## L-Lactate Assay Kit (Colorimetric) ab65331

<table>
<thead>
<tr>
<th>Overview</th>
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<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>L-Lactate Assay Kit (Colorimetric)</td>
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<tr>
<td><strong>Detection method</strong></td>
<td>Colorimetric</td>
</tr>
<tr>
<td><strong>Sample type</strong></td>
<td>Cell culture supernatant, Urine, Serum, Plasma, Other biological fluids, Cell Lysate, Tissue Lysate</td>
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<tr>
<td><strong>Assay type</strong></td>
<td>Quantitative</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>0.02 mM</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>0.02 mM - 10 mM</td>
</tr>
<tr>
<td><strong>Assay time</strong></td>
<td>0h 30m</td>
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</table>

### 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 (λmax = 450 nm).

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

L-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 lysates, MDA-MB-231 and HepG2 cell culture lysates, cell culture supernatant (HepG2, A549, Huh7, PC3, LN229, HeLa), brain tissue
- Mouse: brown adipose tissue lysate, thymic lymphoma tissue, cell culture supernatant, T cell primary cell culture supernatants, serum, serum and muscle
- Bovine: cumulus cell culture supernatant


**Platform**

Microplate reader

**Properties**

**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>L(+)-Lactate Standard (100 nmol/µl)</td>
<td>Yellow</td>
<td>1 x 100µl</td>
</tr>
<tr>
<td>Lactate Assay Buffer</td>
<td>WM</td>
<td>1 x 25ml</td>
</tr>
<tr>
<td>Lactate Enzyme Mix (lyophilized)</td>
<td>Green</td>
<td>1 vial</td>
</tr>
<tr>
<td>Lactate Substrate Mix</td>
<td>Red</td>
<td>1 vial</td>
</tr>
</tbody>
</table>

**Relevance**

Lactate (CH\(_3\)CH(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).
Plasma lactate concentrations were determined using L-Lactate assay kit (ab65331) in Ark2C\textsuperscript{+/+} and Ark2C\textsuperscript{−/−} (Arkadia-like gene) mice.

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).

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

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

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

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