# Human Cytokeratin 18 ELISA Kit ab227896

## SimpleStep ELISA

### Overview

<table>
<thead>
<tr>
<th>Product name</th>
<th>Human Cytokeratin 18 ELISA Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection method</td>
<td>Colorimetric</td>
</tr>
</tbody>
</table>

#### Precision

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>CV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>5</td>
<td></td>
<td></td>
<td>2.1%</td>
</tr>
<tr>
<td>Inter-assay</td>
<td>3</td>
<td></td>
<td></td>
<td>8.4%</td>
</tr>
</tbody>
</table>

#### Sample type

- Cell culture supernatant, Serum, Cell culture extracts, Tissue Extracts, Heparin Plasma, EDTA Plasma, Citrate Plasma

#### Assay type

- Sandwich (quantitative)

#### Sensitivity

3.4 pg/ml

#### Range

15.6 pg/ml - 1000 pg/ml

#### Recovery

<table>
<thead>
<tr>
<th>Sample type</th>
<th>Average %</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum</td>
<td>100</td>
<td>99% - 102%</td>
</tr>
<tr>
<td>Cell culture extracts</td>
<td>110</td>
<td>106% - 115%</td>
</tr>
<tr>
<td>Cell culture media</td>
<td>109</td>
<td>107% - 110%</td>
</tr>
<tr>
<td>Heparin Plasma</td>
<td>99</td>
<td>97% - 99%</td>
</tr>
<tr>
<td>EDTA Plasma</td>
<td>99</td>
<td>97% - 100%</td>
</tr>
</tbody>
</table>
**Sample type** | **Average %** | **Range**
--- | --- | ---
Citrate Plasma | 95 | 93% - 97%

**Assay time** | **Assay duration** | **Species reactivity** | **Product overview**
--- | --- | --- | ---
1h 30m | One step assay | **Reacts with:** Human | Cytokeratin 18 \textit{in vitro} SimpleStep ELISA\textsuperscript{®} (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of Cytokeratin 18 protein in human serum, plasma, cell culture supernatant, cell and tissue extract.

The SimpleStep ELISA\textsuperscript{®} employs an affinity tag labeled capture antibody and a reporter conjugated detector antibody which immunocapture the sample analyte in solution. This entire complex (capture antibody/analyte/detector antibody) is in turn immobilized via immunoaffinity of an anti-tag antibody coating the well. To perform the assay, samples or standards are added to the wells, followed by the antibody mix. After incubation, the wells are washed to remove unbound material. TMB substrate is added and during incubation is catalyzed by HRP, generating blue coloration. This reaction is then stopped by addition of Stop Solution completing any color change from blue to yellow. Signal is generated proportionally to the amount of bound analyte and the intensity is measured at 450 nm. Optionally, instead of the endpoint reading, development of TMB can be recorded kinetically at 600 nm.

Cytokeratin is an intermediate filament and a marker of apoptosis. Cytokeratin 18 is also involved in the uptake of thrombin-antithrombin complexes by hepatic cells. Cytokeratin 18 can be cleaved into caspase cleaved Cytokeratin 18 fragments, which can be a measure of cell death and a biomarker for liver disease.

**Sensitivity:**

Samples diluted in Sample Diluent NS: 4.3 pg/mL.

Samples diluted in 1X Cell Extraction Buffer PTR: 3.4 pg/mL.

**Tested applications** | **Platform**
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**Suitable for:** Sandwich ELISA | Pre-coated microplate (12 x 8 well strips)

**Properties**

**Storage instructions** | Store at +4°C. Please refer to protocols.
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**Components** | **1 x 96 tests**
--- | ---
10X Wash Buffer PT (ab206977) | 1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971) | 1 x 1ml
### Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5X Cell Extraction Buffer PTR (ab193970)</td>
<td>1 x 10ml</td>
</tr>
<tr>
<td>Antibody Diluent 4BI</td>
<td>1 x 6ml</td>
</tr>
<tr>
<td>10X Human Cytokeratin 18 Capture Antibody</td>
<td>1 x 600µl</td>
</tr>
<tr>
<td>10X Human Cytokeratin 18 Detector Antibody</td>
<td>1 x 600µl</td>
</tr>
<tr>
<td>Human Cytokeratin 18 Lyophilized Recombinant Protein</td>
<td>2 vials</td>
</tr>
<tr>
<td>Plate Seals</td>
<td>1 unit</td>
</tr>
<tr>
<td>Sample Diluent LS</td>
<td>1 x 50ml</td>
</tr>
<tr>
<td>SimpleStep Pre-Coated 96-Well Microplate (ab206978)</td>
<td>1 unit</td>
</tr>
<tr>
<td>Stop Solution</td>
<td>1 x 12ml</td>
</tr>
<tr>
<td>TMB Development Solution</td>
<td>1 x 12ml</td>
</tr>
</tbody>
</table>

### Function
Involved in the uptake of thrombin-antithrombin complexes by hepatic cells (By similarity). When phosphorylated, plays a role in filament reorganization. Involved in the delivery of mutated CFTR to the plasma membrane. Together with KRT8, is involved in interleukin-6 (IL-6)-mediated barrier protection.

### Tissue specificity
Expressed in colon, placenta, liver and very weakly in exocervix. Increased expression observed in lymph nodes of breast carcinoma.

### Involvement in disease
Defects in KRT18 are a cause of cirrhosis (CIRRH) [MIM:215600].

### Sequence similarities
Belongs to the intermediate filament family.

### Post-translational modifications
Phosphorylation at Ser-34 increases during mitosis. Hyperphosphorylated at Ser-53 in diseased cirrhosis liver. Phosphorylation increases by IL-6. Proteolytically cleaved by caspases during epithelial cell apoptosis. Cleavage occurs at Asp-238 by either caspase-3, caspase-6 or caspase-7. O-glycosylated at multiple sites; glycans consist of single N-acetylglucosamine residues.

### Cellular localization
Cytoplasm > perinuclear region.

### Applications

Our Abpromise guarantee covers the use of ab227896 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Sandwich ELISA</td>
<td>Use at an assay dependent concentration.</td>
<td></td>
</tr>
</tbody>
</table>
SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.

Background-subtracted data values (mean +/- SD) are graphed.

Example of Human Cytokeratin 18 standard curve in Sample Diluent NS

Example of Human Cytokeratin 18 standard curve in 1X Cell Extraction Buffer PTR
The concentrations of Cytokeratin 18 were measured in duplicates, interpolated from the Cytokeratin 18 standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 50%, plasma (EDTA) 50%, plasma (heparin) 50% and plasma (citrate) 50%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Cytokeratin 18 concentration was determined to be 23 pg/mL in serum, 29 pg/mL in plasma (EDTA), 96 pg/mL in plasma (heparin), and 33 pg/mL in plasma (citrate).

Interpolated concentrations of native Cytokeratin 18 in Human serum and plasma samples

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). 5/10 donors were below the detectable dose. The mean of the detectable donors Cytokeratin 18 concentration was determined to be 59 pg/mL with a range of 31– 79 pg/mL.

Interpolated concentrations of spiked Cytokeratin 18 in Human serum and plasma samples

The concentrations of Cytokeratin 18 were measured in duplicates, interpolated from the Cytokeratin 18 standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 50%, plasma (EDTA) 50%, plasma (heparin) 50% and plasma (citrate) 50%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).
The concentrations of Cytokeratin 18 were measured in duplicates, interpolated from the Cytokeratin 18 standard curves and corrected for sample dilution. Undiluted samples are as follows: Hela cell culture supernatant 50%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Cytokeratin 18 concentration was determined to be 1000 pg/mL in Hela cell culture supernatant.

The concentrations of Cytokeratin 18 were measured in duplicate and interpolated from the Cytokeratin 18 standard curve and corrected for sample dilution and extract load. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Cytokeratin 18 concentration was determined to be 0.89 pg/µg Hela extract and 35 pg/µg Liver extract.

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