Food and beverage solutions

LC/MS/MS SOLUTIONS FOR FOOD TESTING

AB SCIEX
Food producers, manufacturers, and regulatory agencies must test large numbers of products for more analytes, with greater accuracy, and in less time. The farm-to-fork approach to food safety is being adopted by many global industries, from raw material and process control to finished product inspection and distribution.

Whether you’re analyzing drug residues, pesticides, toxins, or potential adulterants, AB SCIEX food testing solutions speed the adoption of LC/MS/MS in your lab, delivering fast, accurate results in weeks instead of months. Our food testing solutions are optimized to identify and quantify hundreds of analytes in a single run, providing throughput and performance to help you meet and exceed regulatory demands.

– Raw material testing

– Food processing and manufacturing

– Finished products

– Import and export regulatory requirements
AB SCIEX food and beverage solutions for veterinary drug analysis provide better compound coverage, better sensitivity, and reduced sample preparation compared to other techniques.

Detect regulated and banned substances at trace levels

The AB SCIEX QTRAP® 4500 System provides optimum results and delivers the ability to accurately screen for, identify, and quantify residues at trace levels, enabling the detection of both regulated and banned substances. Cliquid® Software simplifies the use of LC/MS/MS and enables automatic reporting for quantitation and identification as specified by regulatory agencies. The iMethod™ Applications further help to speed up adoption of LC/MS/MS for detection and analysis of these compounds.

The QTRAP 4500 system easily meets regulatory requirements for identification and quantitation of dozens of residues in a single run.

- Automatically perform MRM ratio calculation and library searches with the simple, four-step Cliquid Software workflow.

- Identify compounds with confidence using a comprehensive MS/MS library of veterinary drugs.

- Easily adopt the iMethod Application for the following applications:
  > Multi-class antibiotic screening
  > Chloramphenicol
  > Fluoroquinolones
  > Malachite Green
  > Nitrofurane metabolites

- The QTRAP 5500 offers additional sensitivity for detection of antibiotic residues when lower limits are required.

"Our daily work is to enable our company to prevent and control chemical contaminants from entering the supply chain from farm to fork, in various raw materials, but also in finished products. The AB SCIEX systems used in our laboratory give great performance in terms of sensitivity, selectivity, ruggedness, reproducibility, and maintenance."

DR. PHILIPPE A. GUY, SENIOR PROJECT MANAGER
CONTAMINANTS GROUP NESTEC LTD., LAUSANNE, SWITZERLAND

Identify and quantify veterinary drugs in a single run: Analysis performed on QTRAP system using Cliquid Software for automatic MRM ratio calculation and library searching. Antibiotic screening method adapted from iMethod Application.
LC/MS/MS solutions for pesticide residue analysis

Screen, identify, and quantify hundreds of pesticides in a single analysis

AB SCIEX food and beverage solutions for pesticide residue analysis are optimized to screen for, identify, and quantify hundreds of pesticides in a single analysis, with better compound coverage and less sample preparation than GC/MS.

The 3200 QTRAP® system easily meets regulatory requirements and has the unique ability to identify and quantitate on a single instrument, in a single analysis. Cliquid® Software simplifies the use of LC/MS/MS and enables automatic reporting for quantitation and identification as specified by regulatory agencies. The available iMethod™ Application for pesticide screening comes standard with individual methods to screen for and quantify carbamate, phenylurea, triazine, organophosphorus, and acidic pesticides.

- Automatically perform MRM ratio calculation and library searches with the simple, four-step Cliquid Software workflow.
- Speed up method development with standard iMethod Applications for pesticide screening:
  > Carbamates
  > Phenylurea compounds
  > Triazine herbicides
  > Organophosphates
  > Acidic pesticides
- Access the iMethod Application MRM catalog of over 540 pesticides.
- Identify compounds with confidence using the comprehensive 600 compound LC/MS/MS pesticide identification library.

“We are looking for greater value and higher performance mass spectrometry systems for food safety monitoring. The API 4000™ and 4000 QTRAP® systems from AB SCIEX enable rapid screening, identification, and quantitation of hundreds of compounds in a single analysis in complex food matrices with great sensitivity.”

PROFESSOR JING-CHUAN CHEN, AIMEX SCIENCE TECHNOLOGY INC., PINGTUNG, TAIWAN.

Detect large panels of compounds across different compound classes:
With QTRAP system technology you can screen, identify, and quantify hundreds of pesticides in a single analysis via library search and automated MRM ratio calculation.
LC/MS/MS solutions for ingredient analysis

Quantify ingredients accurately

AB SCIEX food and beverage solutions for ingredient analysis deliver the capability to accurately quantify ingredients in finished products and provide the high level of accuracy needed to meet labeling requirements and differentiate based upon nutritional content.

Providing higher throughput, better sensitivity, and reduced sample preparation compared to conventional HPLC methods, the 3200 QTRAP® system can quantify a wide range of ingredients in a single run with a high level of accuracy.

- Automatically perform MRM ratio calculation and library searches with MultiQuant™ and LibraryView™ software.
- Use the iMethod™ Application for amino acids and SCIEX aTRAQ™ reagent chemistry to selectively tag up to 44 amino acids for analysis.

Better sensitivity, selectivity, and throughput than HPLC. AB SCIEX systems and iMethod Applications simplify identification and analysis of amino acids, vitamins, allergens, and other ingredients, additives, and contaminants in food samples.
LC/MS/MS solutions for toxin analysis

Exceed regulatory requirements for toxin quantitation

AB SCIEX food and beverage solutions for toxin analysis easily exceed the quantitative sensitivity required to meet regulatory guidelines for most toxins. Using the QTRAP® 4500 system offers the performance required to screen, identify, and quantify dozens of toxins in a single analysis, allowing you to minimize sample preparation and matrix effects for accurate quantitation of shellfish toxins, microcystins, and mycotoxins.

The QTRAP 4500 system exceeds regulatory requirements for sensitivity and accuracy for the quantification and identification of multiple toxins in a single run.

- Automatically perform MRM ratio calculation and library searches with user-friendly and efficient software solutions.
- Easily adapt the iMethod™ Application for mycotoxin screening.
- Capability to also combine analysis of antibiotics, pesticides, and other contaminants in the same injection.

Improve sensitivity and selectivity, reduce sample preparation: AB SCIEX LC/MS/MS solutions make quantitative toxin analysis fast and accurate.

Naturally occurring toxins represent some of the most lethal chemicals known to humans when consumed. Some examples include shellfish poisoning and mycotoxin contamination of field crops. Because these compounds can be cytotoxic or even carcinogenic, they are highly regulated.
LC/MS/MS solutions for contaminant analysis

Identify and quantify a wide range of contaminants

AB SCIEX food and beverage solutions for contaminant analysis allow for the identification and quantification of contaminants with varied polarities and molecular weights in a single analysis with high sensitivity, and easily meets regulatory requirements. The QTRAP 4500 system can detect and quantify targeted adulterants and uses advanced statistical analysis to identify adulterants, providing better compound coverage and sensitivity than GC/MS or LC.

The QTRAP 4500 system screens, quantifies, and identifies targeted adulterants in a single run.

- Automatically perform MRM ratio calculation and library searches with the simple, four-step Cliquid® Software workflow.
- Easily adapt the iMethod™ Application for the detection of melamine and cyanuric acid, and the quantitation of banned azo-dyes.

More than 94,000 infants and young children have been treated for health issues related to tainted infant formula and other products. The Chinese General Administration of Quality Supervision, Inspection, and Quarantine and two dairy manufacturers—Shanxi Gucheng and Yashili Dairy Company—have deployed five API 3200™ mass spectrometry systems to lead efforts to establish the highest standards of food safety.

Ensure food safety and quality: Easy-to-implement, and easy-to-use, the AB SCIEX food and beverage solution for contaminant analysis has the sensitivity and specificity to detect and quantify food adulterants to ensure consumer safety. LC/MS/MS method for the analysis of 22 phthalates.
Identify adulterants you didn’t expect to find

The AB SCIEX TripleTOF® 4600 and 5600 systems screen, quantify and confirm the presence of known adulterants, and positively identify unexpected or unknown contaminants, all in a single analysis. Powerful system software tools, including MasterView™ Software allow you to perform background subtraction, statistical comparisons, library searching and empirical formula calculation for the detection and identification of unknown compounds without any prior knowledge. You can also review samples post-analysis with retrospective data mining tools.

TripleTOF technology enables food testing labs to positively identify both the presence of targeted and non-targeted food contaminants, all in the same analysis.

- Use high-resolution and accurate MS and MS/MS for targeted screening and quantitation.
- Identify compounds using accurate mass MS and empirical formula calculation or accurate mass MS/MS spectra and library searching.
- Mine data retrospectively for analytes not initially targeted.
- Use a selection of software tools to assist data processing and screening of unknown or unexpected residues or potential contaminants.

Illegal carcinogenic adulterants pose a serious threat to consumer health. The increased presence of illegal adulterants in raw materials has highlighted the need for comprehensive testing to avoid expensive product recalls and eliminate potential damage to brand equity.
Identify known and unknown compounds in a single run: Clementine sample, Thiabendazole, and Imazalil were identified using accurate mass and MS/MS library searching.

PeakView® Software combined with MasterView™ Software was used for targeted and non-targeted data processing. MasterView Software consists of a table for defining a list of masses or formulae to generate extracted ion chromatograms (XIC), and the ability to review results for the identification of detected compounds. High confidence in results is based upon retention times, accurate mass, isotopic pattern and MS/MS library searching.

There is increased need to screen for, detect and positively identify unknown or unexpected contaminants in food for pet and human consumption. This is to both preserve the reputation of food producers and to ensure product safety.
Get better results faster with AB SCIEX LC/MS/MS solutions

Whether you’re an expert or a newcomer to food testing, our industry-leading solutions make it easy to deploy new methods in your lab and to immediately begin realizing the benefits of LC/MS/MS for routine testing.

**Ready-made**

AB SCIEX complete preconfigured food testing solutions have been developed to meet or exceed regulatory requirements for typical food testing and includes everything you need to get up and running in your lab—all at a competitive price. With the option to purchase additional iMethod™ Applications, complete solutions from AB SCIEX meet both your immediate requirements and provide scope for the future, should your laboratory’s needs grow.

**Customizable**

Using robust technologies you can tailor a complete food testing solution or optimize your existing laboratory setup to simplify testing. Expert users can access comprehensive MS/MS libraries and use the data to create new or customized methods that they can then easily share with colleagues. All of this translates to more time to manage other laboratory priorities.

**AB SCIEX food testing solution components**

- An AB SCIEX Triple Quad™, QTRAP® or TripleTOF® LC/MS/MS system
- One of a number of industry-leading front-end HPLC systems
- Analyst® Software with Scheduled MRM™ Algorithm
- Cliquid® Software with easy four-step workflow that simplifies routine analysis
- Preconfigured, lab-proven iMethod Applications to simplify or eliminate the need for method development
- Access to a continually updated portfolio of downloadable iMethod Applications and dedicated global application support from the AB SCIEX expert team
- Additional on-site training to speed implementation
- A service contract that reflects the uptime and level of response required

**iMethod Applications**

With iMethod Applications you can easily run samples, create new tests, or customize existing methods. iMethod Applications eliminate the need for method development—simply download from the Internet or a CD into Cliquid Software and start running samples. The expanding portfolio of iMethod Applications includes:

- Acrylamide
- Azo Dyes
- Chloramphenicol
- Fluoroquinolones
- Nitrofurans
- Melamine
- Malachite Green
- Pesticides
- Veterinary antibiotics

**iMethod Application Center**

View a list of the latest AB SCIEX or user-contributed iMethod Applications at the iMethod website: [www.absciex.com/iMethods](http://www.absciex.com/iMethods)

“After we purchased the LC/MS/MS system from AB SCIEX, their application specialists provided excellent support for us. The methods developed as a result of our collaboration with them all became the national or ministerial standards for China.”

LAB TEAM LEADER, CHINA INSPECTION AND QUARANTINE (CIQ), SOUTHERN CHINA
Software

Analyst® Software delivers state-of-the-art functionality for instrument control, data analysis, and reporting. Scheduled MRM™ Algorithm makes it easy to schedule overlapping MRM monitoring periods, which maximizes performance, accuracy, and throughput.

MultiQuant™ Software is a powerful and easy-to-use quantitation package that processes MRM data for quantitative analysis, enabling data processing of many analytes and samples at the same time with ease and efficiency.

Cliquid® Software is an essential tool for simplifying routine analyses. The point-and-click operation and four-step workflow greatly simplify even complex LC/MS/MS analysis.

MasterView™ Software provides the ability to identify the presence of both targeted and non-targeted food impurities and contaminants within a given sample type using automatic library searching, formula finder, and ChemSpider structural elucidation features to make it fast and easy to identify what is present in your samples.

“The ready availability of test methods saves our laboratory the cost of developing and verifying tests that have already been adopted by other laboratories with specialized expertise. iMethod Applications enable us to quickly obtain answers with great confidence in the data we generate.”

PERRY MARTOS, DIRECTOR OF THE FOOD TESTING LABORATORY AT THE UNIVERSITY OF GUELPH, CANADA

Upgrade your LC/MS/MS solution and start detecting pesticides faster, more efficiently and with greater confidence.

Available in QTRAP® and AB SCIEX Triple Quad configurations
With excellent sensitivity and high speed MS/MS you can simplify sample preparation and even combine screening assays to increase productivity.

The AB SCIEX portfolio of the 3200, 4500, 5500, and 6500 series LC/MS/MS systems deliver the ultimate in mass spec performance, reliability, and throughput.

Triple Quad™ Systems
- Quantitation
- MRM

QTRAP® Systems
- Quantitation
- MRM ratio
- MS/MS library searching

TripleTOF™ Systems
- Quantitation
- Accurate Mass
- MS/MS library searching
- Retrospective processing

Increasing confidence of compound identification
Your success is our success
We take it personally

As an AB SCIEX customer you have access to an excellent customer support organization.

Wherever you are, we’re there with you as a trusted partner to answer questions, provide solutions, and maximize lab productivity.

Our customer support organization has access to the latest product updates, software revisions, methods and repair procedures to make sure that you stay on top of your game.

When you have questions, we have answers.

Learn more at www.absciex.com/customersupport, or locate your local account representative at www.absciex.com/contactus