# L-Lactate Assay Kit (Colorimetric) ab65331

**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 (Amax = 450 nm).

The kit detects L(+)-Lactate in biological samples such as serum or plasma, cells, culture and fermentation media. There is no need for pretreatment or purification of samples.

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 but only at about 1-5% of the concentration of L(+)-Lactate.

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.

## Platform
Microplate reader

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

Images

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

<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>
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.

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