bioGenous™ Organoid Viability ATP Assay Kit

Catalog: E238003

Product Description

ATP, as a crucial energy molecule, reflects the metabolic level of living cells. Under both 2D and organoid culture conditions, ATP content shows a strong linear relationship with the number of living cells. Therefore, ATP quantification can be used to assess the number of living cells in organoids. bioGenous™ Organoid Viability ATP Assay Kit is specially designed for microtissue detection in organoids, based on 2D cell viability assay reagents. bioGenous™ Organoid Viability ATP Assay Kit is widely applicable for cell viability assays in various organoid samples, such as organoids and 3D tumor spheroids. Testing has shown that this product has enhanced lysis capability when used for cell viability detection in organoid cultures. For 3D microtissues cultured in Matrigel, it allows direct detection without the need to remove the Matrigel.

bioGenous™ Organoid Viability ATP Assay Kit contains recombinant luciferase and luciferin, which can be directly added to the culture system for detection. The assay reagent automatically lyses the cells, releasing ATP from viable cells into the system, where it reacts with luciferase. The resulting chemiluminescence is proportional to the number of living cells in the system.

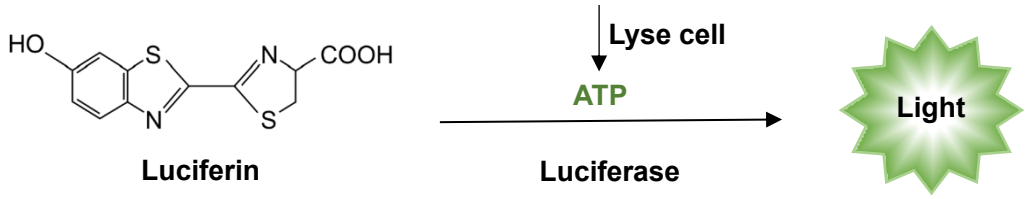

Figure 1. Detection Principle

Product Information

Component	Catalog#	Volume	Storage& Stability
bioGenous™ Organoid Viability ATP Assay Kit	E238003	10 mL/50 mL	-20°C, 36 months

Product Features

bioGenous™ Organoid Viability ATP Assay Kit is highly stable, maintaining over 90% activity when stored at 4° C for 3-5 days or at room temperature (22-25°C) for 12 hours. Testing has shown that the reagent can withstand three additional freeze-thaw cycles after the initial thaw without significant loss of activity. The chemiluminescence is of the glow type, with a sustained signal and a half-life of up to 3 hours. This product is a ready-to-use reagent, requiring only three simple steps: add-mix-measure, to complete the assay. bioGenous™ Organoid Viability ATP Assay Kit is suitable for high-throughput cell proliferation and cytotoxicity assays, as well as viability assays of organoids cultured in various methods, including organoids embedded in bioGenous™ Organoid Culture ECM (M315066), ultra-low attachment cell cultures, and hanging drop 3D cell culture systems.

Precautions

1. Medium composition variability: different culture media may have varying chemical compositions. Therefore, when using different types of media and serum, the luminescence intensity and decay rate may vary. Additionally, solvents introduced during compound treatment of cell aggregates may also affect the luminescence signal. It is recommended that setting up a blank control experiment with cell-free culture medium.
2. Microbial contamination: microbial contamination in the environment can introduce exogenous ATP, leading to elevated background signals. To minimize this risk, wear masks and latex gloves during operation, keep the workbench clean, and handle plate lids carefully.
3. ATP contamination: due to the risk of ATP contamination, handle the reagent with caution during aliquoting, and minimize the number of freeze-thaw cycles.
4. This product is for research use only. For your safety and health, wear a lab coat and disposable gloves before use.

Preparation of Materials and Reagents

1. Laboratory Equipment
   Single-channel/multi-channel pipettes; 3D microtissue culture multi-well plates; Multi-well plate shaker; Microplate reader (with luminescence detection module)

2. Reagents

   Thawing: place the reagent in a 4°C refrigerator overnight to thaw.

   Rewarming: before use, place the reagent in a water bath at 22-25°C to equilibrate to room temperature.

   Mixing: gently invert the reagent several times to mix thoroughly before use.

Directions for Use

Experimental procedure for organoid detection:

1. Remove the culture plate from the incubator and place it at room temperature for 10 min to allow the plate to equilibrate to room temperature.
   ***Note**: To ensure consistency in results, make sure both the culture plate and detection reagents have fully equilibrated to room temperature before use, especially when working with large batches. Failure to do so may cause uneven temperature across the plate, leading to gradient effects between the center and edge wells. Edge effects can cause unstable luminescence signals, it is recommended not to plate samples in edge wells.*

2. Add the room-temperature equilibrated detection reagent to the culture plate in 1:1 volume ratio. For a 96-well plate, add 100 µL of detection reagent to each well containing 100 µL of medium in organoid culture system (without removing ECM or Matrigel).
   ***Note**: Ensure sufficient sample volume remains in each well to allow for proper mixing, preventing cross-contamination between wells. For 96-well plates, there is a strong linear relationship between 100 and 100,000 cells. However, the upper limit may vary for different cell types. It is recommended that cell quantities per well*

in a 96-well plate not exceed 100,000 cells and in a 384-well plate not exceed 20,000 cells.

3. Use a microplate reader to perform vigorous linear shaking (1000 rpm) for 5 min to ensure thorough cell lysis. Place the plate at room temperature for 20 min, then measure the chemiluminescent signal.
   ***Note**: Ensure proper mixing of the reagent and organoid samples for complete cell lysis to achieve optimal results. If cell lysis is insufficient, causing uneven luminescence between wells, consider increasing the shaking speed or extending the incubation time for optimization.*
4. Measure the chemiluminescence and analyze the relative viability of the organoids based on the luminescence readings.
   ***Note**: Adjust parameters according to the instrument's requirements. The recommended detection wavelength is 560 nm, and the suggested detection time per well is 0.25 to 1 second. Temperature gradients, uneven cell seeding, or edge effects in multi-well plates may cause variations in luminescence signals within the plate.*

Quality Control

All components are negative for bacterial and fungal contamination. Certificate of authenticity (COAs) for all other products are available upon request.

Safety Information

Read the Safety Data Sheets (SDSs) and follow the manufacture's instruction.

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Contact and Support

For questions, suggestions, and technical supports, please contact us at E-mail: info@biogenous.cn.

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