycan analysis compared to previously existing methodologies.
- Agilent launches the 6550 iFunnel quadrupole QTOF LC-MS system to characterize complex samples, which enables low femtogram-level sensitivity with high resolution and accurate-mass for applications throughout Agilent's life science and applied markets.



6550 iFunnel quadrupole QTOF LC-MS

- Agilent launches the world's first GC-QTOF, enabling the highest sensitivity detection and analysis of unknown molecules in complex mixtures following GC separation.
- Agilent introduces comparative genomic hybridization microarrays for the integrated analysis of copy number variants and single nucleotide polymorphisms, which addresses the growing need of cancer and cytogenetic researchers and clinicians to detect both copy number and copy-neutral aberrations in the same experiment.
- Agilent introduces its GeneSpring 12.0+/ Pathway Analysis software suites, which make possible truly integrated, pathway-level analysis of primary omics data.



2015 – 2018

- Agilent sells CRISPR single guide RNAs manufactured with its proprietary, best-in-class RNA synthesis chemistry, incorporating inventive performance enhancements.
- Agilent incorporates the CRISPR guide RNAs in its customer-facing Genomics Sure Design sequence design tools.
- Agilent introduces the 7250 GC-QTOF system based on the Sigma 10 acquisition system, which delivers twice the mass resolution with wide dynamic range, expanding customers' exploration of unknown chemical samples.

- Agilent introduces transformative control software for its QTOF mass spectrometers, enabling higher performing streamlined application-specific workflow solutions.
- Just one year later, Agilent releases iterative mass spectrometry for biopharmaceutical impurity analysis as the first enabled application.

- Agilent releases the Intuvo GC, incorporating Flow Chip technology, which enables the quick and easy replacement of consumable parts, abolishing tedious column trimming and associated downtime.

- Agilent introduces its metabolomics flux analysis software, which transforms the customer experience by enabling orders of magnitude, faster time to answers and informative visualization.



Intuvo 9000 GC System

For additional Agilent Labs history timeline information visit: www.agilent.com/labs/timeline.html

This information is subject to change without notice.

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