PHENOMENAL FLUORESCENCE

PHENOVUE™ CELLULAR IMAGING REAGENTS
Faster results, simple reagents, easy-to-operate instrumentation, and seamless workflows – these benefits are not only nice-to-haves, but they’re necessary to keep up with scientific advances in studying cell biology and discovering novel drug treatments.

Cellular imaging allows you to detect and analyze numerous cellular components, from macromolecules to organelles and cell compartments. Scientists like you are studying more complex models such as 3D cell cultures with the goal of generating detailed phenotypic fingerprints for deeper insights. But pressures to do so with ease, speed, and reliability are mounting.

It’s time to discover PhenoVue™, our suite of cellular imaging reagents – including cell painting kits, organelle and cell compartment stains, fluorescent-labeled secondary antibodies, and cell function reagents – that complement our proven high-content screening instruments and image analysis software.

Working together to deliver reliable, accurate, physiologically relevant results, our portfolio of cellular imaging reagents, microplates, imaging instruments, image analysis software, and automation solutions is designed to streamline your high-content workflows and lead you to breakthroughs faster.

Get to know our PhenoVue portfolio of reagents – and get to know better science.
CELLULAR IMAGING WORKFLOW

**SAMPLE PREP**
- **SEED**
- **TREAT**
- **GROW**
- **STAIN**

**IMAGING**
- Fluorescent Antibodies: Phenovue Secondary Antibodies, Biotrend Primary and Secondary Antibodies
- Fluorescent Dyes: Phenovue Organellar and Compartment Stains, Phenovue Cell Painting Kits, Phenovue Cell Function Indicators
- siRNAs: Dharmacon ON-TARGETplus, Dharmacon Accell, Dharmacon siGENOME, Dharmacon Lincode, Dharmacon RNAi libraries
- Microplates: PhenoPlate, ViewPlate, CellCarrier Spheroid ULA
- Peptides
- Compounds
- Cell Counters: Nexcelom Cellaca, Nexcelom Cellometer
- Cell Models: Horizon Ready-to-Go Cell Lines, Horizon Custom Cell Line
- Microplates: PhenoPlate, ViewPlate, CellCarrier Spheroid ULA
- 3D Gels: GrowDex® Hydrogels

**ANALYSIS**
- Image Analysis: Harmony HCA Software, Signals Image Artist Image Analysis and Management Platform
- Machine Learning
- Data Management: Signals Image Artist, Signals VitroVivo Lab Data Management and Analysis Platform
- Statistics: Signals VitroVivo
- Automation and Liquid Handling: explorer G3 Workstation, JANUS G3 Automated Liquid Handling Workstation, plate::works Scheduling Software
- High-Content Imaging: Opera CLS HCA System, Opera Phenix Plus HCS System
- Imaging Cytometer: Nexcelom Celigo
- Live-Cell Imaging: MuviCyte Live-Cell Imaging System

**DATA ANALYSIS**

**PHENOVUE REAGENTS**
- Cell Painting Kits
- Organelle and Subcellular Compartment Fluorescent Probes
- Fluorescent Secondary Antibodies
- Cell Function Reagents and Kits
- Imaging Microplates
- HCA and HCS Systems
- Cell Imaging Systems
- Imaging and Analysis Software
- Automation
- Service and Support
- Contact Us
PAINT A PICTURE OF YOUR ANALYSIS

Cell painting is a powerful phenotypic high-content screening approach that combines cell and computational biology to unravel cells’ responses when subjected to perturbations.

In this process, cells are "painted" by labeling various cellular compartments with different fluorescent bioprobes to quantitatively profile multiple phenotypic parameters to better understand the effects of chemical compounds, drugs, genes, or other test articles.

Cell compartments and organelles are simultaneously tagged with six fluorescent probes, followed by acquisition and analysis of images. The six probes target specific cell compartments to determine protein expression or signaling pathways, identify organelles and their function, or identify whole-cell morphology.

Two versions of the PhenoVue cell painting kit are available, each in three different pack sizes. Both kits comprise validated, pre-optimized fluorescent bioprobes. The PhenoVue Cell Painting Kit reflects the protocol described in Bray et al.\(^1\) The PhenoVue Cell Painting JUMP Kit reflects the JUMP-CP consortium protocol v3.\(^2\)

### PhenoVue Cell Painting Kits

- PhenoVue Cell Painting Kit for 1 x 384-well plate
- PhenoVue Cell Painting Kit for 10 x 384-well plates
- PhenoVue Cell Painting Kit for 100 x 384-well plates
- PhenoVue Cell Painting JUMP Kit for 1 x 384-well plate
- PhenoVue Cell Painting JUMP Kit for 10 x 384-well plates
- PhenoVue Cell Painting JUMP Kit for 100 x 384-well plates

### PhenoVue Complementary Reagents

- PhenoVue Dye Diluent A (5X)
- PhenoVue Paraformaldehyde 4% Methanol-free Solution
- PhenoVue Permeabilization 0.5% Triton X-100 Solution
- PhenoVue Phloroglucinol 0.5% Triton X-100 Solution
- PhenoVue Phloroglucinol 2% Solution
- PhenoVue Probenecid Ready To Use Solution

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CELL PAINTING KIT COMPONENTS:

- **Actin Cytoskeleton**
  - PhenoVue Fluor 568 - Phalloidin

- **Mitochondria**
  - PhenoVue Fluor 488 - Concanavalin A
  - PhenoVue 641 Mitochondrial Stain

- **Nucleus**
  - PhenoVue Hoechst 33342 Nuclear Stain

- **Nucleoli**
  - PhenoVue 512 Nucleic Acid Stain

- **PhenoVue Fluor 555 - WGA**

- **Cell PAINTING KIT components**
GAIN DEEPER INSIGHTS FROM YOUR ANALYSIS

Cellular imaging techniques, such as high-content analysis, rely on the ability to detect and distinguish between specific cellular compartments and organelles. High-quality data depends on high-quality images, which all depends on bright fluorescent dyes.

Building on our extensive expertise in imaging instrumentation, fluorescent dye chemistry, and assay development, our PhenoVue organelle-specific stains detect various organelles and cellular compartments and are optimized for high-content screening. Features include:

- Range of stains and fluoros for commonly studied organelles and compartments
- Variety of fluorescent colors to enable multiplexing while avoiding spectral overlap
- Validation in high-content screening applications
- Bright fluorophores to enable high-quality images

<table>
<thead>
<tr>
<th>Compartment or Organelle</th>
<th>PhenoVue Fluor Conjugates</th>
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<td>Plasma membrane, ER, Golgi</td>
<td>WGA</td>
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<tr>
<td>Actin cytoskeleton</td>
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<tr>
<th>Compartment or Organelle</th>
<th>PhenoVue Stains</th>
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<tr>
<td>Mitochondria</td>
<td>PhenoVue 551 Mitochondrial Stain</td>
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<td>PhenoVue 578 Mitochondrial Stain</td>
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<td>Lysosome</td>
<td>PhenoVue 503 Lysosomal Stain</td>
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<td>PhenoVue 577 Lysosomal Stain</td>
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<td>Lipids</td>
<td>PhenoVue Nile Red Lipid Stain</td>
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<td>PhenoVue 493 Lipid Stain</td>
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<td>PhenoVue DRAQ7™ Dead Cell Nuclear Stain</td>
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*DRAQ5™ and DRAQ7™ are trademarks of BioStatus Limited.
PhenoVue Cell Compartment and Organelle Stains:

**Actin cytoskeleton**
- PhenoVue Fluor 488 - Phalloidin
- PhenoVue Fluor 555 - Phalloidin
- PhenoVue Fluor 568 - Phalloidin
- PhenoVue Fluor 594 - Phalloidin
- PhenoVue Fluor 647 - Phalloidin

**Plasma membrane, Endoplasmic Reticulum and Golgi Apparatus**
- PhenoVue Fluor 488 - WGA
- PhenoVue Fluor 555 - WGA
- PhenoVue Fluor 568 - WGA
- PhenoVue Fluor 594 - WGA
- PhenoVue Fluor 647 - WGA
- PhenoVue Fluor 488 - Concanavalin A
- PhenoVue Fluor 555 - Concanavalin A
- PhenoVue Fluor 568 - Concanavalin A
- PhenoVue Fluor 594 - Concanavalin A
- PhenoVue Fluor 647 - Concanavalin A

**Lysosome**
- PhenoVue 503 Lysosomal Stain
- PhenoVue 577 Lysosomal Stain

**Lipid droplets**
- PhenoVue Nile-Red
- PhenoVue 493 Lipid Stain

**Nucleoli**
- PhenoVue 512 Nucleic Acid Stain

**Nucleus**
- PhenoVue Hoechst 33342 Nuclear Stain
- PhenoVue DAPI Nuclear Stain
- PhenoVue DRAQ5™ Total Cell Nuclear Stain
- PhenoVue DRAQ7™ Dead Cell Nuclear Stain

**Mitochondria**
- PhenoVue 551 Mitochondrial Stain
- PhenoVue 578 Mitochondrial Stain
- PhenoVue 641 Mitochondrial Stain

**PerkinElmer**
For the Better
Fluorescent secondary antibodies are everyday tools for researchers performing high-content analysis, cellular imaging, flow cytometry, and western blotting. The method of indirect immunofluorescence detection relies on an unconjugated antigen-specific primary antibody coupled with a fluorescent secondary antibody.

Secondary fluorescent antibodies offer enhanced sensitivity – binding to the primary antibody and then amplifying the fluorescence signal. In addition, they provide greater flexibility since they can be easily combined for multiplexing experiments. Get to know our extensively validated PhenoVue fluor-labeled secondary antibodies. Features include:

- Bright fluorophores for high-quality images
- Highly cross-adsorbed antibodies to minimize cross-reactivity in multiplexing applications
- Both anti-rabbit and anti-mouse antibodies for your common applications
- Validated in high-content screening applications

**A431 cells stained with mouse anti-EGFR antibody + PhenoVue Fluor 488 - Goat anti-mouse antibody, highly cross-adsorbed, and PhenoVue Hoechst 33342 nuclear stain.**
VISUALIZE CELL FUNCTIONALITY

Understanding cell function is essential for cellular research. We offer a complete suite of cell function reagents and kits for visualizing key cellular events including viability, apoptosis, mitochondrial membrane potential, as well as indicators for calcium, reactive oxygen species (ROS), or hypoxia. Validated for use in imaging microscopy and high content screening applications:

- ROS Total Oxidative Stress Indicators enable a myriad of applications as well as multiplexing capability to unravel ROS related biological effects.
- Fluorescent Calcium Indicators enable a variety of applications as well as multiplexing capability to unravel intracellular calcium mediated functions.
- HypoxiTRAK™ is a permeable hypoxia indicator, which exhibits far-red fluorescence. Its spectral characteristics are shared with DRAQ5™.
- Live/Dead Cell Viability Assay Kit enables the simultaneous determination of live and dead cells using two different dyes.

**PhenoVue Cell Function Reagents and Kits**

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<td>Stress Indicators</td>
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<td>PhenoVue ROS-490</td>
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<td>PhenoVue ROS-570</td>
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<td>PhenoVue ROS-670</td>
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<td><strong>Calcium Indicators</strong></td>
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<td>PhenoVue Cal-590 AM</td>
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<td>PhenoVue Cal-520 AM Bright</td>
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<td>PhenoVue Cal-590 AM Bright</td>
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<td>PhenoVue Fluo-4 AM</td>
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<td>PhenoVue Fura-2 AM</td>
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<td><strong>Hypoxia Indicators</strong></td>
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<td>PhenoVue HypoxiTRAK™</td>
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<tr>
<td><strong>Cell Viability</strong></td>
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<td>PhenoVue Live/Dead Cell Viability Assay Kit</td>
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**PhenoVue Complementary Reagents**

- PhenoVue Dye Diluent A (5X)
- PhenoVue Paraformaldehyde 4% Methanol-free Solution
- PhenoVue Permeabilization 0.5% Triton X-100 Solution
- PhenoVue Pluronic F-127, 20% Solution
- PhenoVue Probenecid, Ready To Use Solution
IMAGING MICROPLATES FOR PRECISION ANALYSIS

See what others can’t when you use our imaging microplates designed for cell-based assays, confocal microscopy, and high-content phenotypic imaging and analysis. And to facilitate 3D cell cultures for imaging applications, we offer our specialized CellCarrier™ Spheroid ULA microplates.

PhenoPlate™ Microplates

Achieve accurate results with our PhenoPlates, engineered to deliver superior images and maximum quality data for all high-content applications.

Our PhenoPlates feature an exceptionally flat bottom, enabling fast autofocusing for optimal clarity. Plus, you’ll benefit from superior images thanks to their 188 μm thickness and the high-optical glass-like quality of the cyclic olefin foil imaging surface. Cyclic olefin also offers better transparency in the near UV range when compared to polystyrene, giving you a clearer image for better results. Additional features include:

- Ultralow plate bottom provides better well access when using water immersion and high-numerical aperture (NA) objectives
- Low-profile polystyrene lid results in reduced evaporation
- Unique corner spacers minimize the risks of damaging the imaging surface when stacking
- Various coatings to choose from to suit your application

SEE ALL PHENOPLATES
IMAGING MICROPLATES
FOR PRECISION ANALYSIS

See what others can’t when you use our imaging microplates designed for cell-based assays, confocal microscopy, and high-content phenotypic imaging and analysis. And to facilitate 3D cell cultures for imaging applications, we offer our specialized CellCarrier™ Spheroid ULA microplates.

CellCarrier Spheroid ULA Microplates

A unique ultralow attachment (ULA)-coated surface in round well plates enables the formation of consistently round spheroids from numerous cellular models. This microplate coating also helps eliminate satellite spheroid growth, which allows for easier data acquisition and analysis. Additional features include:

- Unique design made specifically for 3D spheroids
- Automation compatibility for quick, hassle-free analysis
- Compatible with high-content screening systems such as Operetta® CLS™ and Opera Phenix® Plus

SEE ALL CELLCARRIER SPHEROID ULA MICROPLATES
IMAGING MICROPLATES
FOR PRECISION ANALYSIS

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ViewPlate® Microplates

These poly-D-lysine (PDL)-coated and collagen-coated microplates feature a clear-bottom plastic base with an opaque black or white frame and are specifically designed for microscopy-based HCS applications. In addition, they are ideal for multimodal analyses on microplate readers that also have well imaging, such as the EnSight™ multimode plate reader. Varieties include:

- 96-, 384-, and 1536-well formats
- White ½-area 96-well plates
- Untreated for biochemical assays
- Tissue culture (TC)-treated, collagen-coated, or PDL-coated for cellular assays

SEE ALL VIEWPLATE MICROPLATES
HIGH-CONTENT ANALYSIS AND SCREENING SYSTEMS

From basic research to assay development and screening, our high-content analysis (HCA) and high-content screening (HCS) systems produce the highest possible image quality so you can take your research further – in less time than ever before – especially when combined with our easy-to-use workflow-based Harmony® software, robotic systems, and advanced data analytics.

Opera Phenix Plus High-Content Screening System
For your most demanding high-content applications. Benefits include:

- Modular design adapts to your changing application needs
- Enhanced speed using a dual- or four-camera configuration with simultaneous imaging
- Synchrony Optics™ combines a microlens-enhanced Nipkow spinning disk with a pinhole distance optimized for thick and 3D samples
- Dual-view excitation of neighboring spectral channels minimizes crosstalk
- Custom-designed high-NA water immersion objectives capture more photons and provide high-image resolution even in thick samples
- Fast imaging frame rate of up to 100 fps and optional pipettor module captures fast cellular responses

Best for disease research and screening labs needing fast throughput and high performance.

CLICK HERE TO LEARN MORE ABOUT OUR OPERA PHENIX PLUS HCS SYSTEM
HIGH-CONTENT ANALYSIS AND SCREENING SYSTEMS

From basic research to assay development and screening, our high-content analysis (HCA) and high-content screening (HCS) systems produce the highest possible image quality so you can take your research further – in less time than ever before – especially when combined with our easy-to-use workflow-based Harmony® software, robotic systems, and advanced data analytics.

Operetta CLS High-Content Analysis System

For routine 2D high-content assays and complex assays. Benefits include:

- Confocal spinning-disk technology provides a gentle imaging process (especially for live-cell experiments) for efficient background rejection
- Flexible excitation with a powerful and stable 8x LED light source
- Proprietary automated water-immersion objectives with very high numerical aperture, giving faster read times and reduced photodamage

Best for basic research and assay development labs with multiple users and intermediate throughput requirements.

CLICK HERE TO LEARN MORE ABOUT OUR OPERETTA CLS HIGH-CONTENT ANALYSIS SYSTEM
CELL IMAGING

In addition to our high-content screening systems, our portfolio includes instruments that cover all aspects of cellular analysis, whether you’re studying dynamic cellular processes in real time or need the flexibility of having image cytometry alongside standard detection modes.

MuviCyte™ Live-Cell Imaging System
For deeper insights from live-cell imaging. Benefits include:

- Ability to study dynamic cellular processes in real time
- Designed to operate inside your cell-culture incubator, maintaining optimal conditions for your cells
- Time-lapse recording with multi-position scanning
- Small footprint and ease of operation
- Three-color fluorescence (GFP, RFP, Hoechst, and Brightfield)
- Open-stage design and flexible sample carrier and vessel type (microplate, petri-dish, flask, slides)
- Z-stacking capability to image thicker samples and be able to maintain focus on larger objects over long time periods
- Unlimited and flexible positioning of FOVs allow you to repeatedly monitor positions of interest within the well
- Flexible Movie Maker software with matrix capability to arrange movies of different channels, treatments, or wells side by side

Best for labs needing to study dynamic cellular processes in real time.

CLICK HERE TO LEARN MORE ABOUT OUR
MUVICYTE LIVE-CELL IMAGING SYSTEM
CELL IMAGING

In addition to our high-content screening systems, our portfolio includes instruments that cover all aspects of cellular analysis, whether you’re studying dynamic cellular processes in real time or need the flexibility of having image cytometry alongside standard detection modes.

**EnSight™ Multimode Plate Reader**

For image-based cytometry via well-imaging technology alongside a suite of other detection modes. Benefits include:

- Fast well imaging alongside standard detection technologies – alpha technology, fluorescence intensity, TRF, luminescence, and absorbance
- Flexible and upgradeable configurations
- Workflow-based Kaleido software for everyday and complex assays
- Imaging mode for a variety of assays, including:
  - Cell health and toxicity, proliferation, migration, viral infection, transfection efficiency, and spheroid growth
  - Imaging small animals such as zebrafish
  - Assessing cell-based assay quality
- Ability to compare and combine results from different detection technologies to take an orthogonal approach

Best for research and assay development labs that need the flexibility of multiple detection modes.

[CLICK HERE TO LEARN MORE ABOUT OUR ENSIGHT MULTIMODE PLATE READER](#)
SIMPLE SOFTWARE FOR COMPLICATED ANALYSIS

Get the most out of your analysis with the right software. Harmony®, Signals Image Artist™, and Signals VitroVivo™ software are all compatible with our imaging instruments and PhenoVue cellular imaging reagents. Our software makes it easy for you to generate and analyze image data from cellular samples and in vivo models.

**Harmony®**

From acquisition to analysis, Harmony high-content imaging software empowers you to easily quantify more of what you see in your images. With everything you need to analyze even the most complex cellular models in 3D, discriminate phenotypes confidently, and turn your data into discovery, Harmony software enables you to control every aspect of your analysis through a single, easy-to-use workflow-based interface.

**CLICK HERE TO LEARN MORE**

**Signals Image Artist™**

For universal high-volume image data storage and analysis, Signals Image Artist software provides a central location to quickly process, analyze, share, and store the vast volumes of data generated by high-content screening and cellular imaging, including 3D imaging, phenotypic screening, and cell painting. Compatible with all major HCS and cell imaging systems, Signals Image Artist is a multiuser platform that can support your entire lab and is scalable to expand with your lab's data storage needs over time. It integrates seamlessly with the Operetta CLS and Opera Phenix Plus high-content screening systems, as well as the Signals VitroVivo software platform.

**CLICK HERE TO LEARN MORE**

**Signals VitroVivo™**

Signals VitroVivo software platform provides lab data management and analysis for all modalities in one platform. It unites assay development, low throughput to ultra-high throughput production assays, high-content screening, and in vivo studies so you can search across all assay and screening data in a single platform. With Signals VitroVivo, you can perform screening data analysis and validation, QC analyses, calculate reliable normalization, multivariate hit stratification, dose response curves, drug response profiling, and more.

**CLICK HERE TO LEARN MORE**
Higher throughput, improved efficiency, and reduced variability might sound like a dream. But these benefits are a reality when you automate your lab. Our experts have extensive experience developing integrated workstations for automating cell-based assays. Whatever your screening needs, we have a solution that’s right for your lab.

Whether you’re integrating with our plate::handler™ FLEX system for automated plate loading, or integrating your entire high-content screening workflows with our explorer™ G3 automated workstations, the difference in your analysis is clear – increased productivity, less risk of human error, safer working conditions, and the ability to maximize your data for better results.

CLICK HERE FOR MORE INFORMATION ABOUT OUR AUTOMATION SYSTEMS
COMPLETE SERVICES FOR INCREASED PRODUCTIVITY AND EFFICIENCY

Today’s lab leaders are facing several challenges, from tighter deadlines to increased budget scrutiny to teams with various degrees of comfort with lab equipment. Time that could be spent getting ahead is spent on noncore activities.

To help you overcome barriers to success, OneSource® Laboratory Services has built a team of trained scientists and engineers who bring their real-life knowledge to you, helping increase your productivity with recommendations on how to best utilize your assets. With this knowledge, you can get back to your core mission.

We service our instruments, as well as equipment from other manufacturers – from contracts and performance maintenance to full-lab asset management delivered globally, we can help you make the most of your important lab assets. And for labs looking to introduce new equipment and techniques, we offer training at our facilities and yours.

INSTRUMENT SUPPORT SERVICES

Maintaining labs is never easy, especially when an instrument is down. We know you’re responsible for the performance of your laboratory, and we make sure nothing holds you back. Our field service engineers, manufacturing site technical services, and research and development teams are here at your disposal to ensure maximum uptime.

You need your instruments to be reliable and running with minimal downtime, and you want flexible service agreements that are easy to comprehend. We understand, and we’re here to help.

EDUCATION SERVICES

Whether you are looking for a basic instrument refresher course, simple troubleshooting techniques, general application support, or method optimization, our field application scientists or service engineers will come directly to your lab. Through education, you will gain knowledge and insights into the latest techniques, not only increasing your confidence, but also unlocking the full potential of your instrument.

ONESOURCE SERVICES

- Asset optimization
- Lab environment and instrument monitoring
- Asset location
- Education and training
- Technology and descriptive analysis
- IoT/LT/Lab of the future
- Remote support
- Multivendor services
- Compliance
- Lab support
- IT solutions
- Instrument qualifications