

# Agilent OpenLab ICP-MS Software

Simplify every step  
of ICP-MS analysis

For Agilent 7800, 7850,  
and 7900 ICP-MS systems,  
and Agilent 8900 and  
9500 ICP-QQQ systems.



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Workflow overview

Dashboard and  
instrument readiness

Guided diagnostics  
and system monitoring

Batch setup

Method creation for  
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# Simplify every step of ICP-MS analysis



Designed for Agilent ICP-MS and ICP-QQQ systems, Agilent OpenLab ICP-MS software helps laboratories simplify daily operation, guide users through routine tasks, and review results with greater confidence.

OpenLab ICP-MS includes a dashboard for daily operation, guided diagnostics, Method Advisor for element-focused method development, IntelliQuant Star Rating for easier data review.

## OpenLab ICP-MS helps labs:

View instrument status at a glance

Set up methods with less manual input

Troubleshoot issues with guided diagnostics

Review data quality more easily

Control selected Agilent accessories and optional workflows

Support regulated laboratory workflows

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# From instrument readiness to reportable results

OpenLab ICP-MS supports the key steps in routine ICP-MS analysis, from checking instrument status and creating batches to acquiring samples, reviewing results, exporting data, and supporting compliance needs.



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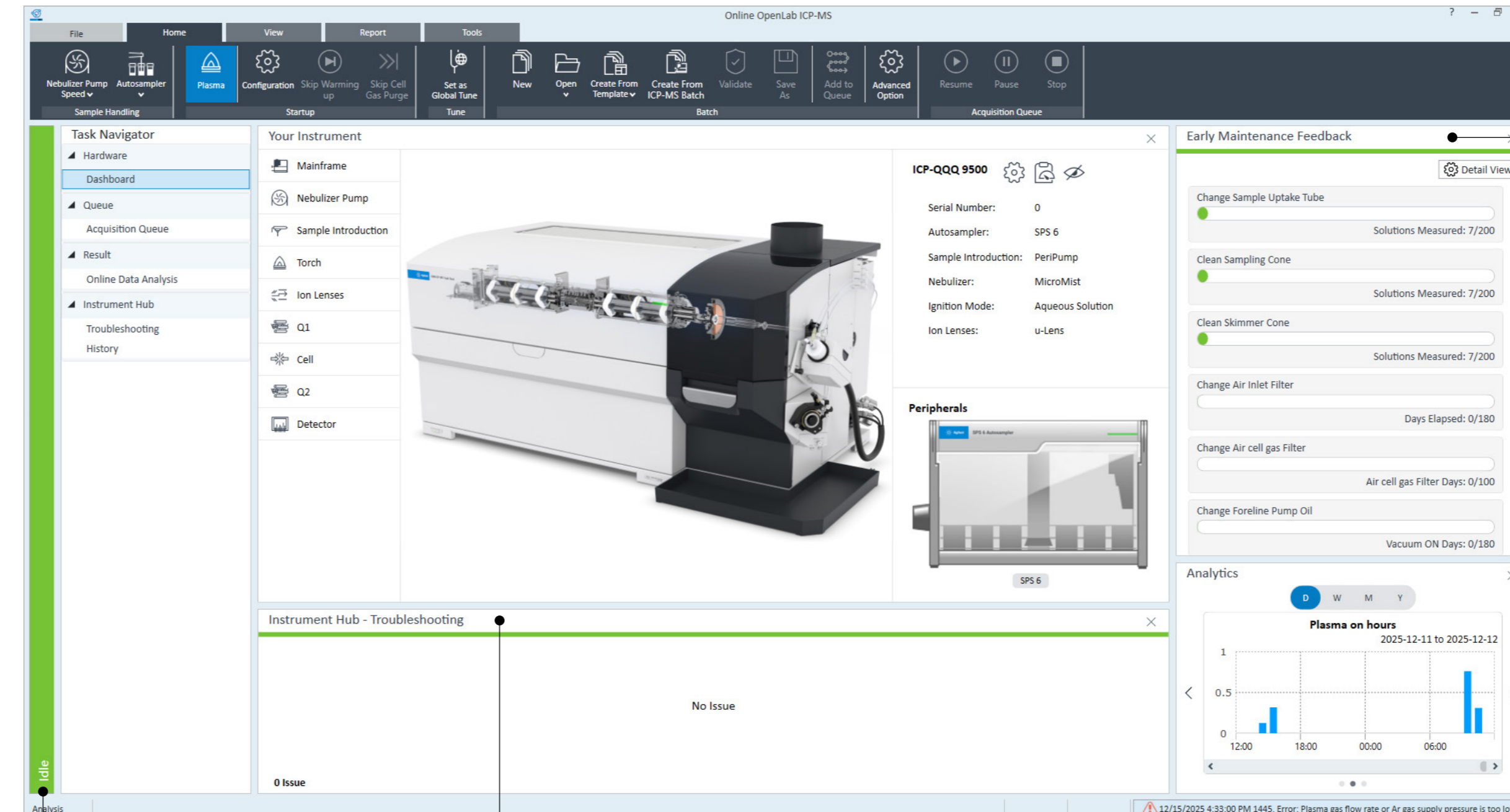
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# See instrument status at a glance

The OpenLab ICP-MS dashboard gives users a quick overview of instrument status and system health during daily operation. Instrument configuration, maintenance status, and troubleshooting access are brought together in one easy-to-follow view.



## Smart EMF

Early Maintenance Feedback helps users see when maintenance tasks should be scheduled using traffic light indicators.

## Instrument Analytics

Visualization of instrument analytics, including plasma on hours and total matrix solids over time to show instrument utilization.

## Instrument Status Indicator

Color-coded alerts show whether the instrument is offline, not ready, ready, running a procedure, warning, or in error.

## Instrument Hub

Health monitoring, maintenance, and diagnostic functions are consolidated in one dedicated area.

## Post-run performance check

Built-in checks verify instrument condition at the end of a sample run and report results to the Instrument Hub, providing clear guidance on whether maintenance is required.

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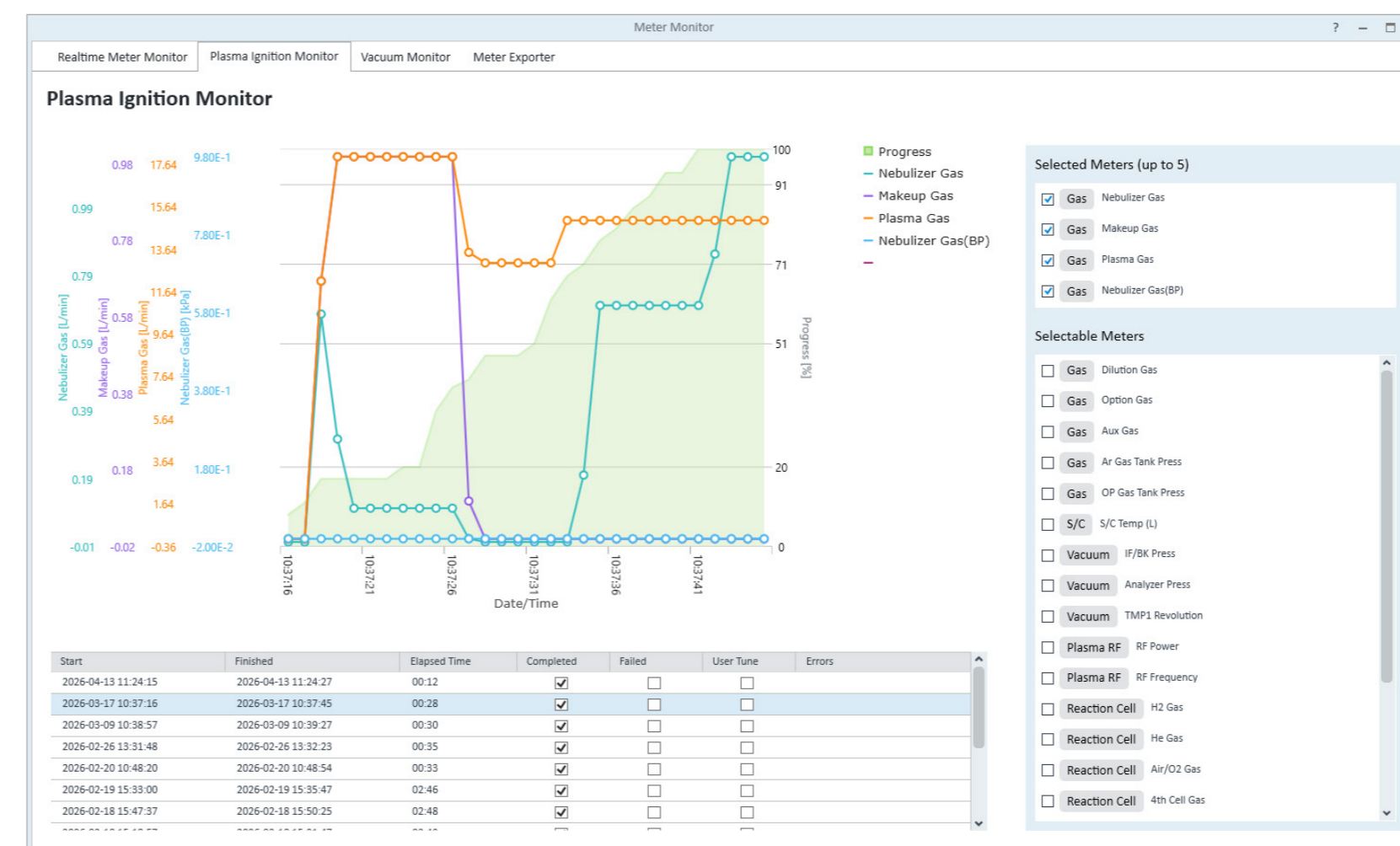
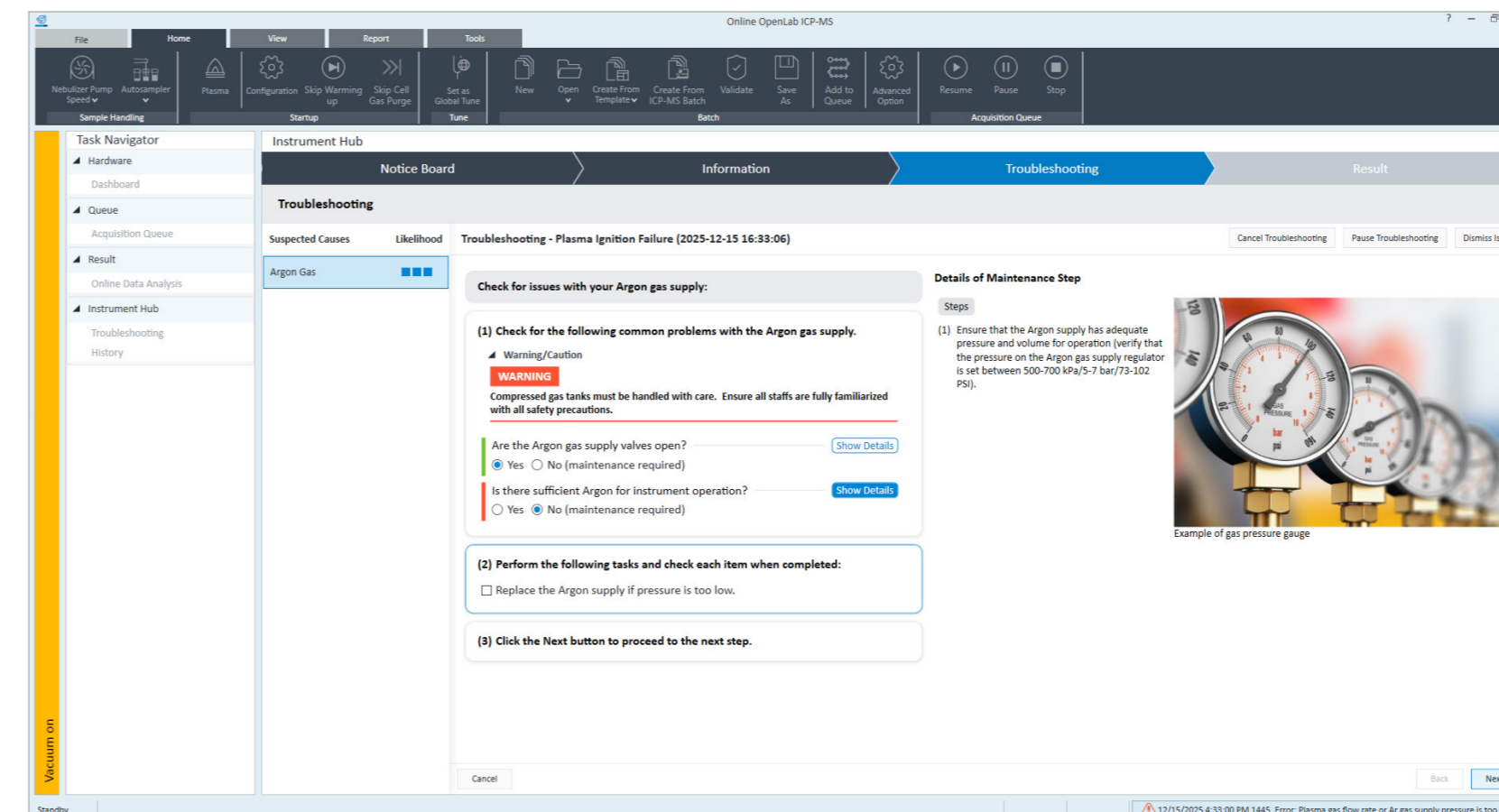
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# Troubleshoot with guided support

Upon any issue, OpenLab ICP-MS displays a notification in the Instrument Hub. Users can open the notification and start Diagnostics, which provides guided troubleshooting using step-by-step instructions, images, and videos.

Meter Monitor provides real-time insight into key system parameters such as vacuum levels, gas flows, and temperatures. Time-stamped records can support future review and help identify potential root causes of any issues.



## Guided Diagnostics

Step-by-step troubleshooting support for common instrument issues, supported by software analysis, images, and videos.

## Time-stamped records

Automatically logged meter readings provide traceable data for diagnostics, helping identify the causes of issues during events such as plasma ignition and vacuum state transitions.

## Meter Monitor

Continuous logging of all meter data. Real-time system parameter monitoring, including vacuum levels, gas flows, and temperatures.

## History view

Performance and tuning parameters can be monitored over time using the history view.

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# Create batches with the right settings from the start

A batch in OpenLab ICP-MS includes the information needed to prepare, run, analyze, and report a sample batch. This includes sample introduction, tuning, cell gas modes, acquisition masses, integration times, internal standards, sample list, calibration parameters, and QC settings.

Batches can be created from preset methods, existing batches, templates, Method Advisor, or by using Method Wizard.

Batches created with legacy Agilent ICP-MS MassHunter software can also be opened in OpenLab ICP-MS to ensure continuity during software transitions.

Title	Summary
USP <232>/ICH Q3D	9500 Application Method for Elemental Impurities in Pharma, using USP <232>/ICH Q3D
ChP	9500 Application Method for Elemental Impurities in Pharmaceutical samples, using China Pharmacopoeia
EPA6020	9500 Application Method for EPA6020
Food/Clinical	9500 Application Method for Food/Clinical samples

**Compatible Sample Types:**  
Application method for aqueous or closed-vessel acid digested/extracted samples of food, medicine, and cosmetics. Also suitable for filtered urine samples, and solubilized or acid digested/extracted samples of organic tissue and hair.

**Pre-Defined Analytes:**  
Be, Na, Mg, Al, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Mo, Ag, Cd, Sn, Sb, Ba, Pt, Hg, Tl, Pb, Th, U  
Recommended Internal Standard Elements: 6Li, Sc, Ge, Rh, In, Te, Tb, Bi

**Comment:**  
Cell mode: AHM (Advanced Helium Mode) and Air

**Required Hardware:**  
9500 ICP-MS Triple Quad, u-Lens, MicroMist Nebulizer

OK Cancel

## Create batches from:

Preset methods

Existing batches

Templates

Method Advisor

Method Wizard

Legacy ICP-MS MassHunter batches

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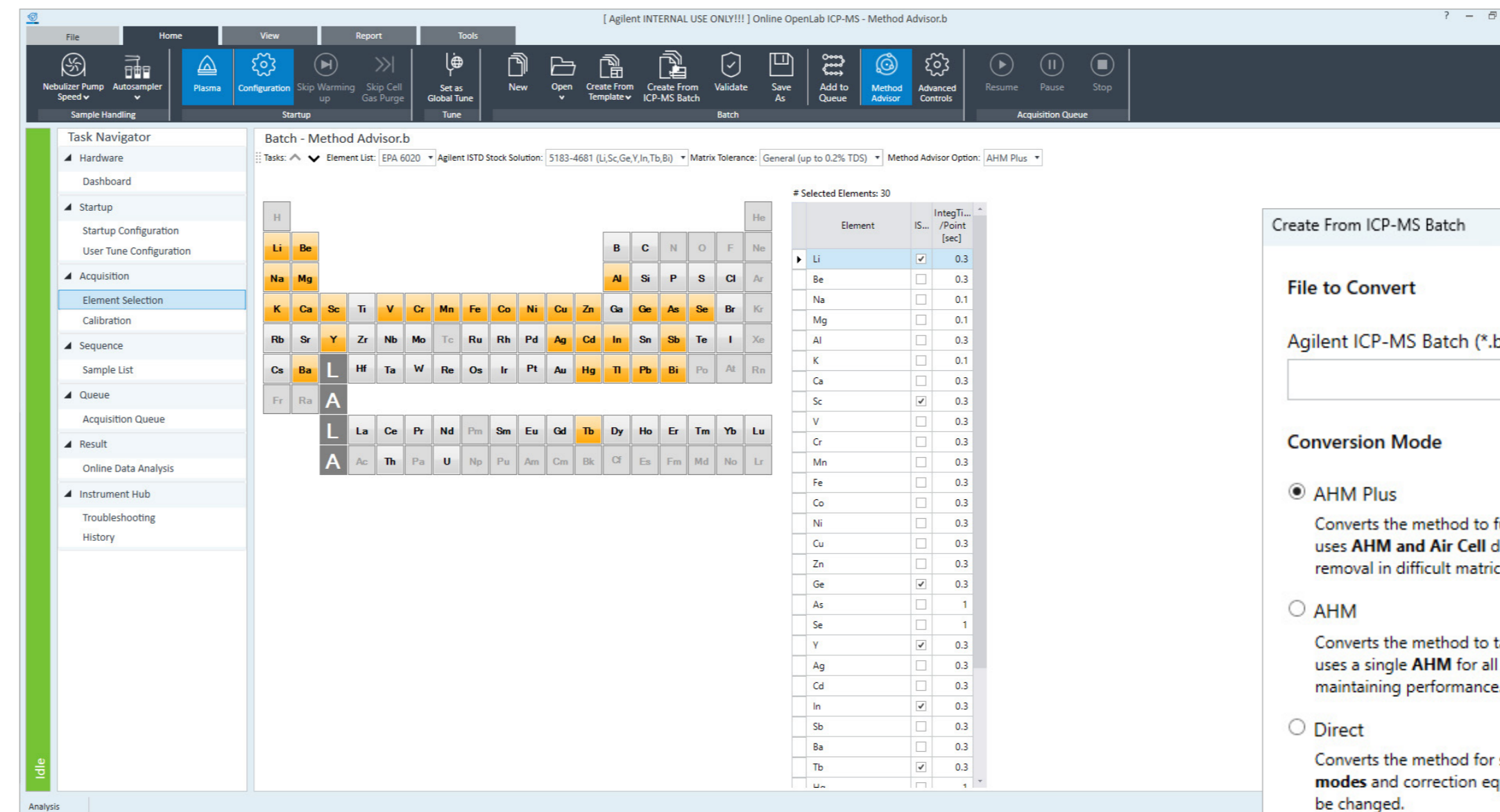
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# Simpler method setup for the 9500 ICP-MS



## Method Advisor

An element-centric method creation tool for the 9500 ICP-QQQ. With minimal input, users select target elements, enter calibration data, and prepare a sample list, while OpenLab ICP-MS automatically applies recommended method conditions, including cell gas modes and acquisition masses.

## Preset Methods

Preset methods provide a shortcut to regulated or standard methods, including EPA 200.8/EPA 6020, ChP, USP<232>, and ICH Q3D. Minimal user input or advanced knowledge is required.

## IntelliQuant Screening preset

For the 9500 ICP-QQQ, an IntelliQuant Screening preset supports semiquantitative analysis of unknown samples using single-point calibration with a tuning solution and automatic parameter configuration.

## Batch Conversion Tool

For the 9500 ICP-QQQ, batches created for Agilent single quadrupole ICP-MS instruments can be converted in OpenLab ICP-MS. Users can import the method directly or optimize it for the 9500.

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# Automate routine instrument tasks

OpenLab ICP-MS provides instrument control, startup, optimization, acquisition, and automated shutdown. The queue manages instrument tasks for automated, sequential execution, helping users run routine workflows more consistently.

## Queue workflow

Recommended maintenance actions from the previous end-of-queue verification

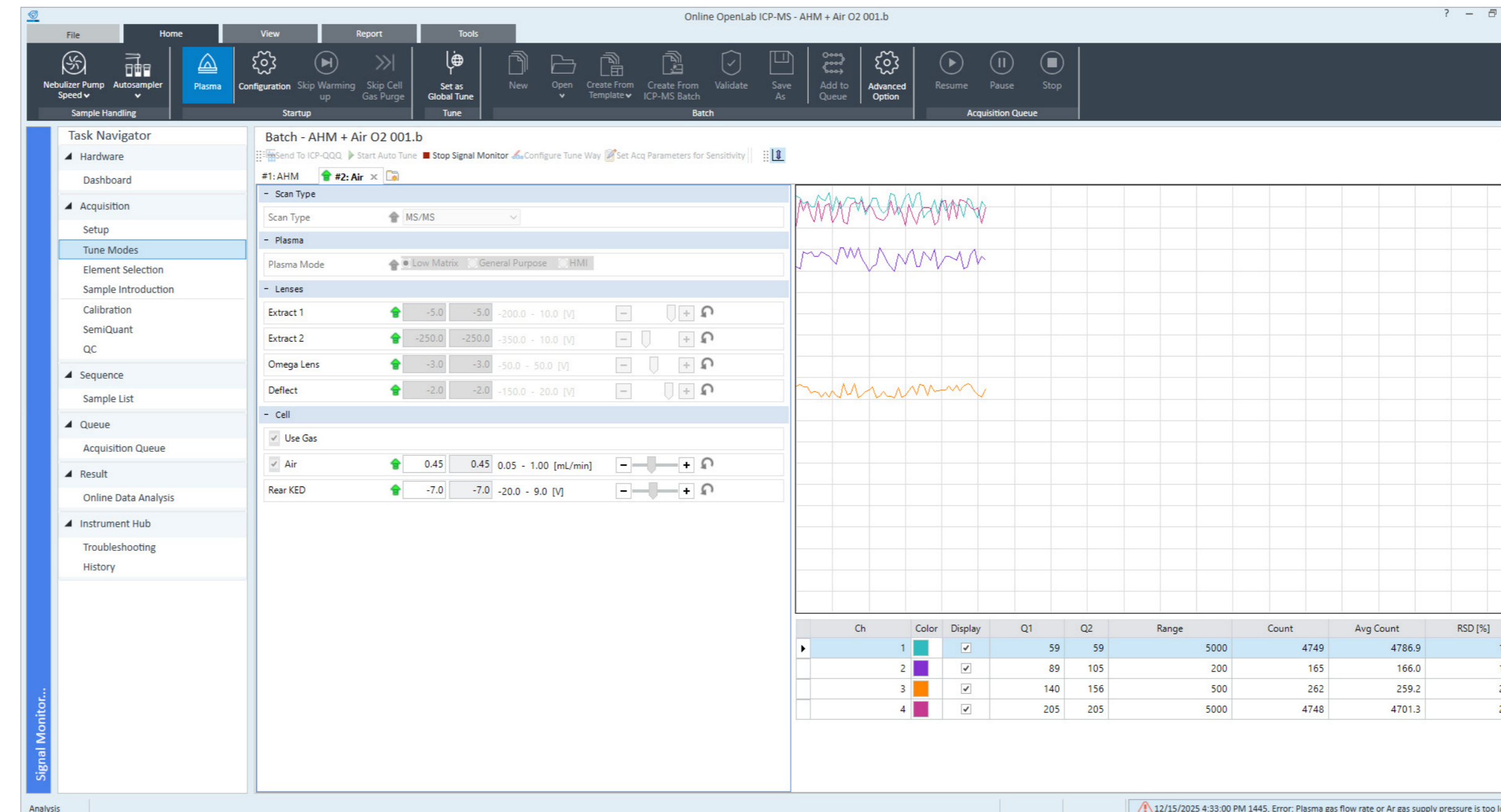
Startup optimization and performance verification

Acquisition and analysis of one or more sample batches

Custom rinse and tube saver function

End-of-queue performance verification

Automated shutdown



## Fast autotuning

Auto Tune enables fast, reproducible optimization, while real-time signal display allows manual fine-tuning when needed.

## Interactive queue

Multiple sample batches can be queued for sequential analysis.

## Startup routine

System optimization and performance checks can run under consistent conditions following plasma ignition.

## Automated shutdown

Unattended system shutdown can be performed at the end of a sequence.

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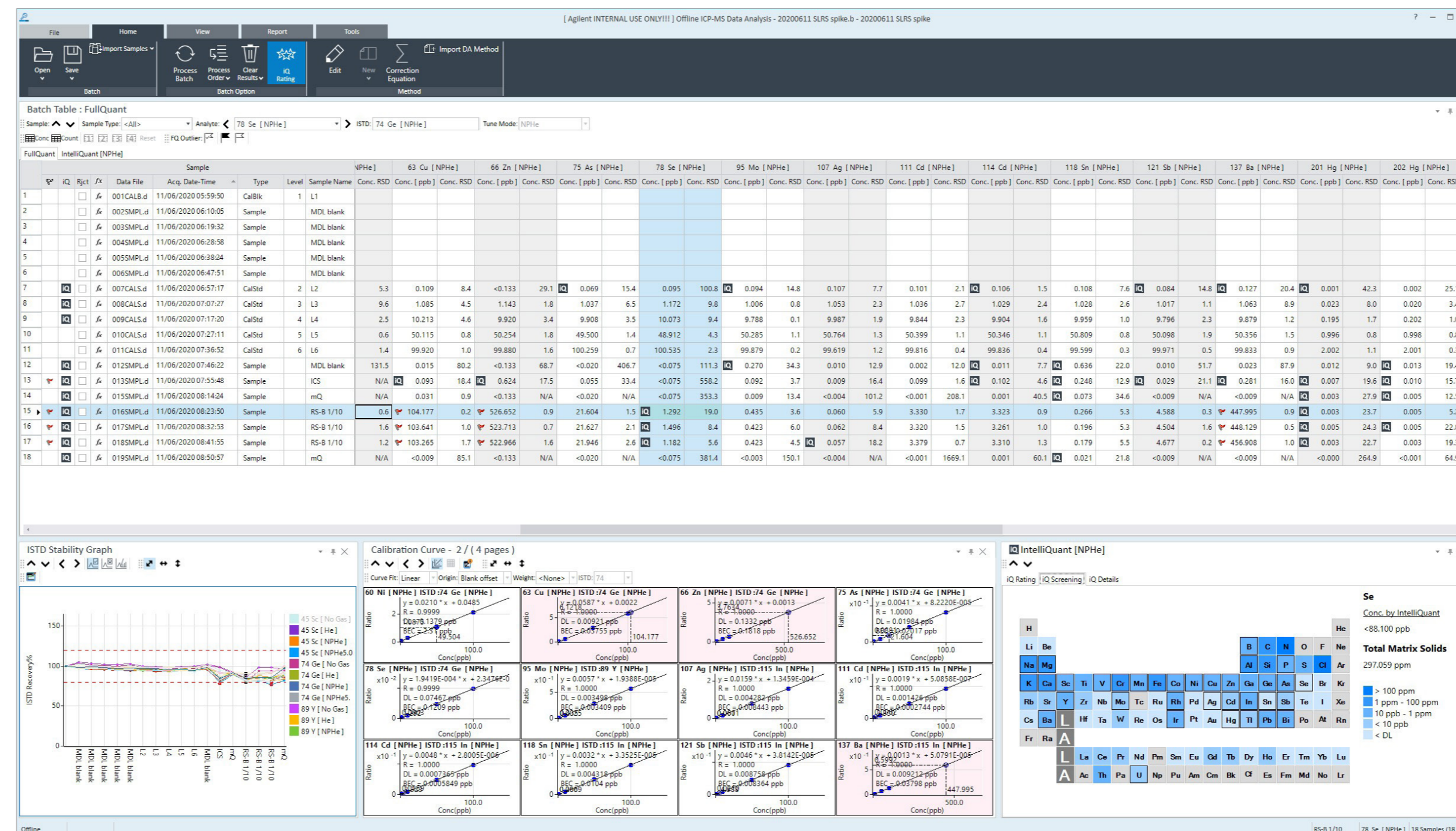
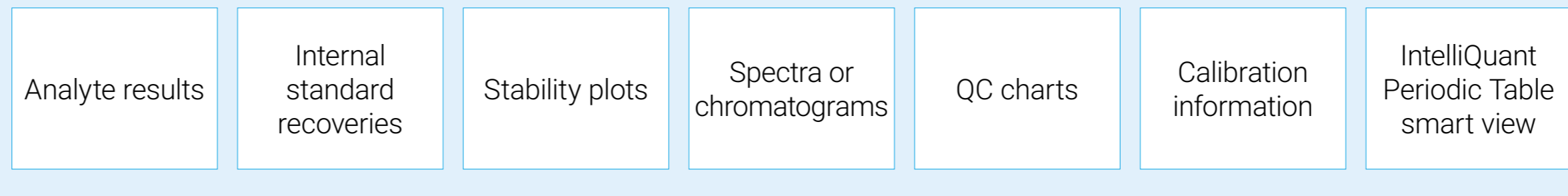
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# Review the full batch in one view

OpenLab ICP-MS provides a flexible data analysis workspace that updates in real time during analysis. Users can review analyte results, internal standard recoveries, stability plots, spectra or chromatograms, QC charts, calibration information, and IntelliQuant results from a single view.

Batch-at-a-glance view can show:



## Outlier Conditional Formatting

Filter data by flag status to focus on samples ready for reporting or samples that require attention.

## QC functions

Routine QC functions include QC samples, outlier flags, QC charts, and user-defined action on QC failure.

## Default and custom views

Screen layouts can be switched between built-in default and customized views.

## Real-time updates

Data analysis displays update during analysis.

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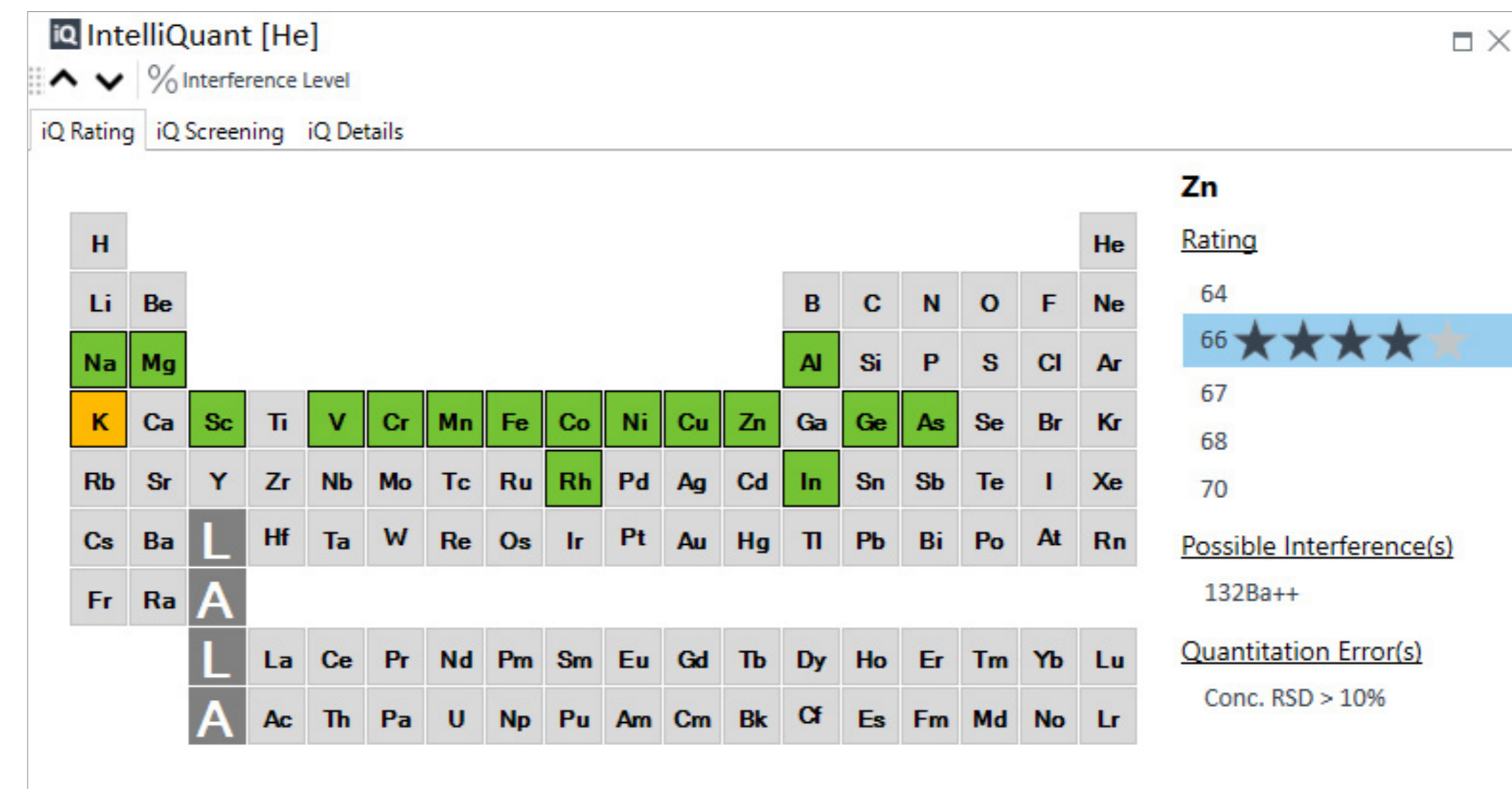
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# Make data quality easier to assess

IntelliQuant captures a complete mass spectrum of a sample and displays semiquantitative concentrations using a color-coded periodic table heat map. It can also calculate total matrix solids and uses the same calibration standards prepared for quantitative analysis.

Users can choose between fast snapshot measurements for improved throughput or extended measurements for more accurate semiquantitative analysis at low concentrations.

IntelliQuant Star Rating provides an easy-to-understand zero-to-five-star rating to help users assess ICP-MS data quality. It evaluates factors such as potential interferences, calibration quality, backgrounds, detection limits, and precision.



## Complete mass spectrum

IntelliQuant rapidly captures a complete mass spectrum of a sample.

## Periodic table heat map

A color-coded periodic table displays semiquantitative concentrations of measurable elements.

## Star Rating

A zero-to-five-star rating helps identify isotopes or elements that may require attention.

## Interference insight

QuickScan data and interference information can help identify potential issues from unknown matrix elements.

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# Reporting and LIMS integration

OpenLab ICP-MS data can be reported directly to print or file, or exported to Excel, text, or CSV formats.

A built-in, user-configurable LIMS export tool supports straightforward export of selected data using comma- or tab-separated formats.

The screenshot displays the 'Report Template Manager' application. The main window is titled 'Report Editor - FQ\_Spectrum.analysis.rdl'. It features a 'Reporting' sidebar on the left with sections for 'Report Items' (Fields, Snippets) and 'Report Templates'. The central area shows a 'Quantitation Report' form with fields for 'Data File Name', 'Acq/Data Batch', 'Acq Time', 'Sample Name', 'Sample Type', 'Comment', 'Prep Dilution', 'Auto Dilution', 'Total Dilution', 'Operator Name', 'Analysis Mode', 'Calibration Title', 'Last Calib.', 'Bkg File', 'Bkg Mode', 'FQ Blank File', and 'VIS Fit'. A 'FullQuant Table' is visible at the bottom of the editor. To the right, a 'Report Preview' window shows the rendered report, including a header, a table of results, and a footer. The table contains columns for Name, Mass, ISTD, Tune Mode, Conc., Units, RSD(%) (CPS), Ratio, Det., Time(s), and Rep.

Name	Mass	ISTD	Tune Mode	Conc.	Units	RSD(%) (CPS)	Ratio	Det.	Time(s)	Rep.	
Be	9	0	AHM	0.000	ppb	N/A	82.22	0.0168	Pulse	0.0000	3
Na	23	45	AHM	0.000	ppb	N/A	17417.85	0.8331	Pulse	0.1000	3
Mg	24	45	AHM	0.000	ppb	N/A	1030.04	0.2483	Pulse	0.1000	3
Al	27	45	AHM	0.000	ppb	N/A	3605.84	0.1690	Pulse	0.3000	3
Si	28	45	AHM	0.000	ppb	N/A	4344.23	0.2621	Pulse	0.1000	3
Ca	44	45	AHM	0.000	ppb	N/A	31.11	0.0014	Pulse	0.3000	3
V	51	45	AHM	0.000	ppb	N/A	458.01	0.0212	Pulse	0.3000	3
Cr	52	45	AHM	0.000	ppb	N/A	8022.42	0.3759	Pulse	0.3000	3
Mn	55	72	AHM	0.000	ppb	N/A	2833.84	0.1684	Pulse	0.3000	3
Fe	56	72	AHM	0.000	ppb	N/A	18685.77	1.1082	Pulse	0.3000	3
Co	59	72	AHM	0.000	ppb	N/A	56.67	0.0038	Pulse	0.3000	3
Ni	60	72	AHM	0.000	ppb	N/A	448.01	0.0252	Pulse	0.3000	3
Cu	63	72	AHM	0.000	ppb	N/A	336.67	0.0191	Pulse	0.3000	3
Zn	66	72	AHM	0.000	ppb	N/A	95.15	0.0543	Pulse	0.3000	3
As	75	72	AHM	0.000	ppb	N/A	17.33	0.0010	Pulse	1.0000	3
Se	78	72	AHM	0.000	ppb	N/A	8.00	0.0004	Pulse	1.0000	3
Sr	88	72	AHM	0.000	ppb	N/A	7.78	0.0004	Pulse	0.3000	3
Nb	95	183	AHM	0.000	ppb	N/A	7.78	0.0000	Pulse	0.3000	3
Ag	107	115	AHM	0.000	ppb	N/A	24.67	0.0001	Pulse	0.3000	3
Cd	111	115	AHM	0.000	ppb	N/A	47.78	0.0002	Pulse	0.3000	3
Sr	118	115	AHM	0.000	ppb	N/A	3.33	0.0000	Pulse	0.1000	3
Sb	121	115	AHM	0.000	ppb	N/A	7.78	0.0000	Pulse	0.3000	3
Bi	132	115	AHM	0.000	ppb	N/A	18.89	0.0001	Pulse	0.3000	3

## QuickBatch report

Enables rapid generation of whole batch result reports.

## Elemental impurity report

Supports reporting for pharmaceutical elemental impurity analysis in accordance with USP <232> and ICH Q3D.

## Custom report

Flexible, template-based reporting for both sample and batch results, allowing users to tailor report content and format.

## Tabulate

Allows export of raw data in structured formats such as CSV for further processing and external analysis.

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# Analysis and workflow support

OpenLab ICP-MS supports a wide range of analytical approaches and application workflows, enabling users to efficiently address diverse ICP-MS requirements across routine and advanced applications.

## Supported calibration and analysis approaches include:

External calibration

Method of standard additions

Semiquantitative calibration

Isotope ratio

Isotope dilution



### Semiconductor workflows

For the Agilent 8900 ICP-QQQ, Simple Recipe enables trace impurity analysis of high-purity chemicals. It provides preset methods and fast autotuning for chemicals such as UPW, H<sub>2</sub>O<sub>2</sub>, HNO<sub>3</sub>, HCl, H<sub>2</sub>SO<sub>4</sub>, and IPA.

### Nanoparticle analysis

The single nanoparticle module provides preset methods for nanoparticle determination (spICP-MS) and automates method setup for field-flow fractionation ICP-MS (FFF-ICP-MS) workflows.

### Chromatographic workflows

With the optional Chromatographic module, OpenLab ICP-MS provides integrated control of compatible Agilent LC and GC systems and supports chromatographic data analysis for LC-ICP-MS and GC-ICP-MS workflows.

### Advanced QC workflows

Intelligent Sequencing supports advanced QC workflows, including multilevel QC checks, failure actions, configurable sample types, and customizable report templates.

### Automation

OpenLab ICP-MS provides integrated control and data analysis for the ADS 2, including autocalibration, prescriptive dilution, reactive dilution, Timing Monitor, Conditions Calculator, flow path diagram, smart dilution list, and Autocalibration Assistant.

### Peripheral device integration

OpenLab ICP-MS supports Smart Chiller control. For the 9500 ICP-QQQ, the Gas Clean Sensor is integrated with software notifications when gas replacement is needed.

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## Support regulated laboratory workflows

Agilent offers scalable OpenLab compliance solutions to support laboratories with electronic records requirements. OpenLab ICP-MS Workstation Plus is suited to small laboratories or flexible single-PC setups, while OpenLab Basic Server, OpenLab Server, and ECM XT support medium to large organizations.

OpenLab ICP-MS uses compliance product features including e-signature, user access control, system activity logs, and audit trails to support secure data management and review workflows.

### Compliance-related capabilities include:

E-signature for batch results

User access control

Configurable users, groups, and roles

System activity log audit trail

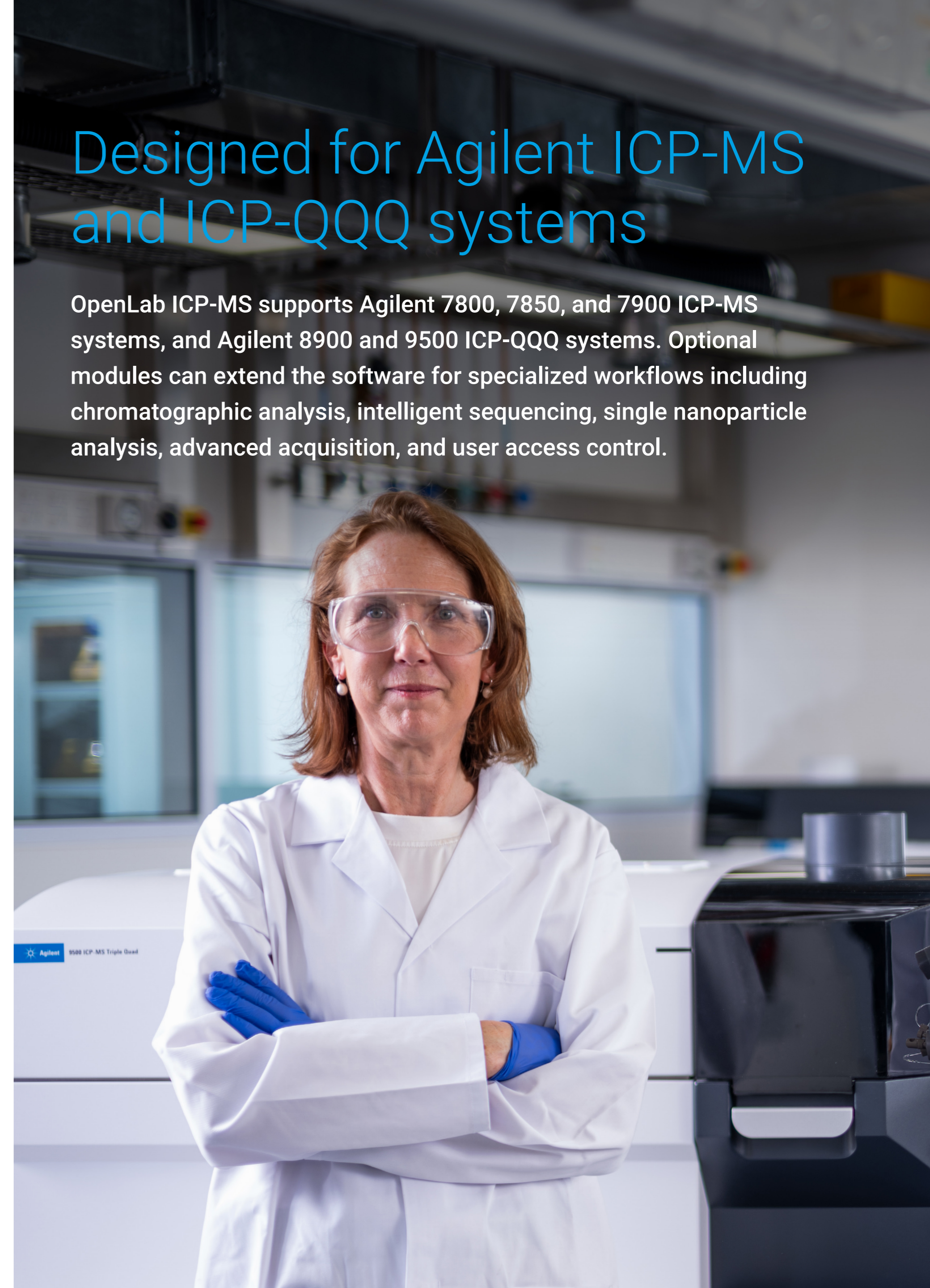
Database migration tools\*

Support for US FDA 21 CFR Part 11, EU Annex 11, and equivalent regulations when used with suitable OpenLab compliance software

\*Data migration from the legacy SDA to WS+/OpenLab Basic Server/OpenLab Server/ECM XT

## Designed for Agilent ICP-MS and ICP-QQQ systems

OpenLab ICP-MS supports Agilent 7800, 7850, and 7900 ICP-MS systems, and Agilent 8900 and 9500 ICP-QQQ systems. Optional modules can extend the software for specialized workflows including chromatographic analysis, intelligent sequencing, single nanoparticle analysis, advanced acquisition, and user access control.



## Agilent CrossLab: Real insight, real outcomes

CrossLab goes beyond instrumentation to bring you services, consumables, and lab-wide resource management. So your lab can improve efficiency, optimize operations, increase instrument uptime, develop user skills, and more.

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