

## Product datasheet

# ADP/ATP Ratio Assay Kit (Bioluminescent) ab65313

★★★★★ 2 Abreviews 51 References 3 Images

### Overview

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<b>Product name</b>	ADP/ATP Ratio Assay Kit (Bioluminescent)
<b>Detection method</b>	Luminescent
<b>Sample type</b>	Tissue, Adherent cells, Suspension cells
<b>Assay type</b>	Semi-quantitative
<b>Sensitivity</b>	< 100 cells/well
<b>Assay time</b>	0h 30m
<b>Product overview</b>	ADP/ATP Ratio Assay Kit (Bioluminescent) ab65313 is based on the bioluminescent detection of ADP and ATP levels. It can be used for a rapid screening of apoptosis, necrosis, growth arrest, and cell proliferation simultaneously in mammalian cells.

In the ADP/ATP assay protocol, luciferase catalyzes the conversion of ATP and luciferin to light, which in turn can be measured using a luminometer or Beta Counter. The ADP level is measured by its conversion to ATP that is subsequently detected using the same reaction.

The assay can be fully automatic for high throughput and is highly sensitive (detects 100 mammalian cells/well).

ADP/ATP Ratio assay protocol summary:

- transfer suspension cells, or nucleotide releasing buffer treated adherent cells, to plate
- add ATP reaction mix and incubate for 2 min
- analyze with luminescence plate reader to measure ATP
- after preparing ADP reaction mix and measuring luminescence levels again, add ADP reaction mix to same wells and incubate for 2 min
- analyze with luminescence plate reader to measure ADP

**Notes** Changes in the ADP/ATP ratio have been used to differentiate the different modes of cell death and viability. Increased levels of ATP and decreased levels of ADP have been recognized in proliferating cells. In contrast, decreased levels of ATP and increased levels of ADP are recognized in apoptotic cells. The decrease in ATP and increase in ADP are much more pronounced in necrosis than apoptosis.

#### 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.

## Platform

Microplate reader

## Properties

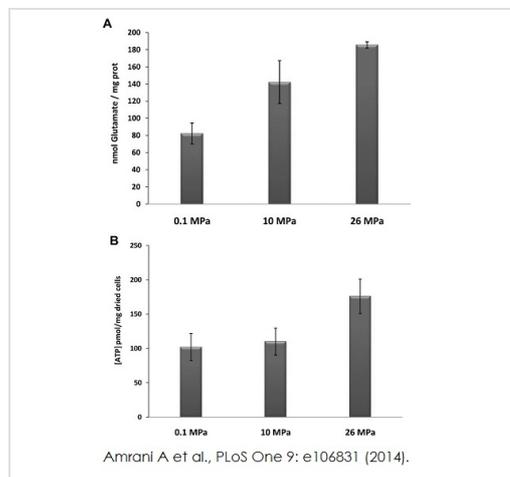
**Storage instructions** Store at -20°C. Please refer to protocols.

Components	Identifier	200 tests
ADP Converting Enzyme (Lyophilised)	Blue Cap	1 vial
ATP Monitoring Enzyme (Lyophilised)		1 vial
Enzyme Reconstitution Buffer		1 x 2.15ml
Nucleotide Releasing Buffer		1 x 50ml

## Relevance

The changes in ADP/ATP ratio have been used to differentiate the different modes of cell death and viability. Increased levels of ATP and decreased levels of ADP have been recognized in proliferating cells. In contrast, decreased levels of ATP and increased levels of ADP are recognized in apoptotic cells. The decrease in ATP and increase in ADP are much more pronounced in necrosis than apoptosis.

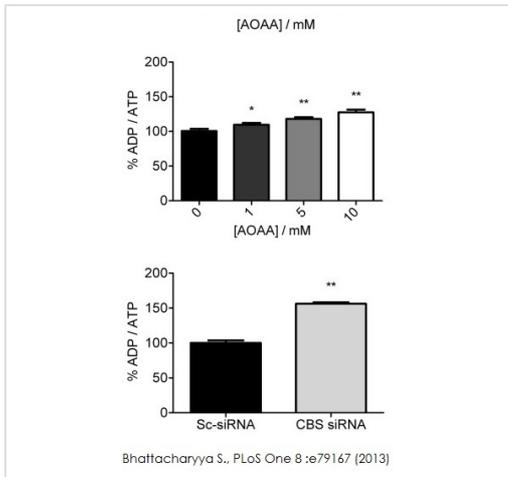
## Images



Quantitation of glutamate levels (A) using [ab138883](#) and intracellular ATP (B) using [ab65313](#) in *D. hydrothermalis* cells grown under different pressure conditions.

### Functional studies - ab65313

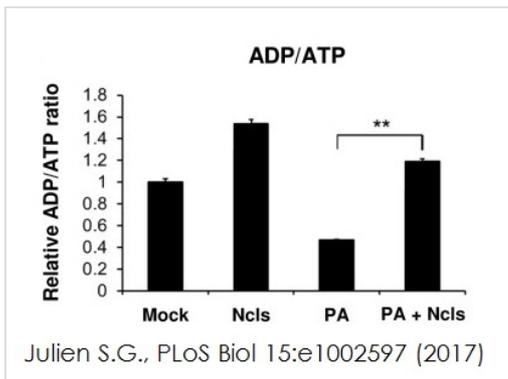
Image from Amrani A et al., PLoS One 9(9). Fig 5A doi: 10.1371/journal.pone.0106831 Reproduced under the Creative Commons license <http://creativecommons.org/licenses/by/4.0/>



ADP/ATP ratio in cystathionine-beta-synthase silenced A2780 (Ovarian cancer cell line) cells and AOAA (aminooxyacetic acid) treated A2780 cells were measured using ADP/ATP ratio assay kit (ab65313).

Functional studies - ab65313

Bhattacharyya S., PLoS One 8(11), Fig 5d & f. doi: 10.1371/journal.pone.0079167 Reproduced under the Creative Commons license <http://creativecommons.org/licenses/by/4.0/>



ADP/ATP ratio were examined in both narciclasine (ncls) and vehicle (veh) treated C2C12 myotubes with or without PA treatment using ADP/ATP ratio assay kit (ab65313).

Functional studies - ab65313

Image from Julien S.G., PLoS Biol 15(2), Fig 8C. doi: 10.1371/journal.pbio.1002597. Reproduced under the Creative Commons license <http://creativecommons.org/licenses/by/4.0/>

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