



Product datasheet

Human PDH E1 alpha protein ELISA Kit (PDHA1) ab181415

SimpleStep ELISA

1 References 画像数 4

製品の概要

製品名

Human PDH E1 alpha protein ELISA Kit (PDHA1)

検出方法

Colorimetric

再現性

Intra-Assay (同時再現性)

サンプル	N	平均値	SD	CV%
HeLa extract	2			7.7%

Inter-Assay (日差再現性)

サンプル	N	平均値	SD	CV%
HeLa extract	5			3.8%

サンプルの種類

Tissue Extracts, Cell Lysate

アッセイタイプ

Sandwich (quantitative)

検出感度

12 ng/ml

検出範囲

15.62 ng/ml - 1000 ng/ml

添加回収試験

135 %

特定サンプルでの回収試験

サンプルの種類	平均 %	測定範囲
Serum	144	129% - 152%
Cell culture media	135	134% - 137%
Fetal Bovine Serum	135	129% - 130%

全工程の試験時間	1h 30m
ステップ	One step assay
種交差性	交差種: Human
製品の概要	Human PDH E1 alpha ELISA kit (ab181415) is a single-wash 90 min sandwich ELISA designed

for the quantitative measurement of PDH E1 alpha protein in human cell and tissue extracts. It uses our proprietary SimpleStep ELISA® technology. Quantitate human PDH E1 alpha with 12 ng/mL sensitivity.

SimpleStep ELISA® technology employs capture antibodies conjugated to an affinity tag that is recognized by the monoclonal antibody used to coat our SimpleStep ELISA® plates. This approach to sandwich ELISA allows the formation of the antibody-analyte sandwich complex in a single step, significantly reducing assay time. See the SimpleStep ELISA® protocol summary in the image section for further details. Our SimpleStep ELISA® technology provides several benefits:

- Single-wash protocol reduces assay time to 90 minutes or less
- High sensitivity, specificity and reproducibility from superior antibodies
- Fully validated in biological samples
- 96-wells plate breakable into 12 x 8 wells strips

A 384-well SimpleStep ELISA® microplate ([ab203359](#)) is available to use as an alternative to the 96-well microplate provided with SimpleStep ELISA® kits.

## 特記事項

The pyruvate dehydrogenase complex performs the decarboxylation of pyruvate into acetyl CoA, a critical function in metabolism, linking glycolysis and oxidative phosphorylation in mitochondria. The enzyme is composed of multiple copies of three enzymes: pyruvate dehydrogenase (E1), dihydrolipoamide transacetylase (E2) and dihydrolipoamide dehydrogenase (E3). The E1 enzyme is a tetramer of two alpha (PDHA1) and two beta (PDHB) subunits and is present in 30 copies in the PDH complex.

The activity of PDH is regulated by reversible phosphorylation of three serine residues on the PDHA1 subunit at phospho S232, phospho S293, and phospho S300. ELISA assays to measure phospho 232, and phospho S300 are available from Abcam ([ab115343](#), [ab115345](#)). The phosphorylation of these sites is catalyzed by PDH kinases (PDK). There are four known PDK isoforms, distributed differently in tissues. Their expressions are regulated differently by factors such as starvation, hypoxia and utilization of glucose and fatty acids in various tissues. Dephosphorylation, to restore the activity of PDH, is catalyzed by PDH phosphatases (PDP). There are two known isoforms of PDP; PDP1 is present in high levels in skeletal muscle and PDP2 in liver and adipocytes. Functional PDH kinases and phosphatases are available from Abcam ([ab110359](#), [ab110354](#), [ab110355](#), [ab110356](#)).

## 試験プラットフォーム

Microplate

## 製品の特性

### 保存方法

Store at +4°C. Please refer to protocols.

内容	1 x 96 tests
10X Human PDH E1a Capture Antibody	1 x 600µl
10X Human PDH E1a Detector Antibody	1 x 600µl
2X Cell Extraction Buffer LM	1 x 10ml

内容	1 x 96 tests
4X Antibody Diluent EB	1 x 6ml
Human PDH E1 alpha Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 12ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

機能	The pyruvate dehydrogenase complex catalyzes the overall conversion of pyruvate to acetyl-CoA and CO(2). It contains multiple copies of three enzymatic components: pyruvate dehydrogenase (E1), dihydrolipoamide acetyltransferase (E2) and lipoamide dehydrogenase (E3).
組織特異性	Ubiquitous.
関連疾患	<p>Defects in PDHA1 are a cause of pyruvate decarboxylase E1 component deficiency (PDHE1 deficiency) [MIM:312170]. PDHE1 deficiency is the most common enzyme defect in patients with primary lactic acidosis. It is associated with variable clinical phenotypes ranging from neonatal death to prolonged survival complicated by developmental delay, seizures, ataxia, apnea, and in some cases to an X-linked form of Leigh syndrome (X-LS).</p> <p>Defects in PDHA1 are the cause of X-linked Leigh syndrome (X-LS) [MIM:308930]. X-LS is an early-onset progressive neurodegenerative disorder with a characteristic neuropathology consisting of focal, bilateral lesions in one or more areas of the central nervous system, including the brainstem, thalamus, basal ganglia, cerebellum, and spinal cord. The lesions are areas of demyelination, gliosis, necrosis, spongiosis, or capillary proliferation. Clinical symptoms depend on which areas of the central nervous system are involved. The most common underlying cause is a defect in oxidative phosphorylation. LS may be a feature of a deficiency of any of the mitochondrial respiratory chain complexes.</p>
細胞内局在	Mitochondrion matrix.

## 画像

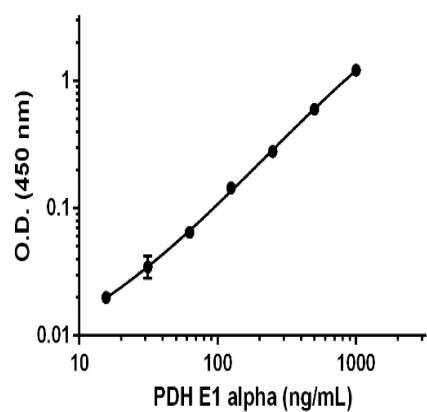


Figure 1

Example of PDH E1 alpha (PDHA1) standard curve. Background-subtracted data values (mean  $\pm$  SD) are graphed.

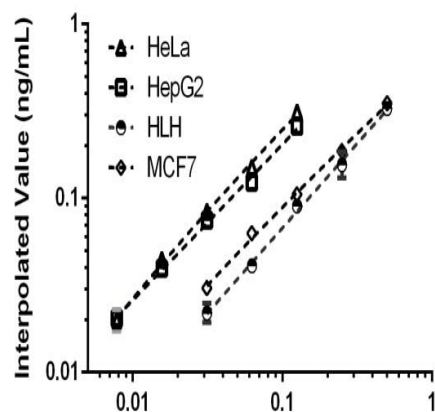
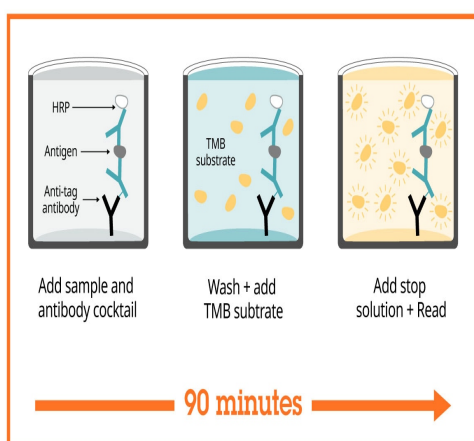


Figure 2

Titration of HeLa, HepG2, Human Liver Homogenate (HLH) and MCF7 cell extract within the working range of the assay in 1X Cell Extraction Buffer LM. Background subtracted data from duplicate measurements are plotted.



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.

Sandwich ELISA - Human PDH E1 alpha protein  
ELISA Kit (PDHA1) (ab181415)

**Get more done with  
SimpleStep ELISA**



**Easy to use**  
Single-wash 90-minute  
protocol



**Flexible**  
Matched antibody pairs  
available



**Precision antibodies**  
High sensitivity, specificity  
and reproducibility



**Scalable**  
Now in 10-pack and  
384-well formats

To learn more about the advantages of SimpleStep ELISA<sup>®</sup> kits  
see [here](#).

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

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