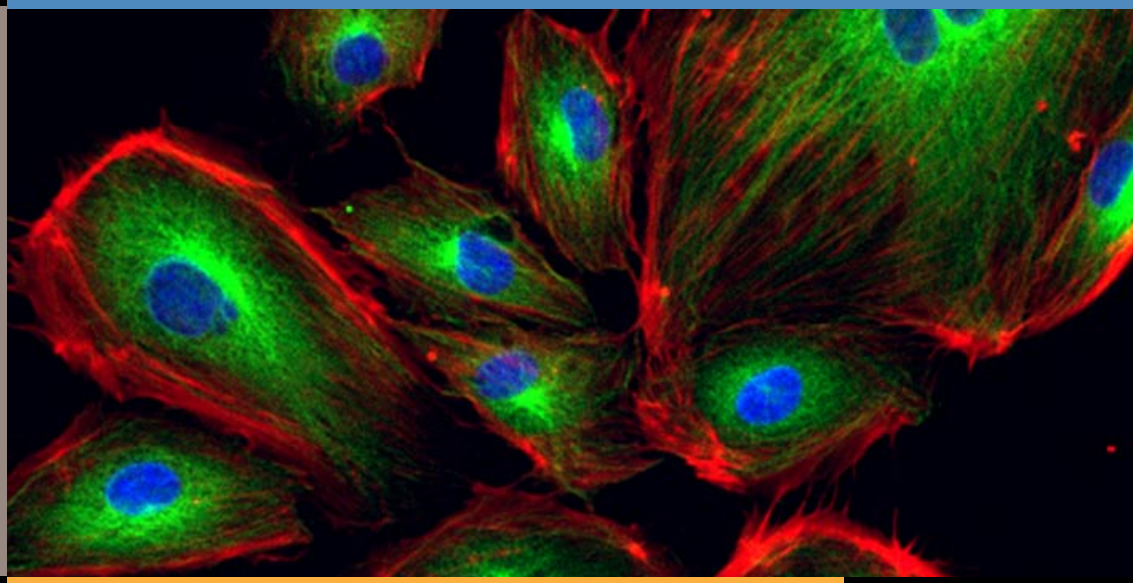
Thermo Scientific Cellomics® HCS Solution



Product Guide

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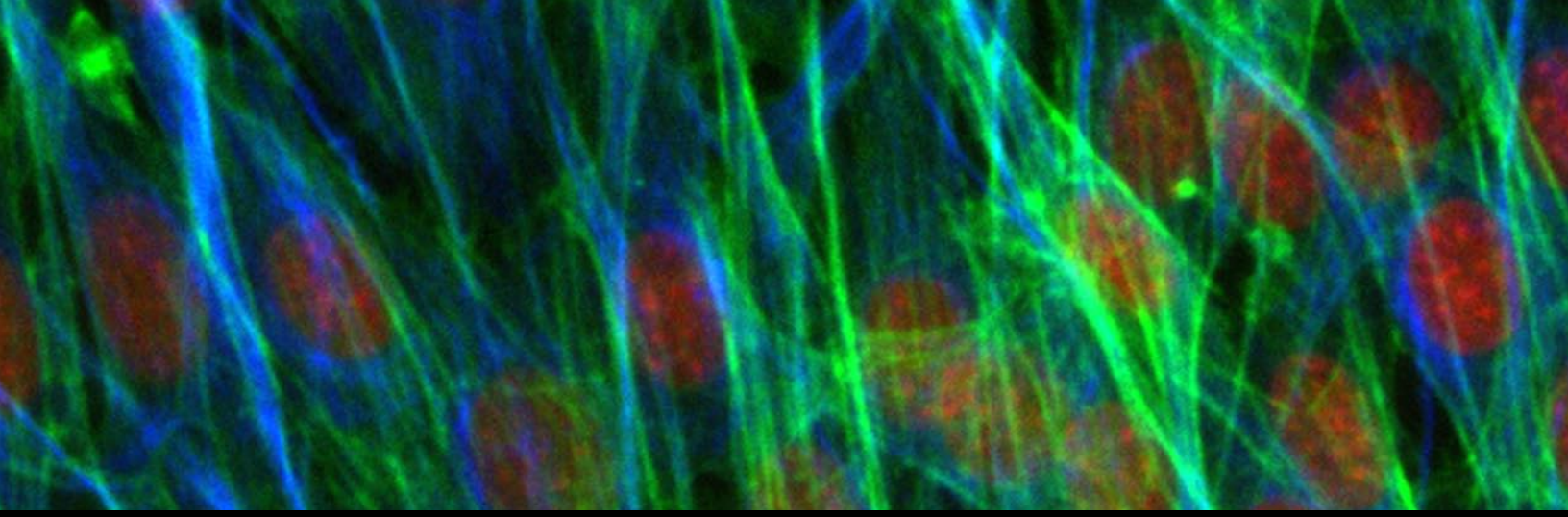


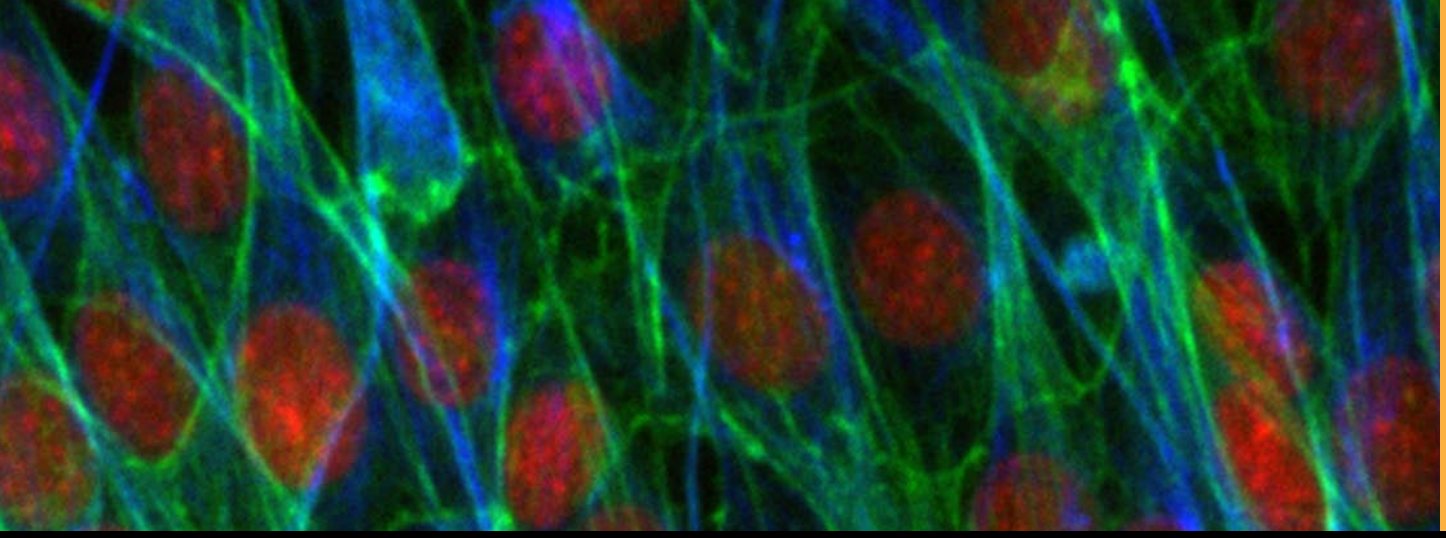
Thermo Scientific Cellomics HCS Solution

Your Complete HCS Solution

The search for new therapies for human diseases is increasingly driven by the need for a deeper understanding of biological processes. This in turn drives the need for greater knowledge about targets, pathways, and biological systems, making productivity more vital.

High Content Screening (HCS) or High Content Analysis (HCA) is a proven technology that combines fluorescence microscopy with multi-parameter quantitative image analysis. This powerful combination provides researchers with the tools to rapidly gain insightful knowledge about targets or compounds of interest in the context of the cell, allowing for faster decision times and increased productivity.

The applications for HCS are expanding daily and the technique is enabling better and more efficient decision-making in life science research. As the most referenced HCS platform, our complete solution unites instrumentation, automation, image analysis, cellular bio-informatics, reagent kits, GFP cell lines and RNAi technology, in a simple, convenient workflow to provide you with a deeper understanding of your biology. Users of our platform are seeing productivity gains every day in their discovery research, from improved target validation, through selecting the right compounds in screening, to better predictive toxicology. Why don't you give us a call to organize a seminar or a live demonstration and see how you might benefit?



The one source for High Content Screening

The Thermo Scientific Cellomics HCS imaging platform transforms your workflow by analyzing high-content images as they are acquired. Our intelligent acQuisition™ approach includes optimized image analysis software that enables you to decide on the right number of cells to target upfront, ensuring reliable, fast and meaningful biological results.

The key to your success in HCS is delivered by our core features:

- A complete integrated platform for HCS: best-in-class reagents, assays, instrumentation, image analysis and informatics software
- A focus on the application of HCS to solve biological problems, from systems biology to key therapeutic areas
- A commitment to being the leader in HCS by providing innovative products and technologies that meet the ever-changing needs of life scientists
- In-depth experience and expertise in HCS
- Global support presence accessible throughout the world
- The largest community of scientists doing productive HCS research and screening in pharmaceutical, biotechnology and academic laboratories worldwide

The application of HCS enables:

- Manual assays to be automated
- The ability to multiplex multi-parameter assays
- Novel targets and assay formats to be screened
- The acceleration of target validation
- RNAi knock-down experiments to yield rich functional data in a cellular context
- Predictive cell-based toxicology screens
- The elucidation of cellular processes with systems biology

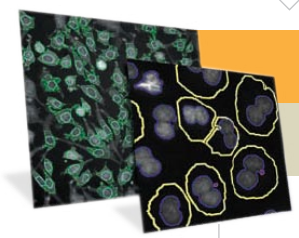
HCS Workflow

USING OUR COMPLETE SOLUTION

Prepare Samples

With Thermo Scientific Cellomics HCS Reagent Kits and Redistribution® Assays you can:

- Prepare imaging-quality cellular assays
- Save assay development time
- Detect activated proteins and monitor morphology



Identify, Select & Validate

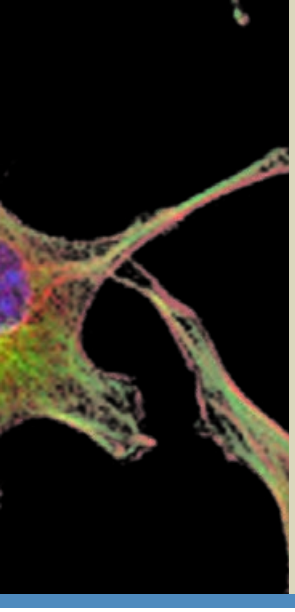
Our interactive software lets you:

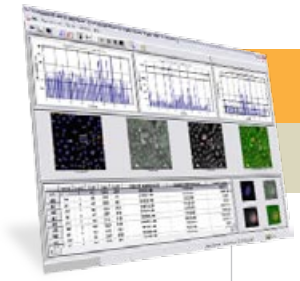
- Identify cells and regions of interest
- Select a sub-population of cells for analysis
- Instantly view results for individual cells and fields

Acquire & Analyze

With Thermo Scientific Cellomics HCS Readers and vHCS™ Scan software you can:

- Acquire and analyze images simultaneously
- Optimize assay parameters interactively
- Set analysis limits for statistically relevant results
- Apply multiple analysis algorithms without re-imaging

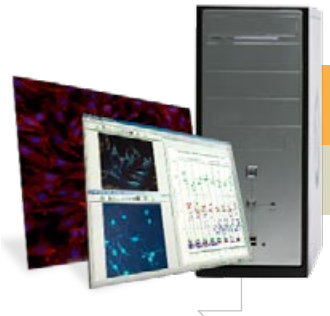




Visualize Data

The Thermo Scientific Cellomics vHCS: View module lets you:

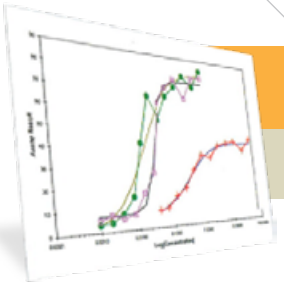
- View data at the well and cell level
- Readily view associated images
- Validate your algorithm settings
- Export data and images to third-party tools such as SpotFire® Decision Site™ Software



Store, Manage & Retrieve Data

Thermo Scientific Cellomics Store allows you to:

- Access data and results from any client PC
- Automatically transfer data from instrument to server
- Easily view, analyze, export, back-up and archive data



Make Informative Decisions

With the Thermo Scientific Cellomics vHCS Discovery Toolbox you can:

- Calculate IC50s automatically
- Manage HCS screens
- Re-analyze images
- Link HCS data with the rest of your discovery workflow

An Integrated Solution

We provide an integrated set of best-in-class products that work together to deliver a complete HCS solution, proven to yield industry-leading productivity

Instrumentation

Our instruments address the needs of the researcher with an integrated platform that includes budget-friendly, dedicated personal HCS; highly flexible, modular, ultra-high content, live-cell capable instruments and high-throughput HCS platforms.

Informatics

Thermo Scientific Cellomics High Content Informatics (HCi™) software provides a complete, robust, enterprise-level solution for HCS data management and analysis that is completely integrated with the rest of our HCS platform.

Image Analysis

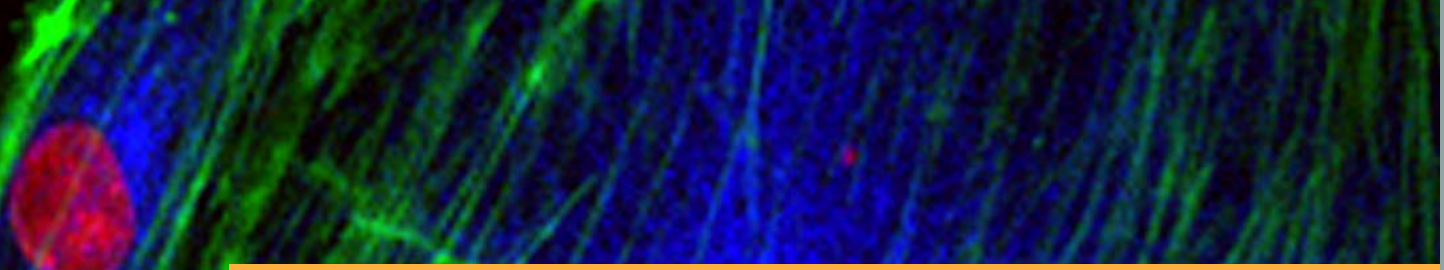
Thermo Scientific Cellomics BioApplications; our image analysis software programs, provide the power and flexibility to deliver reliable quantitative measurements of images of almost any biology, yet are simple to use, validated for the biology of interest, and optimized for robust high-throughput performance.

Reagents

Thermo Scientific Cellomics HCS Reagent Kits provide easy-to-use methods and reagents for preparing high-quality samples for image-based assays. Each kit is designed for a specific biology, has been rigorously validated and is optimized for HCS analysis. Redistribution assays provide proprietary stable cell lines for the monitoring of protein translocation and protein interactions in living cells using fluorescent protein reporters. All reagent products are automation-compatible.

Training and Support

From on-site new user training to complete, classroom-style programs such as the HCS 100 and 200 series of courses, we transfer our extensive experience in HCS technology to your scientists, enabling them to become power users. In addition, our global support team provides customer support to keep organizations running efficiently and maximize the return on their HCS investments.



Instrumentation

Our integrated approach consists of instrumentation platforms that are designed to perform all HCS and HCA applications. The platforms have been optimized to address all of the requirements of cell-based imaging research and share all of the listed key features and benefits. Whether you need high resolution or high throughput, we have a solution that meets your needs. The ability to match your specific needs and budget with the highest quality platform is what makes us your ideal HCS partner.

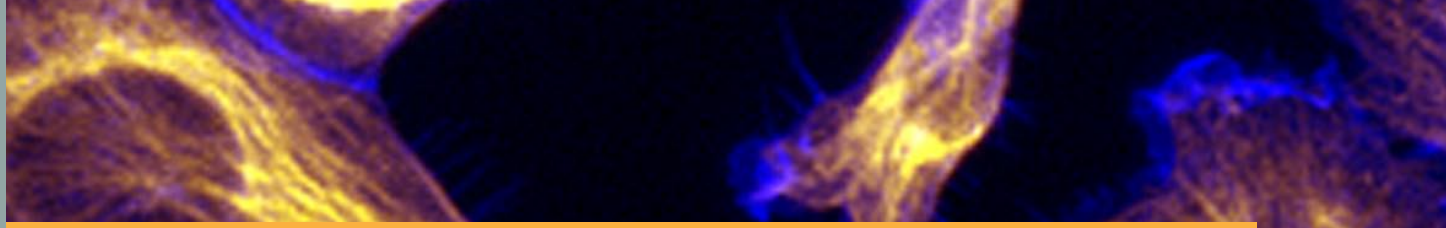
Thermo Scientific Cellomics ArrayScan® VTI HCS Reader

The ArrayScan VTI is designed for high-capacity, automated fluorescence imaging and quantitative cellular analysis of both fixed and live-cell assays. Now in its fifth generation, the ArrayScan VTI HCS Reader design has been optimized to offer flexibility, reliability, ease of use and throughput. The modular design of the system allows it to be easily expanded as needed and its flexibility makes it ideal for a wide variety of HCS and HCA applications, such as target identification, lead optimization, secondary screening, toxicity studies and cell biology research. The ArrayScan VTI features Thermo Scientific Cellomics intelligent acQuisition™ software, which integrates real-time image acquisition and data analysis, enabling decisions to be made about the image and amount of data collected simultaneously. Upon completion of image acquisition, the numeric data is ready for review. In addition, image re-analysis is simple, does not require re-scanning the plate and can be performed on your desktop. It includes the proprietary auto-focus software and Thermo Scientific Cellomics AccuFocus™, which accurately focuses on the biology in less than one second per well, eliminating out-of-focus images.

Offering robust and modular hardware components, combined with easy-to-use analysis and data management software, Thermo Scientific Cellomics HCS Readers are the HCS platforms of choice in drug discovery and biological research laboratories.

Key Features and Benefits

- High-quality image and data analysis
- Excellent image quality via options for deconvolution and optical sectioning
- Ability to image and quantify a wide variety of fluorescent probes and reagents
- Large range of magnifications for imaging all types of mammalian cell-based assays
- True multi-parametric assays are enabled through multi-channel imaging
- Rapid assay development is made possible using the interactive, easy-to-use software
- Image analysis using our validated BioApplication Algorithms
- Seamless integration of the instrument platforms with Thermo Scientific Cellomics HCi Software platform for data management
- Fluidics option allows for live-cell and mix-and-read assays



Informatics

Thermo Scientific Cellomics High Content Informatics (HCi) Platform

The HCi Software Platform offers a robust and scalable architecture for managing, analyzing, visualizing and decision-making with the data generated by HCS, HCA and cellular discovery. It delivers enterprise-class functionality, whether your data is from a few detailed research experiments, a full-scale screening campaign or a systems biology study.

Key Features and Benefits

- Accessing, finding, retrieving, and managing HCS data is rapid and efficient as data is automatically organized by the database software Thermo Scientific Cellomics Store
- Valuable experimental data is instantly secured without user intervention through the automated communication of data from the instrument to Cellomics Store
- The Thermo Scientific Cellomics vHCS Discovery ToolBox, a modular suite of desktop software, provides best-in-class image analysis, visualization and data mining tools that are optimized for HCS
- Cost effectively manage large volumes of data through powerful tools for archiving and export
- Options for managing data to regulatory compliance (21CFRpt11, GcP, etc.)
- Easily integrate HCS data into your in-house systems using open standards-based interfaces
- Robust, customer-proven, and compatible with standard IT infrastructures and database management systems (e.g., Oracle® Database and Microsoft® SQL Server® database)
- Create a common repository of HCS data from any licensed third-party HCS Reader using the Thermo Scientific Cellomics HCSGateway™ Interface

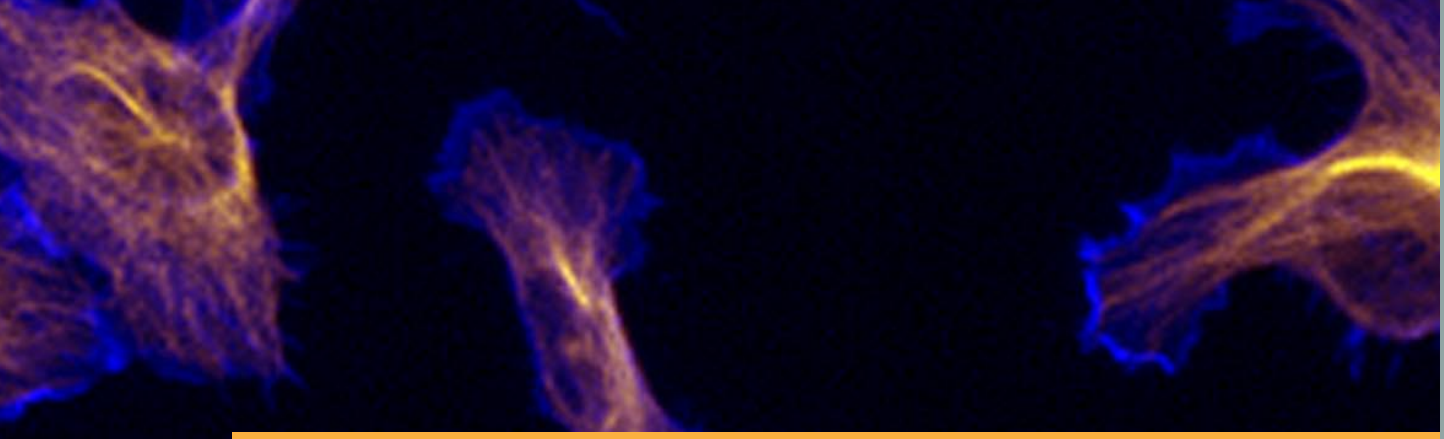
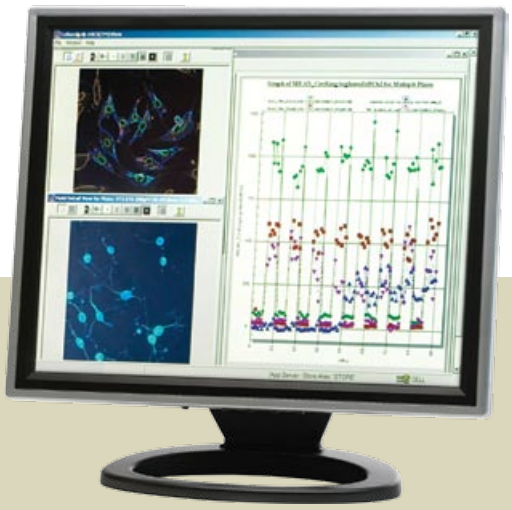


Image Analysis

Thermo Scientific Cellomics BioApplications

BioApplications offer the largest portfolio of out-of-the-box image analysis software. Including applications for specific and general biologies, our software allows new users to get started with their analysis immediately, yet gives experienced users the flexibility to customize and optimize as needed.

BioApplications are validated for HCS. Our software is validated with real biological examples covering a variety of applications including neuroscience, cancer, systems biology, toxicology and cell signaling. BioApplications are fully automated, fully integrated and easy to use, allowing scientists with or without microscopy and imaging experience to make complex measurements with ease. New biologies can be explored in less time, since there is no need to develop complex algorithms. And sophisticated analysis such as object segmentation, population characterization and background correction are easy, routine functions.



Our BioApplications can be applied to a wide variety of biologies, targets and cellular processes:

- Receptor activation
- Cell membrane receptor binding
- GPCR internalization
- Labeled ligand internalization
- Cell proliferation
- Cell morphology
- Cell survival signaling
- Cell migration signaling
- Toxicity
- Cell viability
- Apoptosis/Necrosis
- Nuclear count
- Fluorescent protein localization
- Transcription factors
- Reporter gene expression
- Cell cycle status
- DNA replication studies
- Nuclear-cytoplasmic translocation
- Plasma membrane translocation
- Neurite outgrowth
- Tube formation
- Microtubule arrangement
- Cytoskeletal reorganization
- Genotoxicity
- Colocalization
- Gene function
- Model organisms
- Stem cell differentiation
- Synaptagenesis
- Tissues
- Viral clearing
- Wound healing

And many more...

Reagents

Validated Reagents for HCS

Sample quality and preparation is the key to any biological assay; therefore, we offer a variety of products to prepare imaging-quality samples which enable scientists to identify and quantitate specific targets.

Thermo Scientific HCS Reagent Kits

Our HCS Reagent Kits are comprised of proprietary fluorescent reagents, buffers and, in some cases, positive/negative control compounds, as well as optimized sample preparation protocols for producing high-quality cell preparations optimized for fluorescent imaging applications. They are designed and validated with the ArrayScan VTI HCS Reader and BioApplication Software, and are fully compatible with other fluorescence-based HCS platforms and conventional fluorescence microscopy.

- All reagents and protocols are included for optimized sample preparation
- No cell lysis, purification or filtration steps are required
- Fluorescence-based assay provides sensitive quantitative and qualitative results without radioactivity
- Compatible with modern automation for exceptional reproducibility
- Prepared cells may be analyzed directly via standard fluorescence microscopy or with any HCS reader
- Validated assays are optimized for analysis using Thermo Scientific Cellomics BioApplications

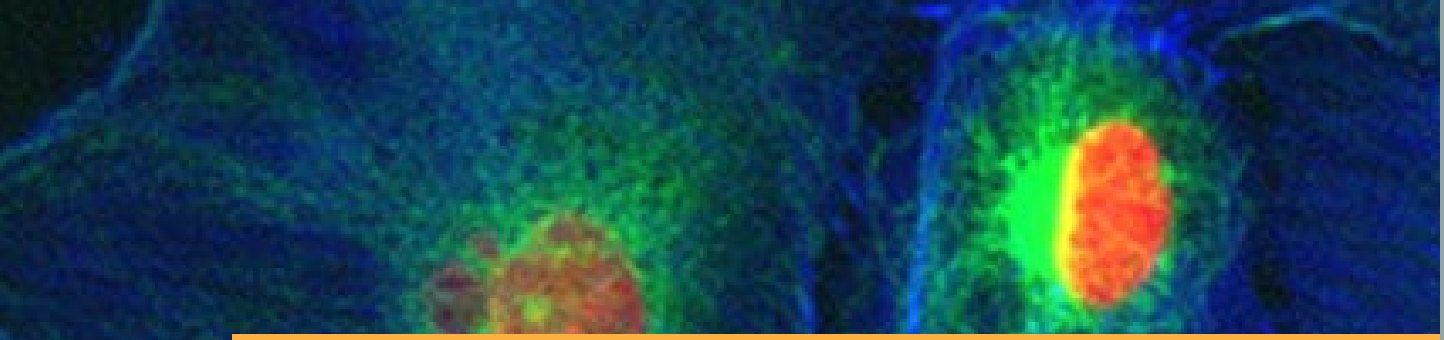
Cells

Cell lines have been developed, optimized and validated for use in HCS assays

Redistribution assays are based on patented BioImage technology (www.bioimage.com) for using the translocation of a target protein fused to a genetically encoded luminophore as the primary assay readout. Redistribution assays have been developed for many targets to reflect total cellular responses and can be easily multiplexed with our HCS Reagent Kits.

Reagents are available for:

- Cytotoxicity and Apoptosis
- Genotoxicity, DNA damage and repair
- Inflammation and cell stress
- Cell signaling and transcription factors
- Cell cycle and proliferation
- Cell morphology and phenotypic changes
- Accessory reagents



Training and Support

Our team of highly trained scientists provide continuing education, allowing HCS users to rapidly deliver results. We offer the most in depth program of HCS training available.

New User Training

The first session covers the key instrument and software modules and takes you from general assay development on the instrument through data generation and visualization.

Thermo Scientific Cellomics HCS 101

Our HCS 101 Training Course provides the fundamentals of HCS through a series of hands-on, practical training sessions covering all aspects of implementing HCS and integrating it into your workflow. This course is designed to introduce the concepts behind HCS, while giving you practical knowledge to increase your rate of success and ability to develop your own HCS assays. One seat in our HCS 101 course is included with every ArrayScan HCS Reader purchased, and any of our customers can purchase additional seats.

Thermo Scientific Cellomics HCS 200 Series

The 200 Series of HCS Courses offer a comprehensive agenda that will show you how to use our tools to look at HCS discovery in specific therapeutic areas. These application-focused courses target biological assays used in neuroscience research, cancer research and toxicology. Courses are offered throughout the year and are hosted at our HCS training facility in Pittsburgh, PA, USA.

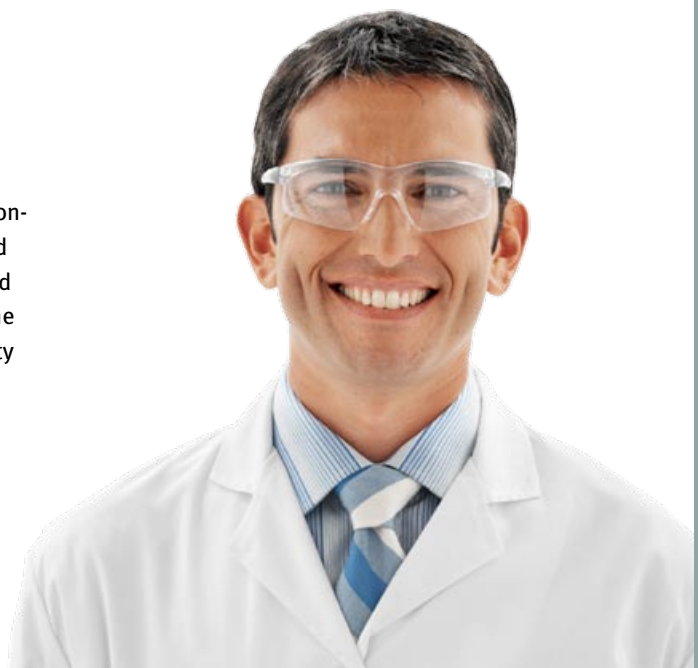
Customized On-Site Training

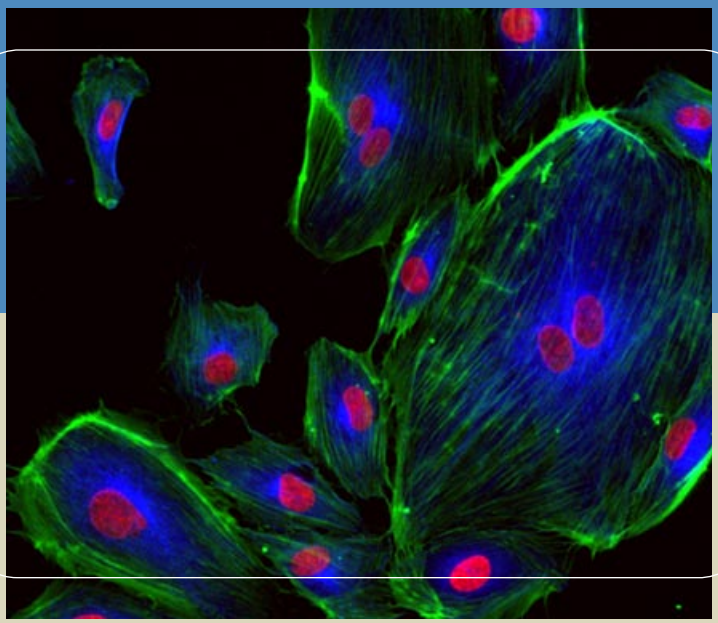
We can deliver customized sessions to meet the needs of your organization for more in-depth training on specific products or applications or to introduce HCS to other areas of your organization.

Service and Support

Our customer service and support teams perform platform installations, annual preventative maintenance, instrument service and technical support. Our customer service representatives are available via phone or online for technical support at your convenience.

We offer a one-year warranty on new product purchases and a variety of maintenance and support agreements for hardware, software and informatics that ensure that your platform remains current and productive.





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Laboratory Automation and Cellular Imaging

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