

ATP Biomass Kit HS

Measurement of total ATP (extra- plus intracellular) in virtually all types of samples



- Fast assay: Results within minutes
- Detection limit: 10^{-17} mol ATP (~ 5 bacteria)
- Reliable: ATP standard in liquid form
- Flexible: Choice of μ -plate & cuvette methods
- Efficient extractant: Animal & microbial cells

Leader in luminescent
ATP-assays

BioThema
LUMINESCENT ASSAYS

The logo graphic for BioThema features a stylized yellow test tube with a white cap, positioned vertically and slightly tilted to the right. The test tube is set against a grey, curved background element that resembles a shadow or a swoosh.

ATP Biomass Kit HS

Intended use

This kit is intended for determination of total ATP (extra- plus intracellular) in samples containing living cells. For determination of intracellular ATP one should consider using 266-111 Intracellular ATP Kit HS or 266-112 Microbial ATP Kit HS. For cell proliferation/cytotoxicity studies please, consider 155-051 Cellular ATP Kit HS. All living cells contain ATP where it plays the role of energy currency between different cellular processes. The intra-cellular concentration of ATP is carefully regulated to similar levels in all types of cells. ATP is therefore a good estimate of the total intracellular volume. Most bacterial cells contain approx. 2×10^{-18} mol ATP per cell, while most eukaryotic cells, as a result of their larger size, contain 10^{-15} mol ATP or more. The detection limit of the reagent is 10×10^{-18} mol ATP with a sensitive luminometer.

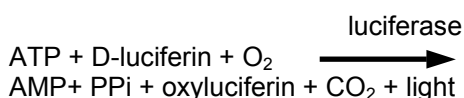
Applications

The sensitivity of this kit allows determination of low ATP levels in a variety of circumstances provided extracellular ATP is not a problem:

1. Bacteriological control of liquids (e. g. drinking water, process water, beverages and beer)
2. Pharmaceuticals and cosmetics
3. Cell adhesion to surfaces
4. Quality assurance of laundry
5. Bacterial growth
6. Antibiotic effects on bacteria

Assay principles

Before the assay, ATP is released from the cell using Extractant B/S. ATP is assayed using ATP reagent HS.



The intensity of the light is proportional to the amount of ATP and is measured in a luminometer. The light emission is measured before and after addition of a known amount of ATP standard. This makes it possible to calculate the amount of ATP in unknown samples expressing the result in pmol (10^{-12} mol).

Instruments

Any tube or microplate luminometer can be used. It should be noted that tube luminometers are about one order of magnitude more sensitive. If a microplate luminometer is used it should have minimum two dispensers and should be able to mix the microplate.

Kit contents

The kit contains reagents for 150-375 assays (each vial of ATP Reagent HS is sufficient for 25 assays in a tube luminometer and 62.5 assays in a microplate luminometer).

1. ATP Reagent HS (6 vials). Lyophilised reagent containing luciferase and luciferin. The luciferase activity in the reconstituted reagent consumes ATP at a rate of approx. 6%/min.
2. Diluent B 10 mL (6 vials). Buffer used to reconstitute ATP Reagent HS.
3. Extractant B/S 10 mL (3 vials).
4. ATP standard 5 mL (1 vial; 10^{-7} mol/L ATP).

Assay procedure using internal ATP Standard

- 1 Add 20-50 μL Extractant B/S to a cuvette.
- 2 Add 20-50 μL sample to the cuvette.
- 3 Add 160-400 μL reconstituted ATP Reagent HS and measure light emission, I_{smp} .
- 4 Add 10 μL 10^{-7} mol/L ATP Standard, i. e. 1 pmol ATP, and measure light emission, $I_{\text{smp}+\text{std}}$.

Calculations:

Calculate amount of ATP (pmol) in the sample by the equation:

$$\text{ATP}_{\text{smp}} = I_{\text{smp}} / (I_{\text{smp}+\text{std}} - I_{\text{smp}})$$

Product characteristics

Sensitivity: 10^{-17} mol ATP

ATP consumption (decay rate of light): 6 %/min

No. of determinations (tubes): 150

No. of determinations (microplate): 375

Ordering info

Article No: 266-311

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