



CYTEK[®]
TRANSCEND THE CONVENTIONAL



Cytek[®] Muse[®] Reagent Kits

Optimized Assays For Your Cell Analysis With Cytek[®]
Guava[®] Muse[®] And Cytek[®] Muse[®] Micro Systems

Cell Analysis Is Effortless And Fast

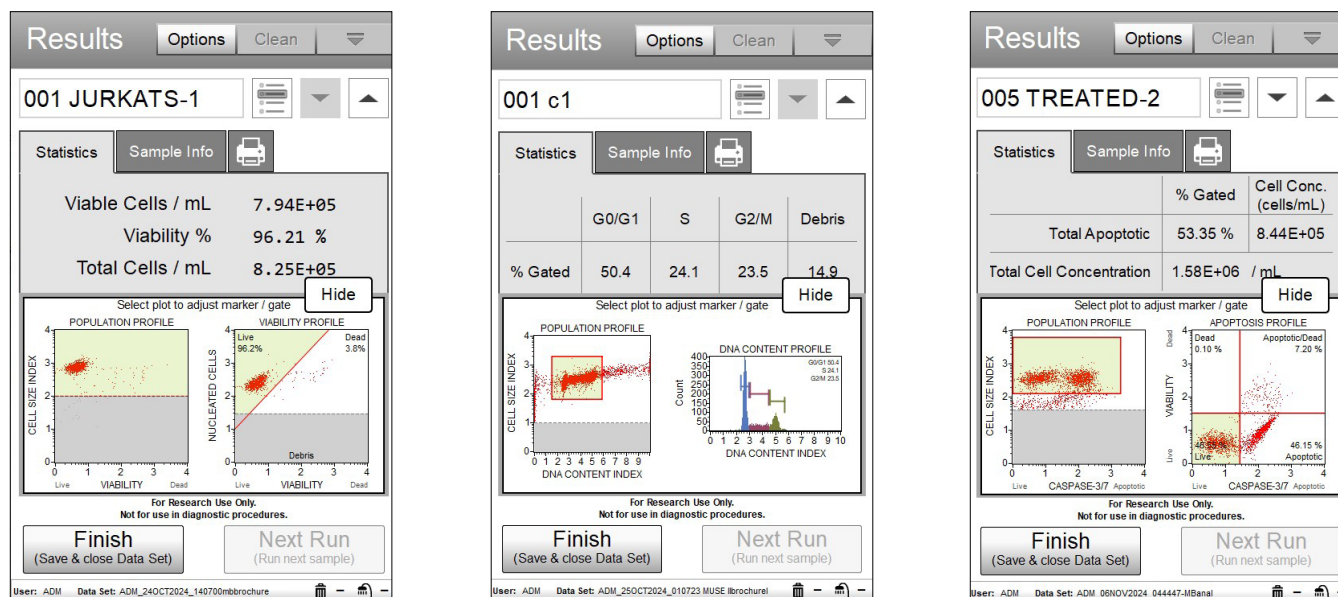
For the assays you rely on most, we've developed optimized kits validated for robust performance on the **Cytex® Guava® Muse® and Cytex® Muse® Micro** systems. Typical cell preparation protocols have been condensed and simplified so sample preparation is fast and easy. You don't need to optimize any software settings—the **Muse system** calculates all gating parameters and thresholds for you. Results are displayed in both graphical and statistical formats specific to each application, making analysis unambiguous. Spend less time with experimental set-up, avoid reagent waste, and save money—we've done all the work for you.

Muse Assays

Choose from a broad range of Muse assays for interrogating multiple aspects of cell biology:

- Count and viability
- Cell proliferation
- Apoptosis
- Cell signaling
- Cell cycle
- DNA damage
- Autophagy
- Immunology

Figure 1



Muse Cell Count & Viability Kit

Easy-to-read absolute total cell counts and viability measurement of live, dead, and dying cells based on differential permeability of two DNA-binding dyes.

Muse Cell Cycle Kit

Accurately analyze cell cycle phases using DNA content with a DNA-binding dye.

Muse Caspase-3/7 Kit

Reliable cell apoptosis monitoring using reagents detecting caspase-3/7 activity and a dead cell dye.

Instrument Calibration And Maintenance Reagents

Muse System Check Kit (100 Tests) (Part Number: MCH100101)

The **Muse System Check Kit** is used to verify the performance of your **Cytek Guava Muse** and **Cytek Muse Micro** systems by assessing counting accuracy and fluorescence detection using a standardized fluorescent bead reagent. The kit contains the Muse System Check Bead reagent and the System Check Diluent. To ensure that your **Cytek Guava Muse** and **Cytek Muse Micro** systems provide reliable, accurate results, run the system check procedure every day the instrument is used before performing any assays.

Figure 2

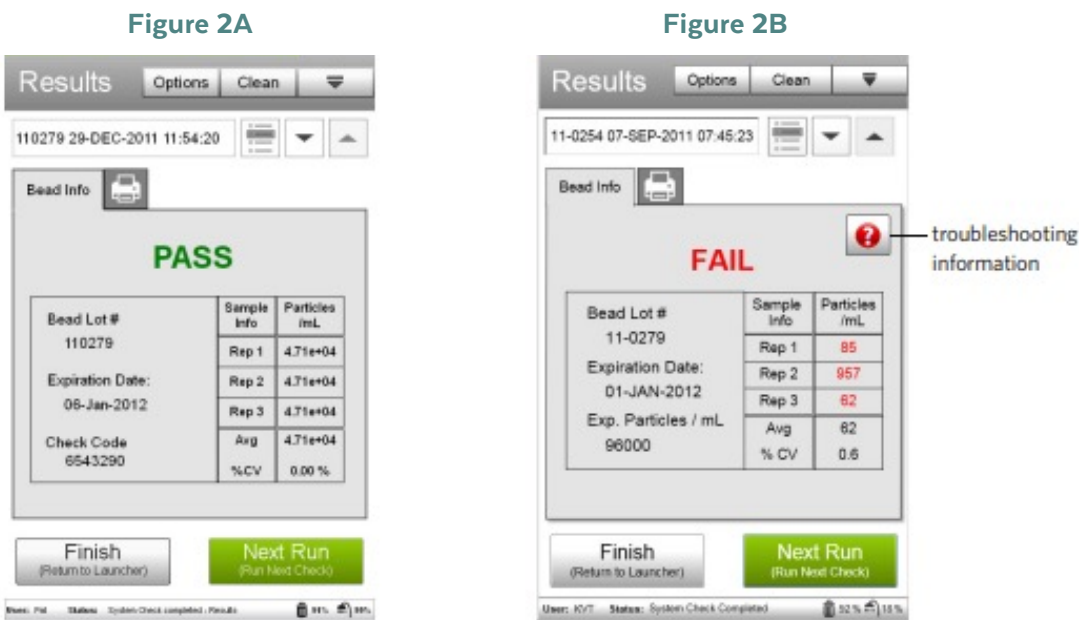


Figure 2: System Check Bead data obtained with the Muse System Check software module and acquired on the Cytek Muse Micro system. **Figure 2A** shows passing results, while **Figure 2B** shows results that failed. Results include the bead count for each replicate, average bead count, and %CV. Bead counts (Particles/mL) that fall outside $\pm 10\%$ of the expected value appear in red.

Guava Instrument Cleaning Fluid (ICF) (Part Number: 4200-0140)

The **Guava Instrument Cleaning Fluid (ICF)** cleans the fluidic systems of your **Cytek Guava® easyCyte™**, **Cytek Guava Muse**, and **Cytek Muse Micro** systems by effectively removing sample clogs and build-up from cell debris, proteins, and reagent dye residues. While the **Cytek Guava easyCyte**, **Cytek Guava Muse**, and **Cytek Muse Micro** systems operate with minimal maintenance and servicing, the flow cell and fluidic system require regular cleaning to ensure proper performance. The ICF is an easy solution to ensure your **Cytek Guava easyCyte**, **Cytek Guava Muse**, and **Cytek Muse Micro** systems operate optimally.

Cell Count And Viability Kits

Muse Count & Viability Kit

40 mL (Part Number: MCH100102) | 240 mL (Part Number: MCH600103)

The **Muse Count & Viability Kit** allows for the quantitative analysis of cell count and viability on the **Cytek Guava Muse** and **Cytek Muse Micro** systems. It is a rapid and reliable alternative to trypan blue exclusion and comes in two sizes—40 mL and 240 mL. The **Muse Count & Viability Kit** provides absolute cell count and viability data on cell suspensions from a variety of cultured mammalian cell lines. Both viable and non-viable cells are differentially stained based on their permeability to the DNA-binding dyes in the reagent.

Muse Count & Viability Kit 200X (100 Tests) (Part Number: MCH100104)

The **Muse Count & Viability Kit 200X** was developed for absolute cell count and viability determination of difficult cell samples. It is designed to address the need for a compatible reagent for non-mammalian cell lines, such as SF-9 insect cells. These cells prefer significantly lower pH levels and higher osmolarity than mammalian cells for optimal viability. The reagent contains the same fluorescent DNA-binding dyes used in the **Muse Count & Viability Kit** in a more highly concentrated formulation. These dyes have differential permeability to viable and non-viable cells and provide absolute cell count and viability data on cell suspensions from a variety of cultured cell lines. Both viable and non-viable cells are differentially stained based on their permeability to the DNA-binding dyes in the reagent.

The **Muse Count & Viability Kit 200X** allows you to assess a greater variety of cell types on the **Cytek Guava Muse** and **Cytek Muse Micro** systems. You can also use it to prepare a custom reagent formulation in a buffer or medium compatible with your unique cell line. The kit can be added directly to the cell sample for counting, allowing direct and rapid determination of absolute cell count and viability with dilute cell samples down to 1×10^4 cells/mL. Additionally, the kit can also be used to prepare a more concentrated, custom formulation, which may reduce incubation time and optimize fluorescent signals for cell lines that stain less efficiently. The **Muse Count & Viability Kit 200X** allows for the assessment of absolute cell count, as well as the viability of challenging cell samples, rapidly, reliably, and conveniently.

Muse Cell Dispersal Reagent (Part Number: MCH100107)

The **Muse Cell Dispersal Reagent** is an enzymatic reagent that has been formulated to gently disaggregate cells that have aggregated in clumps to obtain uniform suspensions for cell counting. Cell samples containing cell aggregates may not yield accurate or consistent results with the **Muse Count & Viability** reagent alone due to differential staining in clumps. Additionally, cell aggregates may clog or result in coincident events, hampering the assay's performance.^{1,2} Cell lines, such as the Chinese hamster ovary (CHO-K1) cell line, that have been adapted to suspension culture tend to form cell aggregates.^{3,4} The **Muse Cell Dispersal Reagent** is useful for disaggregating clumpy suspension cultures in combination with the **Muse Count & Viability** reagents.

1. Magallanes E, Helsel C, Liu B, Yokobata K. Validating the Guava® Viacount™ CDR™ Assay. Technical Note, Guava Technologies Inc, 2003.
2. Phi-Wilson J, Harvey J, Goix P, O'Neill R. A technology for the rapid acquisition of cell number and viability. Am Biotechnol Lab. May 2001;34-36.
3. Shen BP, Bodnar CA, Manuel J, Siegel AC, Levy GA. Comparison of Serum-Free Suspension Culture Media for the Growth and Production of a Protein-Producing CHO Suspension Line. Application Note. Industrial BioDevelopment Laboratory.
4. Hernandez C, Christie A, MacNorton S, Wilson S, et al. Optimization of Cell Counting Throughput for the SAFC Raw Materials Characterization Program. SAFC, Lenexa.

Data Generated With The Muse Count & Viability Software Module Provides:

- Viable cell count (cells/mL)
- Total cell count (cells/mL)
- Percentage viability of sample

Figure 3

Figure 3 shows an example of results obtained using the **Muse Count & Viability Kit**.

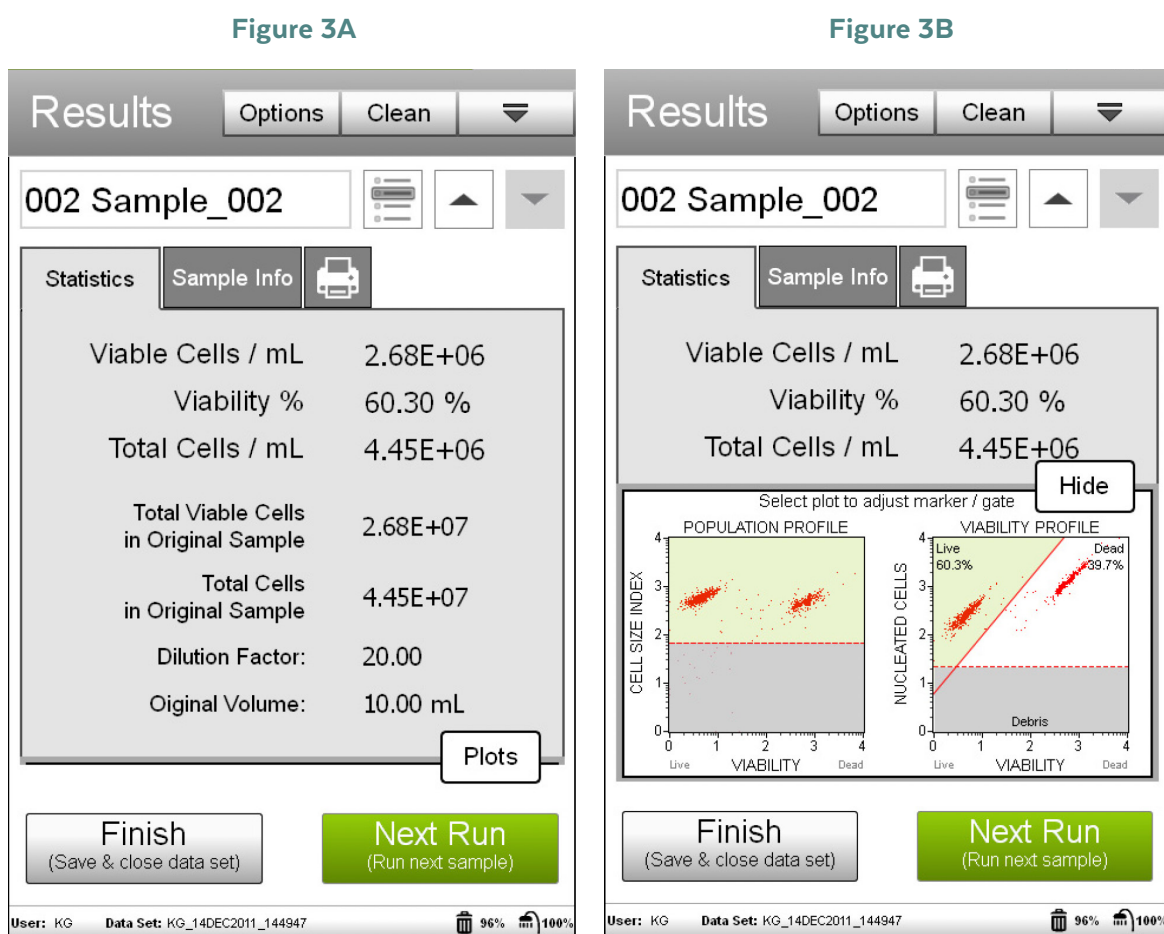


Figure 3: Results obtained with the Muse Count & Viability software module using viable Jurkat cells mixed with heat-killed Jurkat cells, stained with Muse Count & Viability Kit, and acquired on the Cytex Muse Micro system. **Figure 3A** shows results without dot plots, while **Figure 3B** shows the same results with the optional dot plots. The statistics show the concentration of viable cells, the % viability, and the total cell concentration for the Jurkat cell sample shown. The first plot in **Figure 3B** shows the viability vs. cell size; the second plot shows the viability vs nucleated cells plot.

Cell Health Kits

Muse Annexin V & Dead Cell Kit (100 Tests) (Part Number: MCH100105)

The **Muse Annexin V & Dead Cell Kit** allows for the quantitative analysis of live, early, and late apoptosis and cell death on both adherent cells and cells in suspension on the **Cytek Guava Muse** and **Cytek Muse Micro** systems. Minimal sample preparation is required in this no-wash, mix-and-read kit, making it easy to obtain accurate and precise results. The software provides:

- Concentrations (cells/mL) for live, early apoptotic, late apoptotic, total apoptotic, and dead cells
- Percentage of live, early apoptotic, late apoptotic, total apoptotic, and dead cells

Figure 4

Figure 4 displays an example of results obtained using the **Muse Annexin V & Dead Cell Kit** to stain Jurkat cells treated with staurosporine to induce apoptosis.

Events in each of the four quadrants are as follows:

- **Lower-left quadrant:** viable cells, not undergoing detectable apoptosis [Annexin V-PE (-) and dead cell marker (-)]
- **Lower-right quadrant:** cells in the early stages of apoptosis [Annexin V-PE (+) and dead cell marker (-)]
- **Upper-right quadrant:** cells in the late stages of apoptosis or dead by apoptotic mechanisms [Annexin V-PE (+) and dead cell marker (+)]
- **Upper-left quadrant:** cells that have died via necrosis but not through the apoptotic pathway [Annexin V-PE (-) and dead cell marker (+)]

Figure 4A

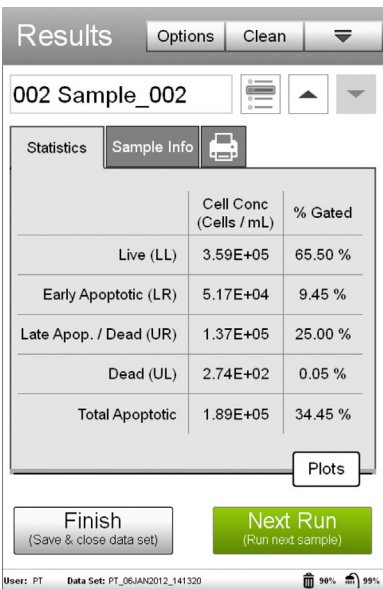


Figure 4B

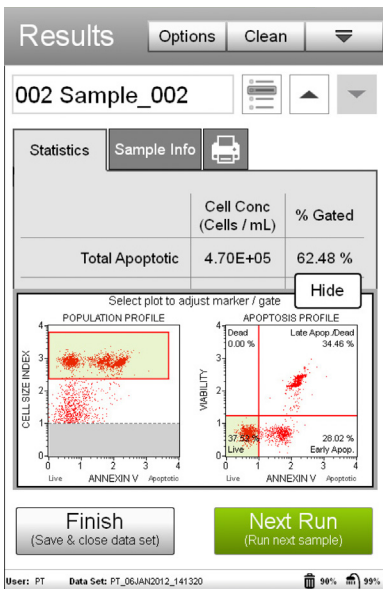


Figure 4: Results obtained from Jurkat cells induced to apoptosis with 1 μ M staurosporine, stained with Muse Annexin V & Dead Cell Kit and acquired on the Cytek Muse Micro system. **Figure 4A** shows results without dot plots, while **Figure 4B** shows the same results with the optional dot plots. The statistics show the cell concentration in the stained cell sample and the percentages of the total represented by each population. The first plot in **Figure 4B** shows Annexin V versus cell size; the second plot shows viability versus Annexin V.

Muse Cell Cycle Kit (100 Tests) (Part Number: MCH100106)

The **Muse Cell Cycle Kit** allows for easy and rapid quantitative measurements of the percentage of cells in the G0/G1, S, and G2/M phases of the cell cycle on the **Cytek Guava Muse** and **Cytek Muse Micro** systems. The kit allows you to easily obtain information on cell cycle distribution on your benchtop. The **Muse Cell Cycle Kit** quantitates the cell cycle phases within cell suspensions from a variety of cultured mammalian cell lines.

Data Generated With The Muse Cell Cycle Software Module Provides:

- Percent of total cells for each phase of the cell cycle (G0/G1, S, and G2/M)
- Mean fluorescence intensity
- Percentage CV of fluorescence intensity

Figure 5

Figure 5 shows typical results obtained with the **Muse Cell Cycle** reagent. Log-phase Jurkat T cells were ethanol-fixed overnight and stained according to the instructions outlined in assay protocol.

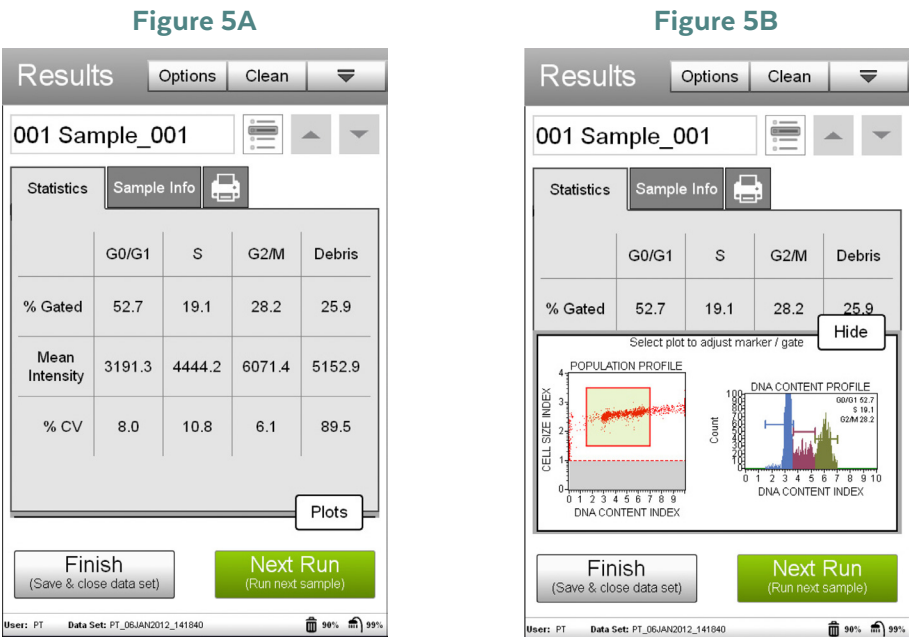


Figure 5: Results obtained with the Muse Cell Cycle software module using Jurkat cells stained with Muse Cell Cycle reagent and acquired on the Cytek Guava Muse cell analyzer. **Figure 5A** shows results without dot plots, while **Figure 5B** shows the same results with the optional dot plots. The statistics show the percentage of cells in each population, the mean intensity for each peak, and the coefficient of variation (%CV) for each peak. The first plot in **Figure 5B** shows the DNA content vs the cell size index dot plot; the second plot shows the distribution of the cell cycle phases (G0/G1, S, and G2/M) in histogram format. The DNA histogram results show the results for the percentage of cells in G0/G1 (M1), S (M2), and G2/M (M3).

Cell Health Kits

Muse Caspase-3/7 Kit (100 tests) (Part Number: MCH100108)

The **Muse Caspase-3/7 Kit** allows for the simple, rapid, and quantitative measurement of two important cell health parameters simultaneously:

- Apoptotic status, based on caspase-3/7 activation
- Cell death, measured by cellular plasma membrane permeabilization

The kit provides the relative percentages of live, early and late apoptotic, and dead cells when using both adherent and suspension lines on the **Cytek Guava Muse** and **Cytek Muse Micro** systems. Minimal sample preparation is required in this no-wash, mix-and-read kit, making it easy to obtain accurate and precise results. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provides statistical values, measuring the:

- Percentage of live, early and late apoptotic, total apoptotic, and dead cells
- Cell concentration (cells/mL) for live, early apoptotic, late apoptotic, and dead cells

Muse MultiCaspase Kit (100 Tests) (Part Number: MCH100109)

The **Muse MultiCaspase Kit** allows for the simple, rapid, and quantitative measurements of two important cell health parameters simultaneously: caspase activation and cellular plasma membrane permeabilization, or cell death. The kit provides the relative percentages of cells that are live, exhibiting caspase activity, or dead in both adherent cells and cells in suspension. Minimal sample preparation is required in this no-wash, mix-and-read kit, making it easy to obtain accurate and precise results. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provides statistical values, measuring the:

- Percentage of live, caspase+, caspase+ and dead, total caspase+, and dead cells
- Cell concentrations (cells/mL) for live, caspase+, caspase+, and dead cells

Muse Autophagy LC3-Antibody Based Kit (100 tests) (Part Number: MCH200109)

The **Muse Autophagy LC3-Antibody Based Kit** provides a quantitative solution for studying autophagy. This kit contains two key detection reagents to facilitate the monitoring of lipidated LC3-II within a given cell system, and works by:

- Employing a selective permeabilization solution to discriminate cytosolic LC3 from autophagic LC3 by extracting the soluble cytosolic proteins while protecting LC3, which has been sequestered into the autophagosome
- Utilizing an autophagy detection reagent (autophagy reagent A) to prevent the lysosomal degradation of LC3, allowing for its quantification by flow cytometry

The **Muse Autophagy LC3-Antibody Based Kit** includes an anti-LC3 mouse monoclonal antibody conjugated to Alexa Fluor® 555 to measure and track the levels of LC3 within the cell. The anti-LC3 Alexa Fluor® 555 conjugated antibody and autophagy enabling reagents have been carefully evaluated to ensure optimal performance, alleviating the need for any additional validation of the kit reagents. In addition to reagents A and B, this kit includes an assay buffer to provide researchers a complete solution for autophagy analysis. The autophagy detection reagents and antibody have been optimized together to deliver a reliable way to measure and discriminate between cytosolic and lipidated LC3, providing accurate measurements of the autophagic process. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems along with the corresponding Muse software module provides statistical values, measuring:

- Mean autophagy value (for both control and test samples)
- Autophagy induction ratio (test sample fluorescence relative to control)
- Percentage of cells with increased autophagy (test sample versus control)

Muse MitoPotential Kit (100 Tests) (Part Number: MCH100110)

The **Muse MitoPotential Kit** allows for the simultaneous measurement of two important cell health parameters: change in mitochondrial potential, considered an early hallmark of apoptosis, and cellular plasma membrane permeabilization, or cell death. Minimal sample preparation is required in this no-wash, mix-and-read kit, making it easy to obtain accurate and precise results.

Muse software provides:

- Concentrations (cells/mL) for live, depolarized, depolarized/dead, and dead cells
- Percentage of live, depolarized, depolarized/dead, and dead cells

Muse Oxidative Stress Kit (100 Tests) (Part Number: MCH100111)

The **Muse Oxidative Stress Kit** allows for the quantitative measurements of reactive oxygen species (ROS), namely superoxide radicals in cells undergoing oxidative stress. The assay provides the relative percentage of cells that are ROS negative and positive in both adherent cells and cells in suspension on the **Cytek Guava Muse** and **Cytek Muse Micro** systems. Minimal sample preparation is required in this no-wash, mix-and-read assay, making it easy to obtain accurate and precise results. The **Muse Oxidative Stress Kit** simultaneously determines the count and percentage of cells undergoing oxidative stress based on the intracellular detection of superoxide radicals. The kit utilizes the **Muse Oxidative Stress** reagent for the detection of ROS in cells. The **Muse Oxidative Stress** reagent is based on dihydroethidium, a well-characterized reagent that has been extensively used to detect reactive oxidative species in cellular populations. Two populations of cells can be distinguished in the assay:

- ROS(-): Live cells
- ROS(+): Cells exhibiting ROS

Muse Nitric Oxide Kit (100 Tests) (Part Number: MCH100112)

The **Muse Nitric Oxide Kit** allows for the quantitative simultaneous measurements of two important cell health parameters: changes in intracellular nitric oxide activity levels, and cellular plasma membrane permeabilization, or cell death. The kit consists of the Muse nitric oxide (NO) reagent and the dead cell dye 7-AAD. The **Muse Nitric Oxide** reagent is a membrane-permeable, novel reagent (DAX-J2™ Orange) that generates a highly fluorescent product upon NO oxidation inside the cell. The reagent is non-toxic, does not depend on the action of cellular esterases for reactivity, and is photostable. A dead cell marker (7-AAD) is also included in the kit as an indicator of cell membrane structural integrity and cell death. It is excluded from live cells with intact membranes, but permeates membranes that are compromised or stressed, in addition to dead cells. It exhibits increased fluorescence in the viability parameter.

Minimal sample preparation is required in this no-wash assay, making it easy to obtain accurate and precise results on both suspension and adherent cells.

Muse software provides:

- Percentage and concentration of live cells
- Live cells with nitric oxide activity
- Dead cells with nitric oxide activity
- Dead cells
- Total nitric oxide-positive cells (live and dead)

Muse Ki67 Proliferation Kit (100 Tests) (Part Number: MCH100114)

The **Muse Ki67 Proliferation Kit** allows for the quantification of the percentages of proliferating and nonproliferating cells based on Ki67 expression. Two populations of cells can be distinguished in the assay:

- Ki67- cells (cells that are not proliferating or an isotype control)
- Ki67+ cells (cells that are proliferating)

Immunology Kits

Muse Human CD4 T Cell Kit (100 Tests) (Part Number: MIM100101)

The **Muse Human CD4 T Cell Kit** allows you to determine the concentration and percentages of CD4⁺ T cells and lymphocytes in human whole blood or peripheral blood mononuclear cells (PBMCs). Characterizing CD4⁺ T cell counts and percentages is important in evaluating immune status, understanding disease mechanisms, and in both vaccine research and immunotoxicity studies.

The **Muse Human CD4 T Cell Kit** allows for the detection and identification of lymphocytes and CD4⁺ T lymphocytes in both whole blood and PBMCs using a simplified, no-wash assay. The CD4 antibody identifies human helper/inducer CD4⁺ T cells (HLA Class II reactive) and recognizes a 60,000 Da surface antigen. Monocytes also express CD4, but at a lower density, and exhibit no co-expression of the other antibodies present in the anti-lymphocyte cocktail. As a result, monocytes can be distinguished from CD4⁺ T cells in this kit. This simplified identification can aid in understanding the role of CD4⁺ T lymphocytes in development, immune responses, and mechanisms of disease.

This no-wash assay requires minimal sample preparation to obtain accurate and precise results. The software readout on the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide:

- Count, percentage, and concentration of CD4⁺ T cells
- Count and concentration of lymphocytes

The **Muse Human CD4 T Cell** assay provides results for CD4 T lymphocyte count, CD4 percent of total lymphocytes, and total lymphocyte count.

Expected results for each of the four quadrants are as follows:

- Upper-left quadrant: non-CD4 lymphocytes [lymphocyte(+) and CD4(-)]
- Upper-right quadrant: CD4 T lymphocytes [lymphocyte(+) and CD4(+)]
- Lower-left quadrant: negative cells [lymphocyte(-) and CD4(-)]
- Lower-right quadrant: CD4 non-lymphocytes [lymphocyte(-) and CD4(+)]

Muse Human CD8 T Cell Kit (100 Tests) (Part Number: MIM100102)

The **Muse Human CD8 T Cell Kit** is used in laboratory research studies to determine the CD8⁺ T cell count, total lymphocyte count, and percent of CD8⁺ T cell lymphocytes in human whole blood and peripheral mononuclear cell (PBMC) samples. Identification and enumeration of cytotoxic CD8⁺ T cell populations are useful in understanding immune response and status while additionally aiding in the research of disease mechanisms including autoimmune diseases and immunodeficiency.

The **Muse Human CD8 T Cell Kit** allows for the detection and identification of lymphocytes and CD8⁺ T lymphocytes in both whole blood and PBMCs using a simplified, no-wash assay. The CD8 antibody allows the identification of CD8, a 68 kDa transmembrane glycoprotein expressed by class I major histocompatibility complex-restricted, mature suppressor/cytotoxic T cells, which represent the majority of cortical thymocytes and approximately 30 percent of medullary thymocytes. Additionally, a portion of $\gamma\delta$ T cells and NK cells express CD8. Inclusion of several proprietary antibodies in the anti-lymphocyte cocktail allows for the unique identification of the CD8⁺ cytotoxic T cells. Minimal sample preparation is required in this no-wash assay to obtain accurate and precise results. The software readout on the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide:

- CD8⁺ T cell concentration (cells/ μ L)
- CD8⁺ T cell percent of lymphocytes
- Total lymphocyte concentration (cells/ μ L)

Muse Human B Cell Kit (100 Tests) (Part Number: MIM100103)

The **Muse Human B Cell Kit** allows for determination of the B cell count, total lymphocyte count, and B cell percent of lymphocytes in human whole blood and peripheral blood mononuclear cell (PBMC) samples. Characterization of B cell counts and percentages enables a better understanding of the humoral immune response, insight into the mechanisms of autoimmune diseases, further research into factors that influence T cell responses, and improved vaccine development.

The **Muse Human B Cell Kit** detects and identifies lymphocytes and CD19⁺ B lymphocytes in both whole blood and PBMCs using a simplified, no-wash assay. Because CD19 is considered a characteristic B cell marker, it is commonly used in the routine immunophenotyping of B cells. Monoclonal antibodies cluster as CD19 detects all peripheral blood B cells.¹ The simplified identification aids in understanding the role of B lymphocytes in development, immune responses, and mechanisms of disease. The software readout on the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide:

- Count, percentage, and concentration of B cells
- Count and concentration of lymphocytes

Figure 6

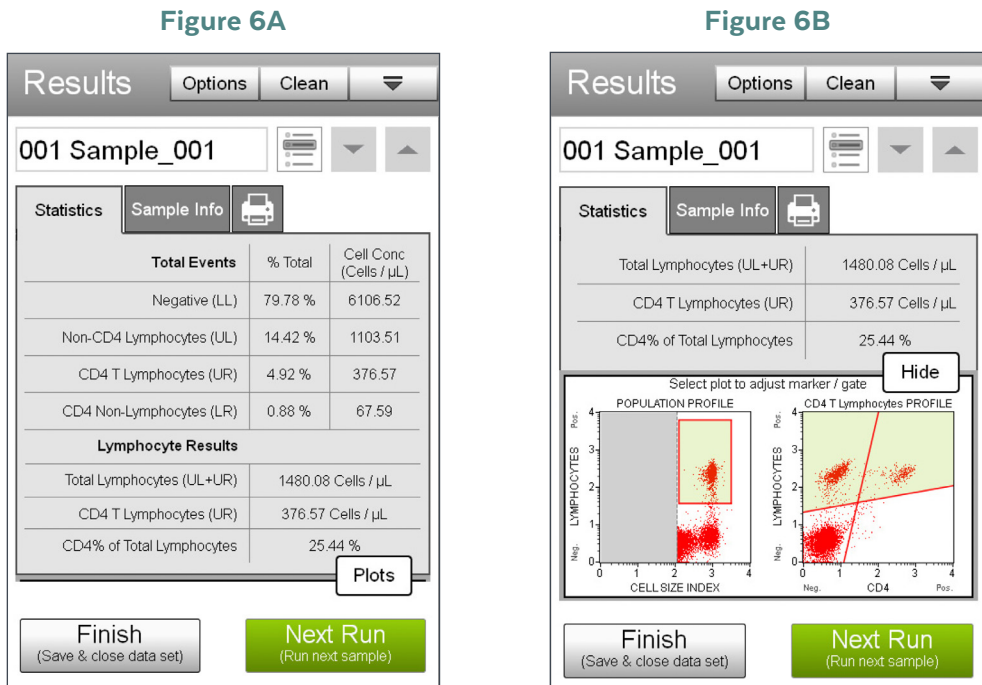


Figure 6: Results obtained with the Muse human CD4 T cell module for adult whole blood stained with the Muse Human CD4 T Cell Kit and acquired on the Cytek Guava Muse cell analyzer. **Figure 6A** shows results without dot plots, while **Figure 6B** shows results with optional dot plots. The statistics show cells/ μ L in the original sample, population percentages, as well as total lymphocyte count and CD4 T cell percentage of lymphocytes. The first plot in **Figure 6B** shows cell size vs. lymphocytes and the second plot shows CD4 staining versus lymphocytes.

Cell Signaling Kits

Muse H2A.X Activation Dual Detection Kit (50 Tests) (Part Number: MCH200101)

The **Muse H2A.X Activation Dual Detection Kit** is part of a series of products that includes a pair of antibodies which bind to the same protein; one antibody detects total protein expression and the other detects the phosphorylated form of the same target. Two-parameter analysis allows for specific detection of phosphorylation and eliminates false positives, enhancing the signal-to-noise ratio.

The **Muse H2A.X Activation Dual Detection Kit** includes two directly conjugated antibodies—a phospho-specific anti-phospho-histone H2A.X (Ser139)-Alexa Fluor® 555 and an anti-histone H2A.X-PECy5 conjugated antibody—to measure total levels of histone H2A.X. This two-color kit is designed to detect histone H2A.X pathway activation by measuring H2A.X phosphorylation relative to the total H2A.X expression in any given cell population. Consequentially, the levels of both the total and phosphorylated protein can be measured simultaneously in the same cell, resulting in a normalized and accurate measurement of H2A.X activation after stimulation.

This kit contains optimized fixation, permeabilization, and assay buffers to provide researchers with a complete solution for H2A.X signaling analysis. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide statistical values, measuring the:

- Percentage of inactivated cells
- Percentage of activated cells (via phosphorylation)
- Percentage of non-expressing cells

Muse EGFR-RTK Activation Dual Detection Kit (50 Tests) (Part Number: MCH200102)

The **Muse EGFR-RTK Activation Dual Detection Kit** is part of a series of products that includes a pair of antibodies which bind to the same protein; one antibody detects total protein expression and the other detects the phosphorylated form of the same target. Two-parameter analysis allows for specific detection of phosphorylation and eliminates false positives, enhancing the signal-to-noise ratio.

The **Muse EGFR-RTK Activation Dual Detection Kit** includes two directly conjugated antibodies—a phospho-specific anti-phospho-EGFR (Tyr1173)-Alexa Fluor® 555 and an anti-EGFR-PECy5 conjugated antibody—to measure total levels of EGFR expression. This two-color kit is designed to detect EGFR pathway activation by measuring EGFR phosphorylation relative to the total EGFR expression in any given cell population. By doing this, the levels of both the total and phosphorylated protein can be measured simultaneously in the same cell, resulting in a normalized and accurate measurement of EGFR activation after stimulation. Moreover, simultaneous measurement of both total and phospho-EGFR confirms target specificity of the phosphorylation event.

This kit contains optimized fixation, permeabilization, and assay buffers to provide researchers with a complete solution for EGFR signaling analysis. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide statistical values, measuring the:

- Percentage of inactivated cells
- Percentage of activated cells (via phosphorylation)
- Percentage of non-expressing cells

Muse PI3K Activation Dual Detection Assay Kit (50 Tests) (Part Number: MCH200103)

The **Muse PI3K Activation Dual Detection Kit** is part of a series of products that includes a pair of antibodies which bind to the same protein; one antibody detects total protein expression and the other detects the phosphorylated form of the same target. Two-parameter analysis allows for specific detection of phosphorylation and eliminates false positives, enhancing the signal-to-noise ratio.

The **Muse PI3K Activation Dual Detection Kit** includes two directly conjugated antibodies—a phospho-specific anti-phospho-Akt (Ser473), Alexa Fluor® 555 and an anti-Akt, PECy5 conjugated antibody—to measure total levels of Akt. This two-color kit is designed to measure Akt phosphorylation relative to the total Akt expression in any given cell population. By doing this, the levels of both the total and phosphorylated protein can be measured simultaneously in the same cell, resulting in a normalized and accurate measurement of PI3K activation after stimulation. Moreover, simultaneous measurement of both total and phospho-Akt confirms target specificity of the phosphorylation event. Together, a total and phospho antibody duo performed in multiplex provides enhanced and more reliable detection of the phospho:total ratio within a mixed population.

This kit contains optimized fixation, permeabilization, and assay buffers to provide researchers with a complete solution for Akt signaling analysis. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide statistical values, measuring the:

- Percentage of inactivated cells
- Percentage of activated cells (via phosphorylation)
- Percentage of non-expressing cells

Figure 7 **Figure 7A**

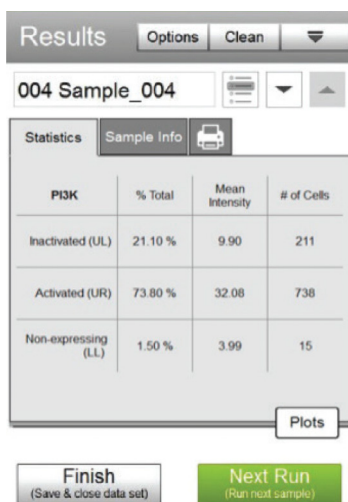


Figure 7B

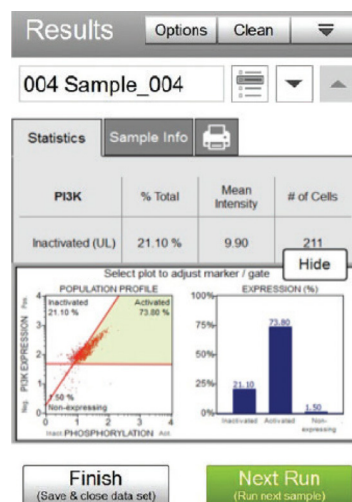


Figure 7: NIH3T3 cells were exposed to 50 ng/mL PDGF for 5 minutes at 37°C to activate the Akt signaling cascade response, fixed, permeabilized, and then stained with the Muse PI3K Activation Dual Detection Kit and analyzed on the Cytek Guava Muse cell analyzer. **Figure 7A** shows the results summary, while **Figure 7B** shows results displayed by both dot plot and bar graph data. The statistics captured in this assay show the relative percentages for each population as it is calculated within the total cell population. Cells which express Akt can be seen by the data on the top two quadrants of the dot plot (inactivated and activated), representing about 94.9% of the total cell population. But of this cell population, 73.8% is activated upon treatment, confirming the activation of the Akt signaling pathway in stimulated NIH3T3 cells. By presentation of both datasets, one can now determine the total: phospho ratio within their testing samples.

Cell Signaling Kits

Muse MAPK Activation Dual Detection Assay Kit (50 Tests) (Part Number: MCH200104)

The **Muse MAPK Activation Dual Detection Kit** is part of a series of products that includes a pair of antibodies which bind to the same protein; one antibody detects total protein expression and the other detects the phosphorylated form of the same target. Two-parameter analysis allows for specific detection of phosphorylation and eliminates false positives, enhancing the signal-to-noise ratio.

The **Muse MAPK Activation Dual Detection Kit** includes two directly conjugated antibodies—a phospho-specific anti-phospho-ERK1/2 (Thr202/Tyr204, Thr185/Tyr187)-Phycoerythrin and an anti-ERK1/2-PECy5 conjugated antibody—to measure total levels of ERK. This two-color kit is designed to measure MAPK phosphorylation relative to the total MAPK expression in any given cell population. By doing this, the levels of both the total and phosphorylated protein can be measured simultaneously in the same cell, resulting in a normalized and accurate measurement of MAPK activation after stimulation. Further, simultaneous measurement of both total and phospho-ERK1/2 confirms target specificity of the phosphorylation event. Together, a total and phospho antibody duo performed in multiplex provides enhanced and more reliable detection of the phospho:total ratio within a mixed population.

This kit contains optimized fixation, permeabilization, and assay buffers to provide researchers with a complete solution for MAPK signaling analysis. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide statistical values, measuring the:

- Percentage of inactivated cells
- Percentage of activated cells (via phosphorylation)
- Percentage of non-expressing cells

Muse Bcl-2 Activation Dual Detection Kit (50 Tests) (Part Number: MCH200105)

The **Muse Bcl-2 Activation Dual Detection Kit** is part of a series of products that includes a pair of antibodies which bind to the same protein; one antibody detects total protein expression and the other detects the phosphorylated form of the same target. Two-parameter analysis allows for specific detection of phosphorylation and eliminates false positives, enhancing the signal-to-noise ratio.

The **Muse Bcl-2 Activation Dual Detection Kit** includes two directly conjugated antibodies—a phospho-specific anti-phospho-Bcl-2 (Ser70)-Alexa Fluor® 555 and an anti-Bcl-2-PECy5 conjugated antibody—to measure total levels of Bcl-2 expression. This two-color kit is designed to detect Bcl-2 pathway activation by measuring Bcl-2 phosphorylation relative to the total Bcl-2 expression in any given cell population. By doing this, the levels of both the total and phosphorylated protein can be measured simultaneously in the same cell, resulting in a normalized and accurate measurement of Bcl-2 activation after treatment. Moreover, simultaneous measurement of both total and phospho-Bcl-2 confirms target specificity of the phosphorylation event. Together, a total and phospho antibody duo performed in multiplex provides enhanced and more reliable detection of the phospho:total ratio within a mixed cell population.

This kit contains optimized fixation, permeabilization, and assay buffers to provide researchers with a complete solution for Bcl-2 signaling analysis. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide statistical values, measuring the:

- Percentage of inactivated cells
- Percentage of activated cells (via phosphorylation)
- Percentage of non-expressing cells

Muse Multi-Color DNA Damage Kit (50 Tests) (Part Number: MCH200107)

The **Muse Multi-Color DNA Damage Kit** is designed to enable researchers to have a quick and easy way to detect the activation of ATM and H2A.X using the **Cytek Guava Muse** and **Cytek Muse Micro** systems. The kit was optimized using a DNA damaging reagent, Etoposide, on HeLa cells as a model system, but can be used with other human cell lines to investigate both the physical and chemical factors that can induce a DNA damage response through the ATM-dependent signaling pathway. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide statistical values, measuring the:

- Percentage of negative cells (e.g., no DNA damage)
- Percentage of ATM activated cells
- Percentage of H2A.X activated cells
- Percentage of DNA double-strand breaks (dual activation of both ATM and H2A.X)

The **Muse Multi-Color DNA Damage Kit** includes two directly conjugated antibodies—a phospho-specific ATM (Ser1981)-PE and a phospho-specific histone H2A.X PECy5 conjugated antibody—to measure the extent of DNA damage in testing samples. This two-color kit is designed to detect the phosphorylation state of ATM and histone H2A.X simultaneously by flow analysis. Together, two-color analysis of ATM and histone H2A.X activation in multiplex provides a more reliable detection method for assessing the DNA damage signaling pathway.

This antibody pair provides a sensitive and valuable tool to study the factors that induce DNA damage and affect DNA repair, allowing exploration of the relationship between DNA damage, cell cycle checkpoints, and initiation of apoptosis. Both antibodies provided in the kit are carefully titrated and optimized together to ensure exceptional performance when run in multiplex, alleviating the need for any additional optimization. This kit contains optimized fixation, permeabilization, and assay buffers to provide researchers with a complete solution for DNA damage signaling analysis.

Muse PI3K/MAPK Dual Pathway Activation Kit (50 Tests) (Part Number: MCH200108)

The **Muse PI3K/MAPK Dual Pathway Activation Kit** is designed to enable researchers to have a quick and easy way to cross-examine both the PI3K and MAPK signaling pathways simultaneously. Recent evidence suggests that there is cross-talk between the PI3K and the MAPK signaling pathways, therefore, antibodies for phosphorylated Akt (pAkt) and phosphorylated ERK (pERK) can be used to examine PI3K/MAPK interactions. Data generated using the **Cytek Guava Muse** and **Cytek Muse Micro** systems provide statistical values, measuring the:

- Percentage of negative cells (e.g., no DNA damage)
- Percentage of ATM activated cells
- Percentage of H2A.X activated cells
- Percentage of DNA double-strand breaks (dual activation of both ATM and H2A.X)

The **Muse PI3K/MAPK Dual Pathway Activation Kit** includes two directly conjugated antibodies—a phospho-specific Akt (Ser473)-Alexa Fluor® 555 and a phospho-specific ERK1/2 (Thr202/Tyr204, Thr185/Tyr187)-PECy5 conjugated antibody—to assess the activation of both the PI3K and MAPK signaling pathways simultaneously in testing samples. Together, two-color analysis of Akt and ERK1/2 activation in multiplex provides a reliable detection method for assessing the interactions and possible cross-talk activities for these two key signaling pathways.

Both antibodies provided in the kit are carefully titrated and optimized together to ensure exceptional performance when run in multiplex, alleviating the need for any additional optimization. This kit contains optimized fixation, permeabilization, and assay buffers to provide researchers with a complete solution for PI3K and MAPK cell signaling analysis.

Ordering Information

Description	Part Number
Instrument Calibration And Maintenance Reagents	
Muse System Check Kit	MCH100101
Guava Instrument Cleaning Fluid (ICF)	4200-0140
Cell Count & Viability	
Muse Count & Viability Kit (40 mL)	MCH100102
Muse Count & Viability Reagent (240 mL)	MCH600103
Muse Count & Viability Kit 200X (100 tests)	MCH100104
Muse Cell Dispersal Reagent (100 tests)	MCH100107
Cell Health	
Muse Annexin V & Dead Cell Kit (100 tests)	MCH100105
Muse Cell Cycle Kit (100 tests)	MCH100106
Muse Caspase-3/7 Kit (100 tests)	MCH100108
Muse MultiCaspase Kit (100 tests)	MCH100109
Muse Autophagy LC3-Antibody Based Kit (50 tests)	MCH200109
Muse MitoPotential Kit (100 tests)	MCH100110
Muse Oxidative Stress Kit (100 tests)	MCH100111
Muse Nitric Oxide Kit (100 tests)	MCH100112
Muse Ki67 Proliferation Kit (100 tests)	MCH100114

Description	Part Number
Immunology	
Muse Human CD4 T Cell Kit (100 tests)	MIM100101
Muse Human CD8 T Cell Kit (100 tests)	MIM100102
Muse Human B Cell Kit (100 tests)	MIM100103
Cell Signaling	
Muse H2A.X Activation Dual Detection Kit (50 tests)	MCH200101
Muse EGFR-RTK Activation Dual Detection Kit (50 tests)	MCH200102
Muse PI3K Activation Dual Detection Kit (50 tests)	MCH200103
Muse MAPK Activation Dual Detection Kit (50 tests)	MCH200104
Muse Bcl-2 Activation Dual Detection Kit (50 tests)	MCH200105
Muse Multi-Color DNA Damage Kit (50 tests)	MCH200107
Muse PI3K/MAPK Dual Pathway Activation Kit (50 tests)	MCH200108

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