

Product datasheet

L-Lactate Assay Kit (Colorimetric) ab65331

★★★★★ 2 Abreviews 107 References 5 Images

Overview

Product name	L-Lactate Assay Kit (Colorimetric)
Detection method	Colorimetric
Sample type	Cell culture supernatant, Urine, Serum, Plasma, Other biological fluids, Cell Lysate, Tissue Lysate
Assay type	Quantitative
Sensitivity	0.02 mM
Range	0.02 mM - 10 mM
Assay time	0h 30m
Product overview	L-Lactate Assay Kit (Colorimetric) (ab65331) uses an assay protocol where lactate is oxidized by lactate dehydrogenase to generate a product which interacts with a probe to produce a color ($\lambda_{max} = 450 \text{ nm}$).

The kit detects L(+)-Lactate in biological samples such as serum or plasma, cells, tissues, cell culture and fermentation media.

Lactate assay protocol summary:

- add samples and standards to wells
- add reaction mix and incubate for 30 min at room temp
- analyze with microplate reader

Notes L(+)-Lactate is the major stereo-isomer of lactate formed in human intermediary metabolism and is present in blood. D(-)-Lactate is also present (see [D-Lactate assay kits](#)) but only at about 1-5% of the concentration of L(+)-Lactate.

L-Lactate assay kit ab65331 is our most popular L-Lactate assay kit (colorimetric 450nm, range 0.02 mM - 10 mM). Alternative L-Lactate assay kits offer different readout modes/wavelengths and sensitivity/range:

- [L-Lactate assay ab65330](#): colorimetric 570 nm, fluorometric Ex/Em 535/587 nm, range 0.001 mM - 10 mM
- [L-Lactate assay ab169557](#): fluorometric Ex/Em 535/587 nm, range 0.2 μM - 50 μM

Review our [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 L-Lactate Assay Kit ab65331

This Lactate assay kit has been used in publications in a variety of sample types, including:

- Human: THP-1 cell lysates¹, MDA-MB-231 and HepG2 cell culture lysates², cell culture supernatant (HepG2, A549, Huh7, PC3, LN229, HeLa)³, brain tissue⁴
- Mouse: brown adipose tissue lysate⁵, thymic lymphoma tissue⁶, cell culture supernatant⁷, T cell primary cell culture supernatants⁸, serum⁹, serum and muscle¹⁰
- Bovine: cumulus cell culture supernatant¹¹

References: 1 - Tran UT and Kitami T 2019; 2 - Cui J et al 2019; 3 - Rodriguez ML et al 2018, Chen Y et al 2018, Zhang D et al 2018, Caino MC et al 2017, Birkenmeier K et al 2015; 4 - Sullivan RC et al 2019; 5 - Jeong JH et al 2018; 6 - Vara-Ciruelos D et al 2019; 7 - Fiorenzano et al 2016; 8 - Menk AV et al 2018; 9 - Deng W et al 2019, Guglielmetti C et al 2017, Kang R et al 2016; 10 - Kim HY et al 2016; 11 - Sinha et al 2017

Platform Microplate reader

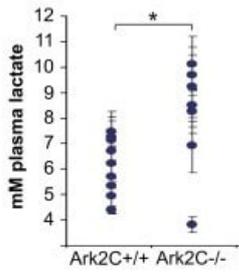
Properties

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

Components	Identifier	100 tests
L(+)-Lactate Standard (100 nmol/μl)	Yellow	1 x 100μl
Lactate Assay Buffer	WM	1 x 25ml
Lactate Enzyme Mix (lyophilized)	Green	1 vial
Lactate Substrate Mix	Red	1 vial

Relevance Lactate (CH₃CH(OH)COO⁻) plays important roles in many biological processes. Abnormal high concentration of lactate has been related to disease states such as diabetes and lactate acidosis, etc. L(+)-Lactate is the major stereoisomer of lactate formed in human intermediary metabolism and is present in blood. The lactate to pyruvate ratio reflects the redox state of the cell and describes the balance between NAD⁺ and NADH, which is dependent on the interconversion of lactate and pyruvate via lactate dehydrogenase (LDH).

Images

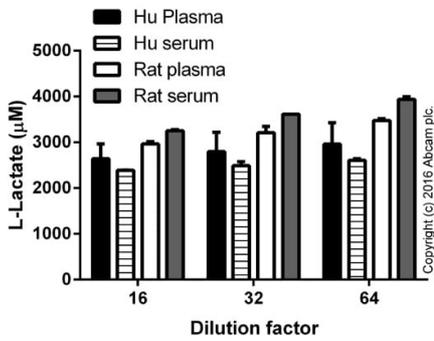


Kelly CE et al., PLoS Biol 11:e1001538 (2013).

Plasma lactate concentrations were determined using L-Lactate assay kit (ab65331) in Ark2C^{+/+} and Ark2C^{-/-} (Arkadia-like gene) mice.

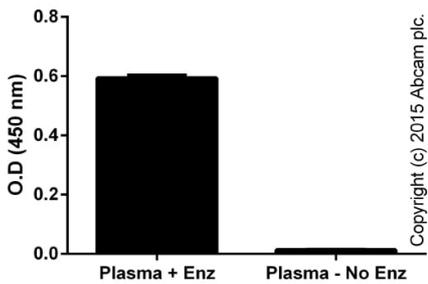
L-Lactate Assay Kit (Colorimetric) ab65331

Image from Kelly CE et al., PLoS Biol 11(4), fig2d. oi: 10.1371/journal.pbio.1001538. Reproduced under the Creative Commons license <http://creativecommons.org/licenses/by/4.0/>



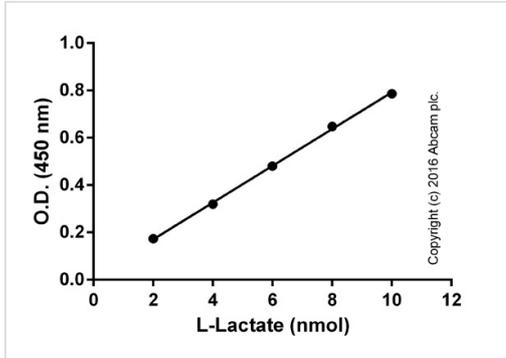
Linearity of dilution: concentration of L-Lactate in differently diluted (X-axis) biological samples, demonstrating a linearity of 89%-111% (concentrations corrected for by factor of dilution; duplicates; +/- SD).

ab65331 L-Lactate Assay Kit (Colorimetric)



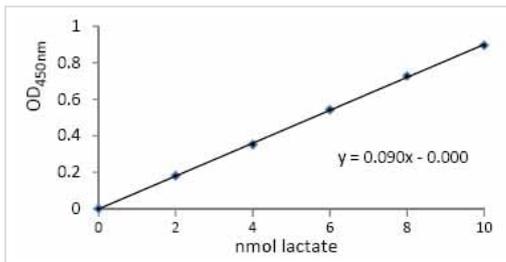
Relative signal (RFU) in unfiltered human plasma (dilution 1:8), comparing L-lactate signals with background reading (no enzyme) after 10 minutes of incubation (duplicates +/- SD).

L-Lactate Assay Kit (Colorimetric) (ab65331)



Standard curve with background signal subtracted (duplicates; +/- SD).

ab65331 L-Lactate Assay Kit (Colorimetric)



Lactate Standard Curve. The assay is performed following the kit (ab65331) protocol.

L-Lactate Assay Kit (Colorimetric) (ab65331)

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