**Overview**

**Product name**  ATP Assay Kit (Colorimetric/Fluorometric)

**Detection method**  Colorimetric/Fluorometric

**Sample type**  Urine, Serum, Plasma, Other biological fluids, Tissue Extracts, Cell Lysate

**Assay type**  Quantitative

**Sensitivity**  < 1 µM

**Assay time**  1h 00m

**Product overview**  ATP Assay Kit (Colorimetric/Fluorometric) (ab83355) use a robust, simple method; the ATP assay protocol relies on the phosphorylation of glycerol to generate a product that is easily quantified by colorimetric (ODmax = 570 nm) or fluorometric (Ex/Em = 535/587 nm) methods. This kit can detect as low as 1 µM of ATP in various samples.

ATP assay protocol summary:
- add samples (deproteinized) and standards to wells
- add reaction mix and incubate for 30 min at room temp
- analyze with microplate reader

If you require a more sensitive product, we recommend Luminescent ATP Detection Assay Kit (ab113849), which can detect as low as 1 pM of ATP.

**Notes**

**Related assays**

Review the cell health assay guide to learn about kits to perform a cell viability assay, cytotoxicity assay and cell proliferation assay.

Review the metabolism assay guide to learn about assays for metabolites, metabolic enzymes, mitochondrial function, and oxidative stress, and also about how to assay metabolic function in live cells using your plate reader.

**How other researchers have used ATP Assay Kit ab83355**

This ATP assay kit has been used in publications in a variety of sample types, including:
- Human: cell culture lysates\(^1\), primary monocyte cell culture lysates\(^2\), HCT116 cell culture supernatants\(^3\)
- Mouse: heart tissue\(^4\), liver\(^5\), C2C12 and L929 cell lysates\(^6\), primary thymocyte cell culture lysates\(^7\), cardiac tissue\(^8\)
- Rat: primary hippocampal neuron cell culture lysates\(^9\), liver tissue\(^10\), skeletal muscle\(^11\)
- Pig: kidney cell culture lysates\(^1\), heart tissue\(^{13}\)
- C. elegans tissue\(^{14}\)
- Chlamydomonas reinhardtii algae\(^{15}\)


Platform
Microplate reader

Storage instructions
Store at -20°C. Please refer to protocols.

<table>
<thead>
<tr>
<th>Components</th>
<th>Identifier</th>
<th>100 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATP Assay Buffer</td>
<td>WM</td>
<td>1 x 25ml</td>
</tr>
<tr>
<td>ATP Converter (lyophilized)</td>
<td>Blue</td>
<td>1 vial</td>
</tr>
<tr>
<td>ATP Probe (in DMSO)</td>
<td>Red</td>
<td>1 x 200µl</td>
</tr>
<tr>
<td>ATP Standard (1 µmol; lyophilized)</td>
<td>Yellow</td>
<td>1 vial</td>
</tr>
<tr>
<td>Developer Mix (lyophilized)</td>
<td>Green</td>
<td>1 vial</td>
</tr>
</tbody>
</table>

Images

Ab83355 was used to determine ATP levels in rat pancreas islets as an ischemic marker to predict transplantation outcomes. We extracted ATP from fresh pancreas that have undergone different times of cold ischemia: 0, 2, 4, 6, 8, and 10h and in situ. ATP were extracted in Perchloric acid (PCA-2M) and grind using a Polytron. PCA were removed using potassium hydroxide (KOH – 2M) and pH was adjusted around 7-8. Samples were conserved at -80°C before utilization.

ATP levels in Pancreatic Islet
Image courtesy of Mrs. Fotini Mouth
Maiti AK et al (2018) used ATP assay kit ab83355 to measure mitochondrial ATP generation in an *in vitro* mouse intestinal model treated with cytokines in the presence and absence of VIP (vasoactive intestinal peptide). VIP was induced by *C. rodentium* infection and cytokines.

The chart shows a comparison of ATP levels of HepG2 treated with 0, 10 and 100 µM for 48 hours, DR (*damage recovered* cells using hydrogen peroxide with a recovery time of one week) HepG2 cells and MDA-MB-231 cells treated with 0, 10 and 100 µM of NaHS for 48 hours. Data is shown as percent of ATP levels in untreated cells. ATP levels were determined using ATP assay kit (ab83355).
MCF-7 cells are transfected with vector, osteopontin-a, osteopontin-c or osteopontin-a plus -c. Cells are plated on poly-HEMA and seeded at $4 \times 10^5$ cells per well and incubated for two days under standard culture conditions. ATP levels are measured using ATP assay kit (ab83355).

Example of fluorometric ATP assay standard curve.

\[
y = 883.3x - 37.23
\]
Maiti AK et al. (2015) used ATP assay kit ab113852 to measure mitochondrial ATP generation in murine distal colon after C. rodentium infection.

Example of colorimetric ATP assay standard curve.

Quantitation of ATP in fish liver (2.5µl of 10 times diluted sample), fish muscle (5µl of 10 times diluted sample) and Jurkat cell lysate (5 ul) using fluorometric assay. Samples were spiked with known amounts of ATP (300pmol).

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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