



# ACQUITY UPLC Detectors

THE PINNACLE IN DETECTION CAPABILITIES

Waters  
THE SCIENCE OF WHAT'S POSSIBLE.®

## ENSURE YOU GET THE ANSWERS TO THE QUESTIONS YOU ARE ASKING

Scientists are constantly being challenged to answer more questions from increasingly diverse and complex samples. This requires the use of a wide range of detection techniques to ensure correct and complete characterization of their samples. We provide a wide complement of detectors to obtain all the information for your experiments.

Our wide range of ACQUITY UPLC® Detectors provides you with the right tools for your toolbox to get the analysis done. With our line of complimentary and compatible detectors, you can ensure there is clarity in the information and data being collected for your analysis.

The ACQUITY UPLC Systems provide true UPLC® Performance without compromise. Whether you routinely develop new methods or you perform routine analysis and support large numbers of samples, the ACQUITY UPLC Systems can help you reach your laboratory's goals of decreasing the time to result, while increasing the depth of the quality of the information about your analysis.

The ACQUITY UPLC Detectors provide the ability to take advantage of UPLC Performance and properly detect the increased resolution necessary for improved characterization of your complex samples. The wide complement of detectors provide you the tools to fit within your existing laboratory workflows without compromising the quality of data or timeliness of the result.



## UNPARALLELED SENSITIVITY AND SELECTIVITY IN UPLC DETECTION

Pioneering technologies like the ACQUITY® UltraPerformance LC® (UPLC) System were founded on the principles of sensitivity, resolution, and speed. The superior, high-efficiency separations afforded by UPLC Technology require the addition of high performance detection techniques able to effectively acquire and quantitate this type of data.

### LOW DISPERSION FLOW CELLS

Waters flow cells are designed to maximize the resolution and sensitivity that is inherent in UPLC separations.

### SUPERIOR LINEAR RANGE

Wide linear range allows for quantitation and identification of peaks of both low level impurities and their parent compounds.

### FULL METHOD CONTROL

User settings allow optimizing the detectors for the sensitivity and resolution needed for your analysis.

### FLEXIBLE SAMPLING RATES

Waters detectors provide capabilities to ensure you can detect the most basic to the most challenging separations and not miss any information.

### CONSOLE CONTROL AND DIAGNOSTICS

Customizable instrument console provides quick and easy access to diagnostics and monitoring tools to ensure optimized uptime of the system.

### MASS DETECTION CAPABILITY

The ACQUITY QDa® Detector can minimize the risk of unexpected co-elutions or components with the analytical confidence of mass confirmation.

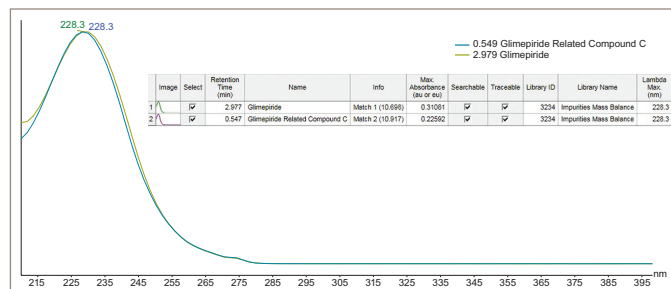


## IMPROVED SAMPLE CHARACTERIZATION

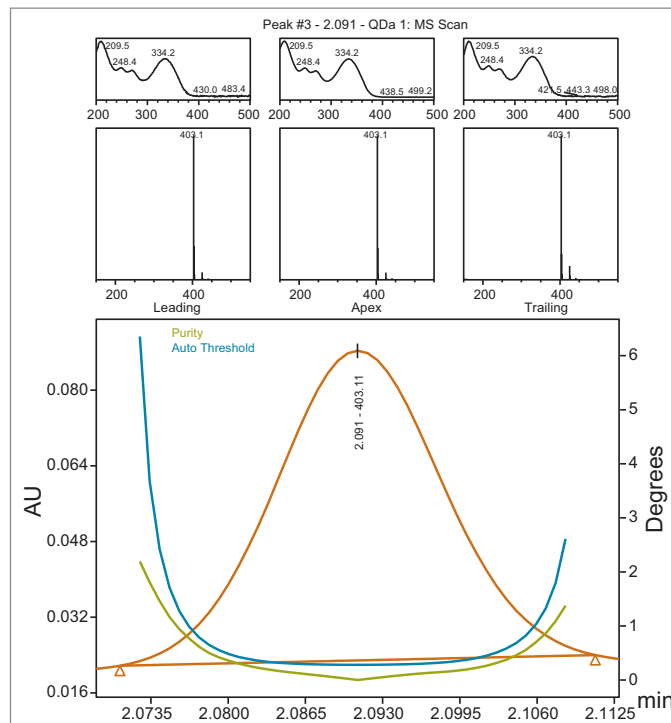
The **ACQUITY UPLC Photo Diode Array (PDA)** and the **eλ PDA** detectors provide exceptional signal-to-noise ratios, high sensitivity library matching and high optical and digital resolution. This provides the ability to map low levels of compounds and determine trace impurity levels within the compound's peak. The ACQUITY UPLC PDA's wide linear dynamic range allows for simultaneous quantification of high and low level components within a single chromatographic separation.

While the design of most PDA detectors can only distinguish between compounds possessing comparatively large spectral differences, the ACQUITY UPLC PDA Detectors can differentiate between the spectra of closely-related compounds. Combined with the **ACQUITY QDa** Mass Detector, you now have information rich mass spectral data to complement your current ACQUITY UPLC PDA, TUV, ELS, and FLR detectors.

Combined with Empower® Software, users can employ power tools to integrate the mass spectral information seamlessly and determine spectral homogeneity, giving you a complete separation characterization of your sample.



*The spectral resolution on the ACQUITY UPLC PDA Detector provides users with the ability to distinguish between related compounds with very close spectral profiles (Glimepiride Related Compound C and Glimepiride).*



*Using the ACQUITY UPLC PDA Detector along with the ACQUITY QDa Mass Detector provides users with more detailed information of their samples and ensures confidence in the analysis.*

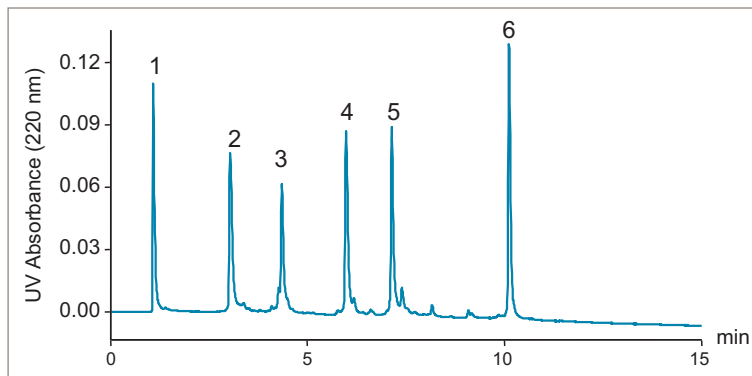


## SENSITIVITY AND SELECTIVITY

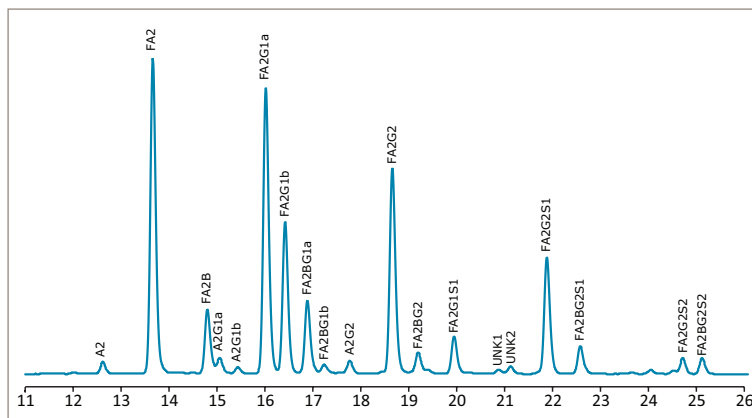
The **ACQUITY UPLC Tunable UV (TUV)** Detector is an ultraviolet/visible detector that provides superior sensitivity and linear dynamic range which are needed for the detection of even the lowest-level impurities. The ACQUITY UPLC TUV's innovative light guided flow cell coupled with the ACQUITY UPLC's low dispersion fluidics eliminates the need to remove the detector or to split the flow between two detectors in order to maintain optimal resolution.

The **ACQUITY UPLC Fluorescence (FLR)** Detector is a multi-channel fluorescence detector that brings unrivaled sensitivity and selectivity in UPLC separations. The detector's innovative flow cell focuses the excitation energy to allow maximum light throughput and provide optimum signal-to-noise performance. The detector's flexible 2D and 3D spectral acquisition modes enable users to quickly determine optimal wavelength settings for quick method optimization.

The complementary nature of the ACQUITY UPLC Detectors provides you with all the tools needed to ensure the right answers to your analysis.



Separation of six proteins using a Protein-Pak™ Hi Res HIC Column. The sensitivity of an ACQUITY UPLC TUV Detector allows for detection of samples at low levels. The proteins are 1) cytochrome C, 2) myoglobin, 3) ribonuclease A, 4) lysozyme, 5) enolase, and 6) alpha-chymotrypsinogen A.



ACQUITY UPLC FLR detection of N-glycans using GlycoWorks™ RapiFluor-MS™ N-Glycan Kit.

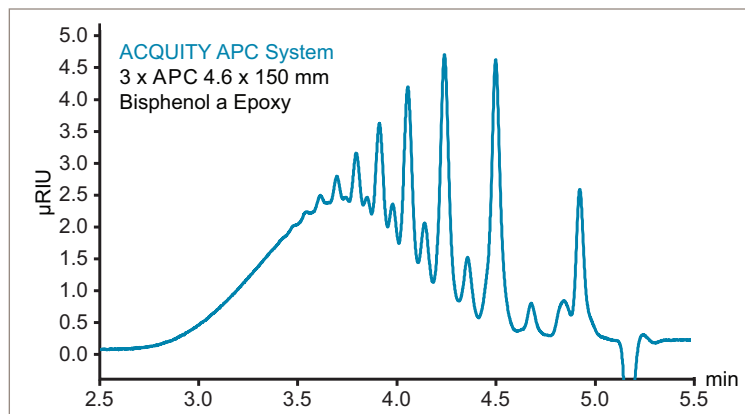


## DETECTION OPTIONS FOR ALL SAMPLES

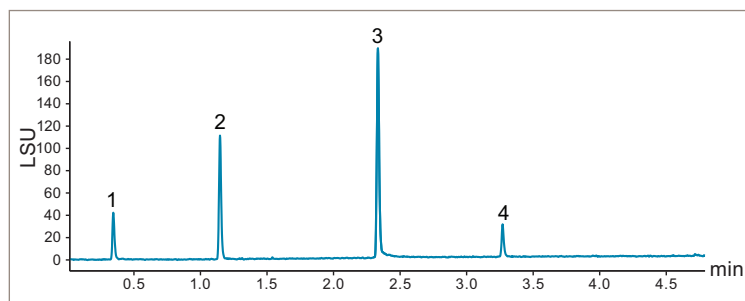
Laboratories around the world have deployed UPLC technology to improve data quality and throughput. Waters® provides the **ACQUITY UPLC Evaporative Light Scattering (ELS)** Detector and the **ACQUITY UPLC Refractive Index (RI)** Detector to recognize these benefits where compounds have poor to no UV/Vis response and the analytes do not ionize well under mass spectrometry.

The ACQUITY UPLC RI Detector's innovative flow cell design addresses challenges of technical and environmental hurdles found when running an RI analysis. Coupled with a high energy LED, which delivers exceptional energy transmittance through the flow cell, the detector delivers maximum sensitivity while maintaining excellent peak shape. The integrated solvent valves provide automatic reference cell purging capabilities to maintain optimal baseline performance and solvent recycling to reduce costly solvent consumption.

The ACQUITY UPLC ELS Detector has precise temperature control of the nebulization and desolvation process to cover the entire ACQUITY UPLC flow rate range and the convenience of running samples under different conditions. The detector provides a snap-in self-aligning lamp and nebulizer for easy servicing.



*Faster analysis times and better resolution of a Bisphenol a Epoxy using the ACQUITY APC™ System and the ACQUITY UPLC RI Detector.*

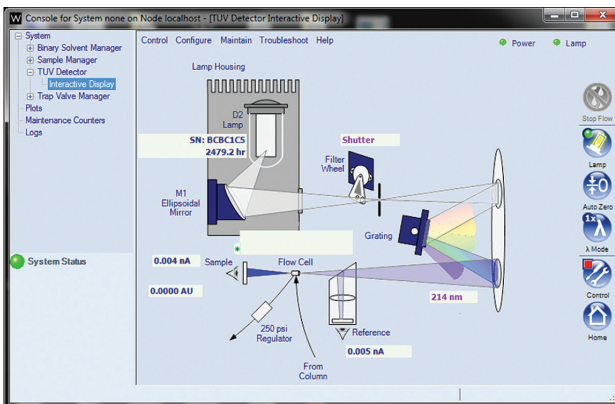
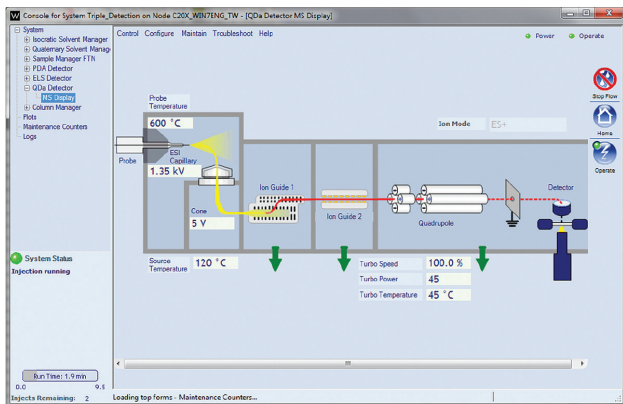
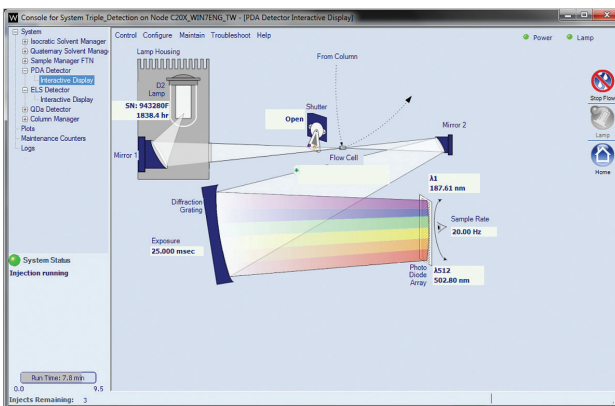
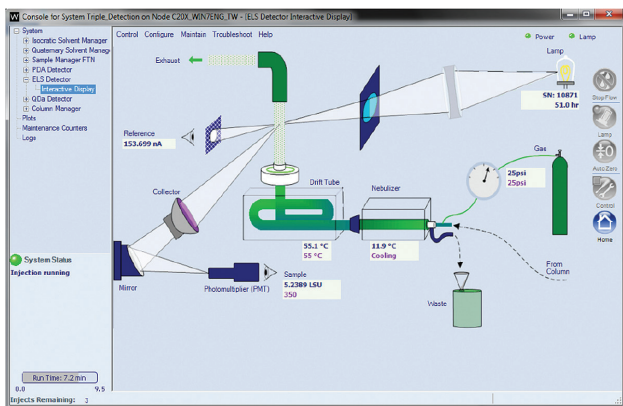


*Analysis of 1) flavone, 2) caffeine, 3) thymine, and 4) prednisone using the ACQUITY UPLC H-Class System and the ACQUITY UPLC ELS Detector.*

## SOFTWARE AND CONSOLE SUPPORT

All ACQUITY UPLC Detectors are equipped with a customizable console, for both Empower and MassLynx® software, that enables users to easily stay in control of their detectors. Instrument setup, status monitoring and diagnostics are easily accessible through an intuitive, easy-to-learn interface.

The console uses a simple navigational approach, combined with instrument default parameters, defined range settings, tool tips, and online help that makes system navigation and instrument usability a snap. Furthermore, at anytime the control panel can display the operating status of the module providing assurance that the system is working properly.



[www.waters.com/uplcdetectors](http://www.waters.com/uplcdetectors)

For your local sales office, please visit [www.waters.com/contact](http://www.waters.com/contact)

# Waters

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**Waters Corporation**  
34 Maple Street  
Milford, MA 01757 U.S.A.  
T: 1 508 478 2000  
F: 1 508 872 1990  
[www.waters.com](http://www.waters.com)