Cell-ATP Viability Detection Kit

Cat. No. KITG-153 **Lot. No.** (See product label)

SPECIFICATION

Product Overview	The Cell-ATP Viability Detection Kit is used for detecting the number and viability of living cells in culture based on high-sensitivity bioluminescence detection technology of the ATP present. Compared with MTT and CCK8 assays, this kit has the advantages of higher sensitivity, signal stability and saving cell consumption. The homogeneous detection operation scheme of "Add-Mix-Measure" avoids the need for cell washing, medium removal and multi-step sample addition required by similar detection products. The kit provides a more efficient and convenient solution for high-throughput screening of cell proliferation and toxicity analysis.
Species	Mammalian cells
Description	Description ATP is an important index of cell metabolism which has a good linear relationship with the number of living cells. The principle of ATP bioluminescence technology is as follows: luciferase uses luciferin, adenosine triphosphate (ATP) and O_2 as substrates, and converts chemical energy into light energy in the presence of Mg^{2+}. In the luminescence reaction catalyzed by luciferase, the concentration of ATP is linearly related to luminescence intensity within a certain concentration range. The amount of ATP is directly proportional to the number of cells present. Based on this, the Cell-ATP Viability Detection Kit can be used for cell counting or viability determination by ATP content. The homogeneous detection operation scheme of the Cell-ATP assay is "Add-Mix-Measure", which avoids the need for cell washing, medium removal and multi-step sample addition and other operations using similar detection products. Compared with MTT and CCK8, the kit has the advantages of higher sensitivity, signal stability and saving cell

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consumption. The reagent is compatible with commonly used media for cell culture, such as RPMI 1640, MEM, DMEM and Ham's F12, and is not affected by phenol red and organic solvents. The kit provides a more efficient and convenient solution for high-throughput screening of cell proliferation and toxicity analysis. Scientific Background ATP is an important index of cell metabolism which has a good linear relationship with the number of living cells. The principle of ATP bioluminescence technology is as follows: luciferase uses luciferin, adenosine triphosphate (ATP) and O_2 as substrates, and converts chemical energy into light energy in the presence of Mg^{2+}. In the luminescence reaction catalyzed by luciferase, the concentration of ATP is linearly related to luminescence intensity within a certain concentration range. The amount of ATP is directly proportional to the number of cells present. Kit Components Cell-ATP Viability Detection Reagent Size: 10 mL / 100 mL / 500 mL Materials Required but Not Supplied Opaque-walled multi-well plates (white or black 96-well plate or 384-well plate) compatible with the luminometer used Luminometer (luminescence measuring instrument, CCD camera or imaging device) Compatible Sample Types Mammalian cells in culture medium. The reagent is compatible with commonly used media for cell culture, such as RPMI 1640, MEM, DMEM and Ham's F12, and is not affected by phenol red and organic solvents. Features & Benefits Homogeneous: "Add-Mix-Measure" format reduces the number of plate-handling steps to fewer than that required for similar ATP assays Fast: Data can be recorded 10 minutes after adding the Cell-ATP Viability Detection Reagent Sensitive: Measures cells at numbers below the detection limits of standard colorimetric and fluorometric assays Sample saving: The number of cells required for a single detection reaction is small Stability: Stable luminous signal Flexible: Suitable for various multi-well plates. Data can be recorded by luminescence measurement or CCD camera or imaging device

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Applications	Cell counting Cell viability determination High-throughput screening of cell proliferation Cell toxicity analysis
Notes	1. Aliquot the stock solution to routine usage volumes and store at -20°C. 2. Repeated freezing and thawing may cause a small amount of precipitation in the reagent. If residues remain after equilibration, they may be removed by centrifugation. 3. Please use a white or black multi-well plate (96-well plate or 384-well plate). Mutual interference may occur between adjacent wells of an ordinary transparent multi-well plate. 4. If the solvent content of the drug under test is high, the luciferase reaction and the light signal may be interfered. The control well of cell culture medium containing solvent can be set up to eliminate this interference. This product is for R&D use only, not for drug, household, or other uses. For your safety and health, please wear a lab coat and disposable gloves. Keywords: ATP; cell viability; cell counting; bioluminescence; luciferase; cell proliferation; cytotoxicity
Storage	-20°C, one year. Keep away from light.
Reaction conditions	Bioluminescence (luciferase/luciferin ATP detection)
Usage	Sample Preparation Cell Preparation: 1. Perform a titration of particular cells to determine the optimal number and ensure that the working is within the linear range of the Cell-ATP Viability Detection assay. 2. Prepare opaque-walled multi-well plates with mammalian cells in culture medium, 100 µL per well for the 96-well plate (the cell number ≤ 5×10^4). 3. Prepare control wells containing medium without cells to obtain a value for background luminescence. Note: a) The number of inoculated cells varies with different well plates used for detection (e.g., 25 µL per well for the 384-well plates; the cell number ≤ 1×10^4). b) If drug treatment is needed, set up a negative control. If the solvent content of the drug under test is high, the luciferase reaction and the light signal may be interfered. The control well of cell culture medium containing solvent can be set up to eliminate this interference. c) Set up a cell concentration gradient during assay to

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determine the optimal conditions for Cell-ATP Viability Detection. Preparation Thaw the Cell-ATP Viability Detection Reagent. The reagent and the cells should be equilibrated to room temperature prior to use. Aliquot the stock solution to routine usage volumes and store at -20°C. Take an appropriate amount of Cell-ATP Viability Detection Reagent and equilibrate to room temperature (e.g., 100 µL per well for a 96-well plate, or 25 µL per well for a 384-well plate). Assay Protocol 1. Equilibrate the plate for 10 minutes at room temperature (note: no more than 30 minutes). 2. Add 100 µL Cell-ATP Viability Detection Reagent per well for the 96-well plate (or add 25 µL Cell-ATP Viability Detection Reagent per well for the 384-well plate). 3. Mix the reagent and the cells gently for about 2 minutes. 4. Incubate for 10 minutes at room temperature to stabilize the luminescent signal. Note: Temperature gradients, uneven seeding of cells or edge effects in multi-well plates may cause the uneven luminescent signal. 5. Record luminescence. An integration time of 0.25 second per well should serve as a guideline. 6. Calculate the relative viability of the cells directly from the chemiluminescence readings, or calculate the amount of ATP from the standard curve. Note: Different types and growth states of the cells may affect the detection results. Assay Time 10 minutes after adding the Cell-ATP Viability Detection Reagent (data can be recorded 10 minutes after adding the reagent) Analysis Record luminescence with an integration time of 0.25 second per well as a guideline. Calculate the relative viability of the cells directly from the chemiluminescence readings, or calculate the amount of ATP from the standard curve. Data can be recorded by luminescence measurement or CCD camera or imaging device. Note: Different types and growth states of the cells may affect the detection results.

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