[ACQUITY QDa DETECTOR]

SEPARATING BEYOND QUESTION

BRINGING **THE POWER** OF MASS DETECTION **TO YOU**

Waters

THE SCIENCE OF WHAT'S POSSIBLE.®

CERTAINTY

Having the mass spectral information

"THE ACQUITY QDa DETECTOR HAS BEEN SPECIFICALLY DESIGNED FOR CHROMATOGRAPHERS. IT IS AS EASY TO USE AS AN OPTICAL DETECTOR AND DOES NOT NECESSITATE SPECIFIC TRAINING OR EXPERTISE. THE DETECTOR IS WELL ADAPTED TO SPEED UP THE METHOD DEVELOPMENT PROCESS THROUGH EFFICIENT PEAK TRACKING AND MINIMIZES THE RISK OF COELUTION."

Davy Guillarme, PhD, Senior Lecturer, School of Pharmaceutical Sciences at University of Geneva, University of Lausanne

ABOVE ALL ELSE

you need, for the analytical confidence you demand, was beyond the reach of most. Until now.

When you can see only what you are looking at, you might not be seeing the full picture. When you see the full picture, you have the confidence to make informed decisions.

What if you could generate quality mass spectral data within your existing workflows, confirm compound identities with certainty, immediately highlight co-elutions, shorten development and project times, and not have to wait for results from a specialist analytical service lab?

And what if mass detection was suddenly as familiar as optical detection?

The ACQUITY® QDa® Detector is the culmination of Waters' committed experience in mass spectrometry, resulting in an instrument with purposeful innovation that addresses size, ease of use, and affordability concerns that our customers have been asking us to attend to.

The ACQUITY QDa Detector is the mass detector designed as a synergistic element of your chromatographic separations system. It is mass detection built around the needs of your analytical scientists for their chromatographic analysis. Robust, reliable, and requiring no sample-specific adjustments, it seamlessly integrates with your current LC, UPLC®, UPC^2,® and purification systems.

Minimize the risk of unexpected co-elutions, and you will be able to confirm trace components with certainty because of the analytical confidence of mass detection. You'll enhance the analytical value and productivity of each analysis, and you won't need to run all the additional assays or time-consuming alternative techniques or even wait for results from specialist labs that cost your laboratory productivity.

THE ACQUITY QDa DETECTOR IS THE START OF NEW ERAS IN BOTH SEPARATIONS SCIENCE AND ANALYTICAL SCIENTIST INDEPENDENCE. CHARACTERIZE YOUR SEPARATIONS WITH THE INTEGRATION OF MASS DETECTION IN THE SAME WORKFLOW, ANSWERING QUESTIONS BEFORE THEY ARE ASKED. EMPOWER YOUR CHEMISTS WITH THE ANALYTICAL CONFIDENCE OF MASS DETECTION FOR MORE VALUE FROM EVERY ANALYSIS AND MORE PRODUCTIVITY FROM EVERY DAY.

- SIMPLY POWER ON, AND YOU'RE READY TO GO
- ZERO USER SET-UP OPTIMIZATION, CALIBRATION, OR ADJUSTMENT
- RUN YOUR ANALYSES – IT JUST WORKS
- WHEN YOU'RE DONE, JUST POWER-OFF

CHARACTERIZE YOUR SEPARATION NOW – PDA MEETS QDa

Mass detection is widely recognized as a reliable method to derive more meaningful information from your samples, but is not necessarily used by all analytical scientists. Mass detection is an orthogonal, complementary technique to optical detection, allowing you to discriminate between analytes of similar absorbance properties. It enables you to confirm compound identity and purity. And, as it's also compatible with optical detection, you could benefit from both, in the same sample analysis.

However, traditionally, mass detection is seen as a costly technique, consuming bench space and needing sample-specific, careful adjustment. Often requiring training of an expert user to manage its complexity, mass detection is generally not suitable for integration into most LC analyses. So, mass detection tends to be inaccessible to many laboratories.

Now you can have access to the analytical confidence from the selectivity that mass detection brings to your analysis, within your own analytical or purification system.

With the ACQUITY QDa Detector, you now have information-rich mass spectral data to complement data from your current Waters® optical detectors, including the ACQUITY UPLC PDA, TUV, ELS, and FLR detectors, as well as the ACQUITY UPC^2 PDA Detector. This mass spectral information integrates seamlessly into the same workflow, routinely giving you more complete separation characterization.

WITH THE ACQUITY QDa DETECTOR YOU CAN:

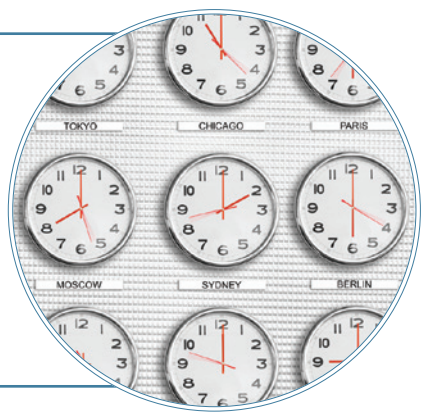
- Complement quantitative data from Waters optical detectors with enhanced qualitative mass spectral data to confirm the identity of components.
- Extend the sample detection ability of your PDA detector to quantify compounds with no UV response at levels not amenable to or accessible by optical detection.

1000

WITH 2X THE pH RANGE OF SILICA IN HPLC, THERE ARE >1000 FULLY-SCALABLE CONFIGURATIONS OF THE HYBRID PARTICLE-BASED XBRIDGE AND XSELECT HPLC COLUMNS FOR METHOD DEVELOPMENT AND PURIFICATION.

BE ASSURED. CHOOSE WATERS GLOBAL SERVICES.
Waters Global Services focuses on optimizing Waters products with superior service, support, upgrades, training, and Waters Quality Parts.®

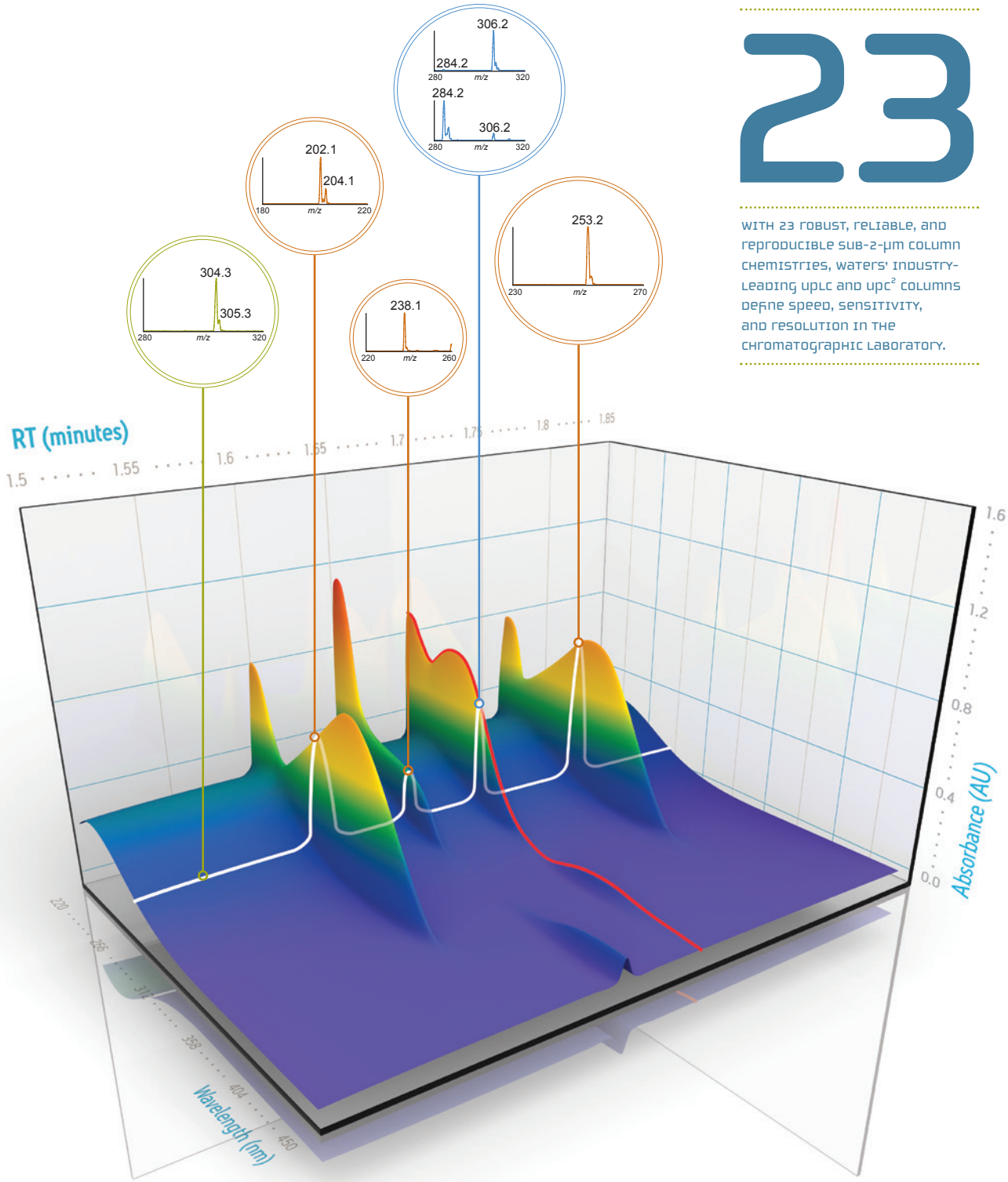
PROVEN SATISFACTION
For 15 consecutive years, an independent quality auditing firm has ranked Waters Global Services as best-in-class in providing expert technical knowledge, quick resolution of system issues, and process support.[1]



1. Achievement in Customer Excellence Award, Comfirmit/CustomerSat, Inc., 2007-2015; NorthFace ScoreBoard Awards,™ Omega Management Group Corporation, 2001-2006.

23

WITH 23 ROBUST, RELIABLE, AND REPRODUCIBLE SUB-2-µm COLUMN CHEMISTRIES, WATERS' INDUSTRY-LEADING UPLC AND UPC² COLUMNS DEFINE SPEED, SENSITIVITY, AND RESOLUTION IN THE CHROMATOGRAPHIC LABORATORY.



Make informed decisions. *Confirm components with certainty, even at trace levels (circled orange above), or for components with no UV response (circled green above). Minimize the risk of unexpected co-elutions, even for components of similar UV spectral properties (circled blue above). This is the analytical confidence of mass detection. And with the ACQUITY QDa Detector, you now have this confidence for all of your separations.*

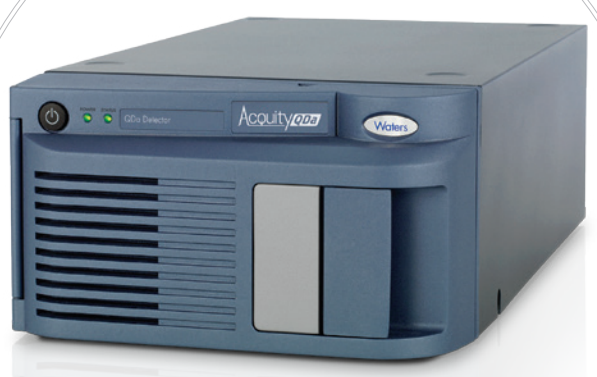
YOUR WORKFLOW, YOUR WORKFORCE, YOUR WORK DONE

PLUG AND PLAY PERFORMANCE

It's as intuitive as an optical detector with the robustness to handle all of your analyses. Working in harmony with your chromatography, it's pre-optimized to work with your samples, without the sample-specific or user adjustments typical of traditional mass spectrometers.

ACCESSIBILITY

The industry's most accessible, affordable, and usable mass detector. For the first time, any analytical scientist can consistently generate the highest quality mass spectral data routinely – no special training or expertise required.



ACQUITY QDa Detector: For all of your separations from HPLC and UPLC to UPC², and for LC and SFC purification.

CONFIDENCE

The most information you can get out of your separation for complete characterization. In synergy with optical detection, you can significantly reduce the chance that a sample component will go undetected.

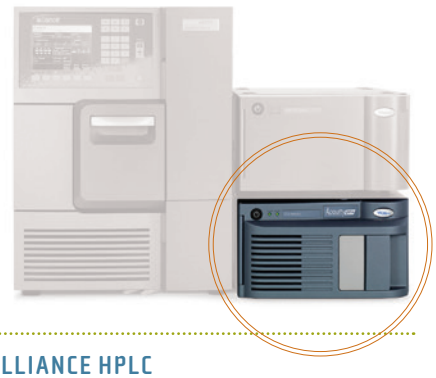
INCREASED EFFICIENCY

Purposeful innovation that gives you the only mass detector that integrates with and even fits on top of your instrument stack. Using less bench space and less energy than a traditional mass spectrometer, it fits easily within your existing laboratory set up as part of your regular workflow. Cleaning and routine maintenance are minimal, thereby maximizing your uptime.

The intuitive design of the ACQUITY QDa Detector gives you the additional data you need without the cost and complexity of traditional mass spectrometry – and it's compatible with all of our ACQUITY UPLC, ACQUITY UPC², Alliance® HPLC, and purification LC and SFC systems.

AUTOPURIFICATION™ LC PREP

For analytical and preparative chromatography of milligram to multigram quantities, with maximum efficiency on a single, high-throughput HPLC platform.



ALLIANCE HPLC

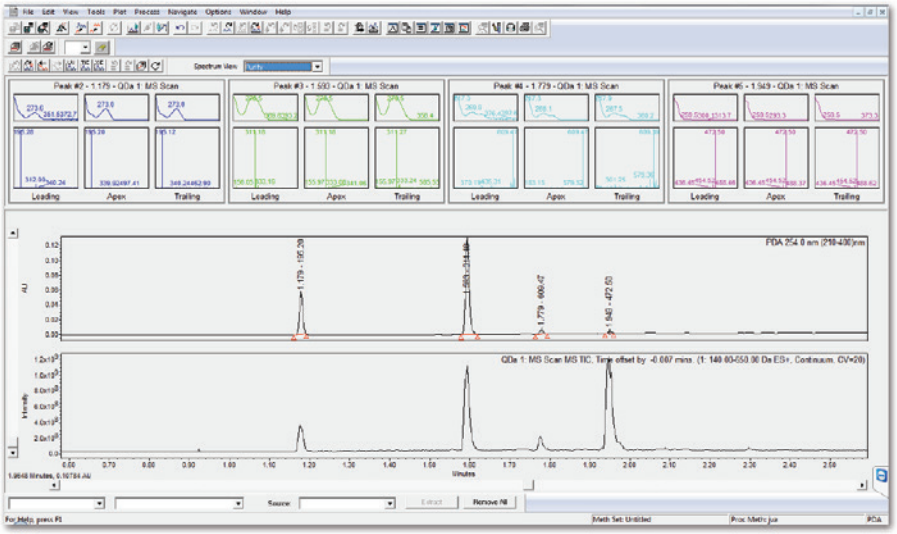
For analytical labs that require versatile and dependable performance, the Alliance HPLC System is the industry gold standard providing exceptional confidence in your analytical results.

ACQUITY UPLC H-CLASS

Discover true UPLC performance with a system that delivers high resolution separations, increases sensitivity, and improves throughput, but also has the flexibility to automate method development and support existing HPLC methods.

EFFORTLESS INTEGRATION

Process, interpret, visualize, and compare the most complex data, and turn it into meaningful information quickly and simply. The ACQUITY QDa Detector is fully compatible with Empower® Software, our industry-leading chromatography data software platform. With integrated optical and mass detector data processing workflows, you can also analyze mass spectral data in the same way as you do PDA data. The ACQUITY QDa Detector is also fully compatible with MassLynx® Software and its suite of data processing application managers.



Confirm identities and highlight co-elutions in one workflow with the new Mass Analysis window in Empower 3 FR2. Chromatograms are annotated with both analyte mass and absorbance maximum, along with retention time, while the UV and mass spectra for each chromatographic peak are displayed together.

400,000

More than 400,000 named users on more than 3,500 networks in more than 70 countries rely on Empower.

ACQUITY UPC²

Complementary to both LC & GC and providing orthogonal data with greater separation power that you can rely on while also simplifying your laboratory workflow.

ACQUITY UPLC I-CLASS

A binary UPLC System that offers the fastest UPLC separations and maximized peak capacity and minimized carryover, for the most information possible from even the most complex samples.

ACQUITY ARC

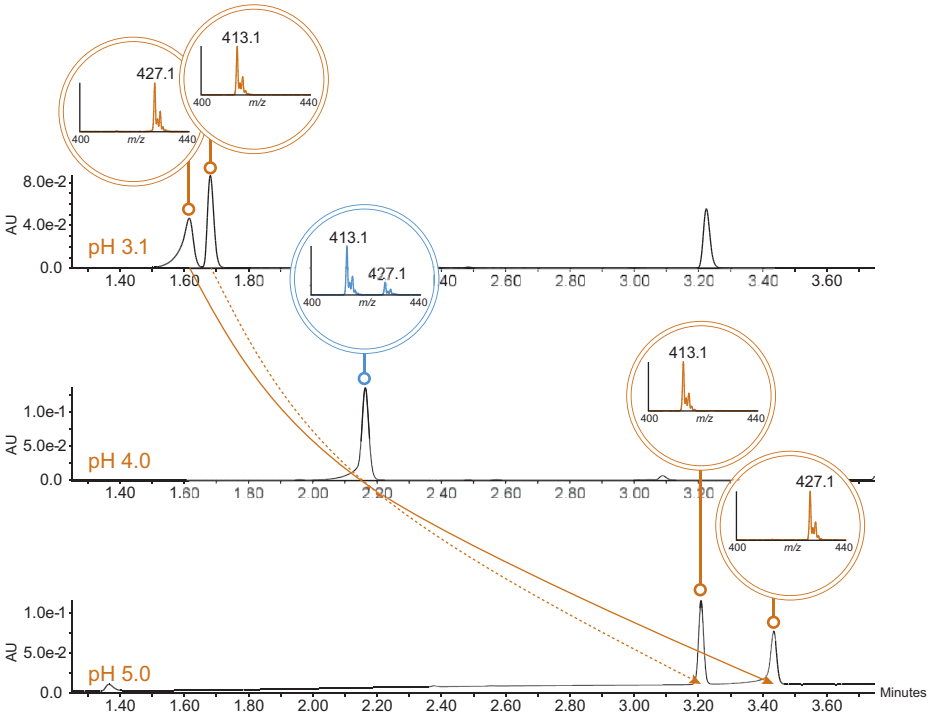
Designed for seamless method transfer from any LC, the ACQUITY Arc System is a modern LC that delivers HPLC and UHPLC method compatibility at the flip of a switch.

FOR PERFORMANCE THAT ADVANCES YOUR LABORATORY. AGAIN.

Whether your focus is on advancing healthcare, protecting the environment, safeguarding our food and water supplies, or making new materials, the ACQUITY QDa Detector dramatically improves the capability of your existing analytical or purification system and is your simplest route to reliable, versatile mass detection.

METHOD DEVELOPMENT

Ensure the most complete separation for quantitative ACQUITY UPLC, UPC², and HPLC methods, while minimizing the number of standards you need to run to confirm the identity and homogeneity of peaks by retention time. Within the same analysis and workflow, track the components in chromatographic peaks and highlight potentially compromising co-elutions while optimizing your chromatography – which means you can develop separations methods faster.



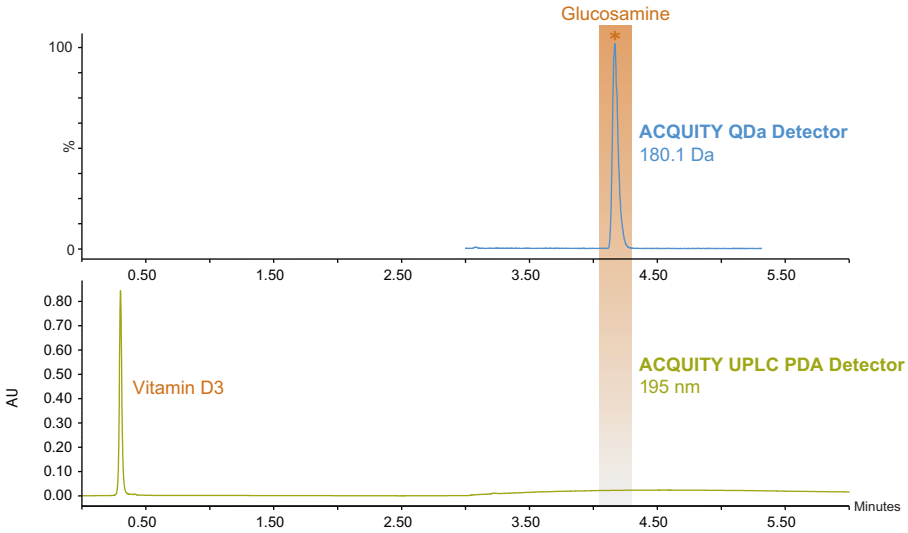
Manipulation of chromatographic mobile phases can produce substantial and useful alterations of separation selectivity. As applied to this mixture of Ziprasidone and USP designated related substances separated with the ACQUITY UPLC H-Class System, the orthogonal selective detection available with the ACQUITY QDa Detector permits the identification of coeluting species. With changes in mobile phase, individual analytes can be tracked through changes in relative retention.

COLUMN CHEMISTRIES

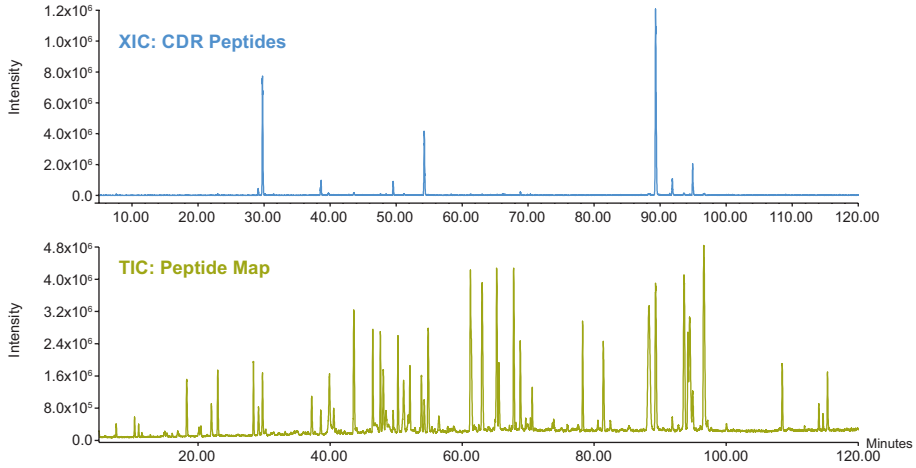
In order to quickly and efficiently develop robust chromatographic methods, stable and reproducible columns are required that offer not only efficient and symmetrical peaks but long, predictable column lifetimes. Waters' diverse, industry-leading portfolio of UPLC, UHPLC, UPC², and HPLC columns facilitate efficient method development, validation, and transfer throughout your organization. For UPLC method development, CORTECS® and ACQUITY UPLC Columns combine the ultra-high efficiencies of rugged, sub-2-µm CORTECS, BEH, CSH™, and HSS particles with the wide selectivity range of twenty-three complementary stationary phases. ACQUITY UPC² Columns offer an almost unlimited range of selectivities and are designed and tested for use on the ACQUITY UPC² System. The fully-scalable XBridge® and XSelect® HPLC Column chemistries allow seamless method transfer between UPLC, analytical HPLC, and preparative HPLC separations.

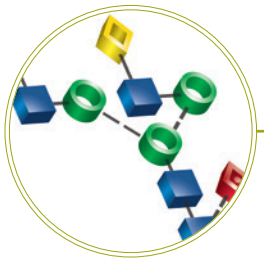
SAMPLE PROFILING

Now you can combine quantitative and qualitative data into the same workflow with complementary optical and mass detection. Confirm the identities of your additives or specified impurities and even fingerprint unidentified or unspecified impurities – in the same analysis, with the same chromatography, and in the same data processing workflow as your current UV quantification – without the need to run confirmatory standards. In short – know what you quantify.

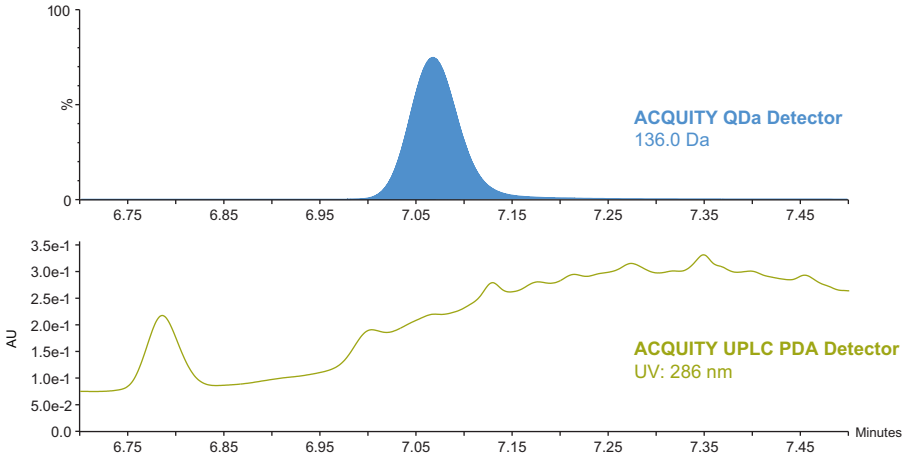


In this nutraceutical formulation, analyzed to a published UV protocol, while Vitamin D3 is detected by UV, glucosamine is indistinguishable from the UV background since it lacks a chromophore. With the ACQUITY QDa Detector, quantitative results for glucosamine are readily achieved.





For biopharmaceuticals, the ACQUITY QDa increases certainty in product ID through mass confirmation of complementary domain region (CDR) peptides, full peptide maps, peptide modifications, and glycan profiles.

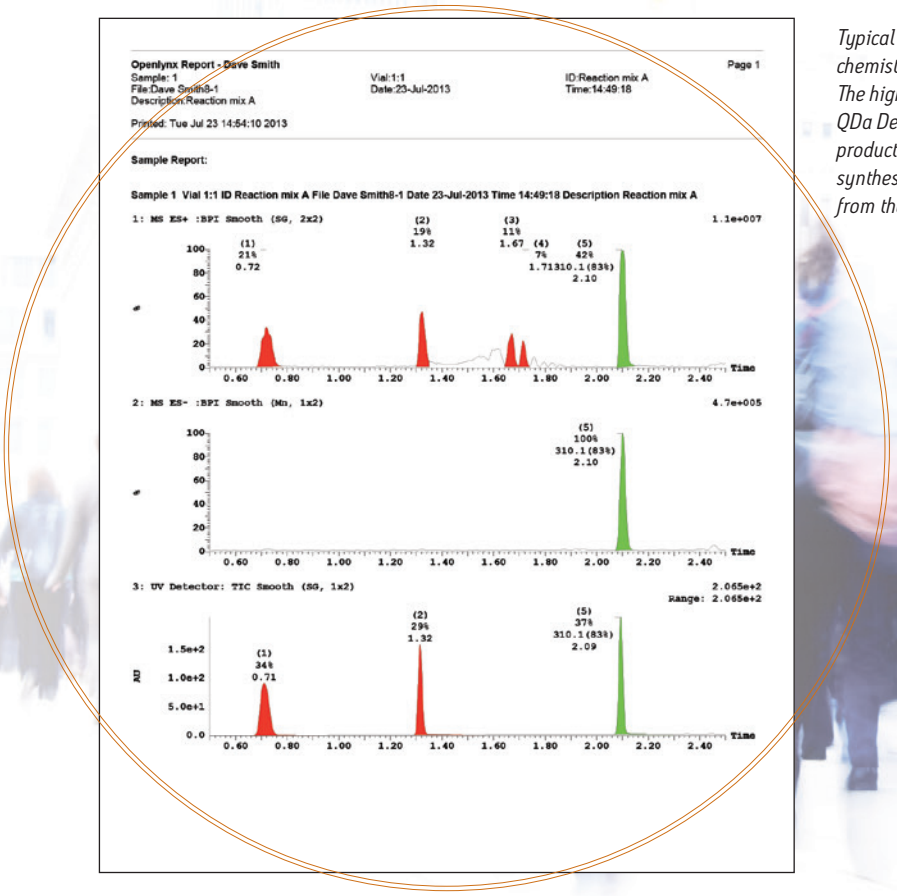


For the highly regulated inks and dyes industry, the selectivity and sensitivity of the ACQUITY QDa Detector enhance the confidence of quantitative ink results for increased laboratory efficiency.

FOR DECISIONS THAT DRIVE YOUR DISCOVERY.

SYNTHETIC CHEMISTRY

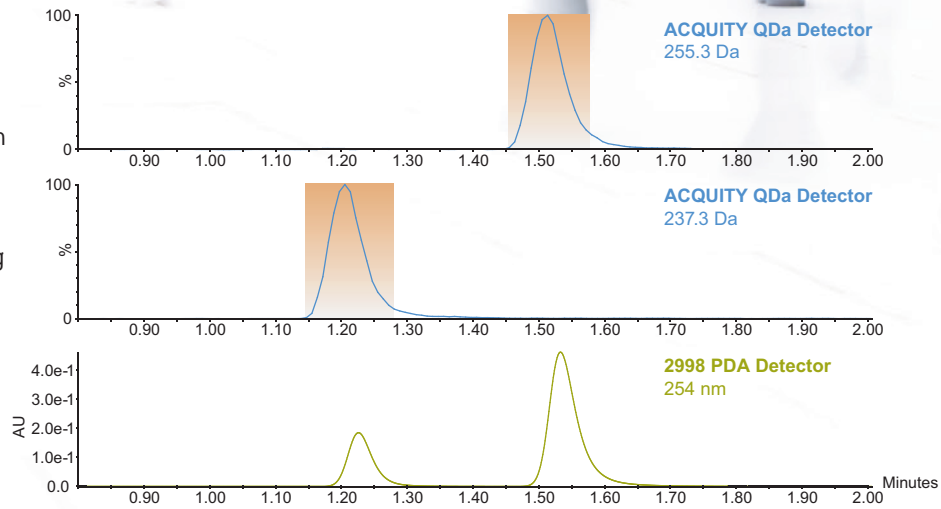
Confirm the identity and purity of your synthesized product, accurately and quickly, whether using ACQUITY UPLC or UPC^2 systems. Now every synthetic chemist can obtain the correct results quickly and easily without having to send their work to another laboratory for analysis. The result – confident decisions with every analysis.



Typical open access report for a medicinal chemist using the ACQUITY UPLC System. The highlighted area shows how the ACQUITY QDa Detector confirms that the required product (310 Da) has been successfully synthesized while the purity is determined from the ACQUITY UPLC PDA Detector.

PURIFICATION

Easily integrate mass-directed purification into your HPLC or SFC preparative system to efficiently target the compound of interest for collection, thereby maximizing productivity. You collect more of what you want and less of what you don't – more affordably with less work.



Fraction triggering by molecular mass, using the ACQUITY QDa Detector, allows selective isolation of each of the 2 components from this mixture separated using the Waters AutoPurification HPLC System.

For all your samples
For all your separations
For all your scientists

ACQUITY QDa Detector
Separating Beyond Question™

For more information, visit
www.waters.com/separate

"THE ACQUITY QDa DETECTOR TELLS US INFORMATION THAT WE WOULD NOT BE ABLE TO GET TO WITHOUT USING EXTERNAL LABS. NOW I CAN GET THE ANSWER IN ONE LAB WITH A SINGLE USER, WITH A SINGLE INSTRUMENT, WHICH BASICALLY PROVIDES A SOLUTION THAT WE NEVER HAD BEFORE."

Dr Prabhakar Kasturi, Director Analytical/Technical Insights, PepsiCo Global R&D

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