

Product datasheet

Human NADH dehydrogenase ELISA Kit (Complex I) ab178011

SimpleStep ELISA

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Overview

Product name Human NADH dehydrogenase ELISA Kit (Complex I)

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
HepG2 lysate	5			2.7%

Inter-assay

Sample	n	Mean	SD	CV%
HepG2 lysate	3			5.9%

Sample type Cell culture extracts, Tissue Extracts

Assay type Sandwich (quantitative)

Sensitivity 430 ng/ml

Range 3.13 µg/ml - 200 µg/ml

Recovery

Sample specific recovery

Sample type	Average %	Range
Serum	110	108% - 111%
Cell culture media	66	64% - 67%
Fetal Bovine Serum	74	70% - 77%

Assay time 1h 30m

Assay duration One step assay

Species reactivity **Reacts with:** Human

Product overview

Human NADH Dehydrogenase (Complex I) ELISA kit (ab178011) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of NADH Dehydrogenase protein in human cell and tissue extracts. It uses our proprietary SimpleStep ELISA® technology. Quantitate human NADH Dehydrogenase with 430 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.

Notes

NADH dehydrogenase (NADH: ubiquinone reductase (H⁺-translocating), Complex I) is the first enzyme of the oxidative phosphorylation (OXPHOS) system within the mitochondrial inner membrane. NADH dehydrogenase is a large protein complex of 950,000 MW made up of 45-46 different subunits. Seven of the subunits of the complex are encoded on mitochondrial DNA (mtDNA), the remaining subunits are nuclear encoded, made in the cytosol and translocated into the organelle for assembly at the inner membrane. The enzyme complex catalyses electron entry from NADH via a flavin (FMN) and several non-heme iron centers. Mutations in mtDNA, or nuclear DNA genes encoding NADH dehydrogenase subunits or assembly factors are a common cause of genetic OXPHOS defects. Mutations or loss of mtDNA may cause enzymatic dysfunction by disrupting enzyme assembly or alternatively by specifically affecting enzymatic activity with no effect on enzyme assembly.

NADH dehydrogenase (like Complex III) has been proposed as a site of superoxide 'leak' from the mitochondrial OXPHOS system. Altered functioning and increased superoxide production by this complex has been proposed to contribute to several neurological disorders including Parkinson's disease. Also there is evidence of NADH Dehydrogenase involvement in diabetes.

Platform

Microplate

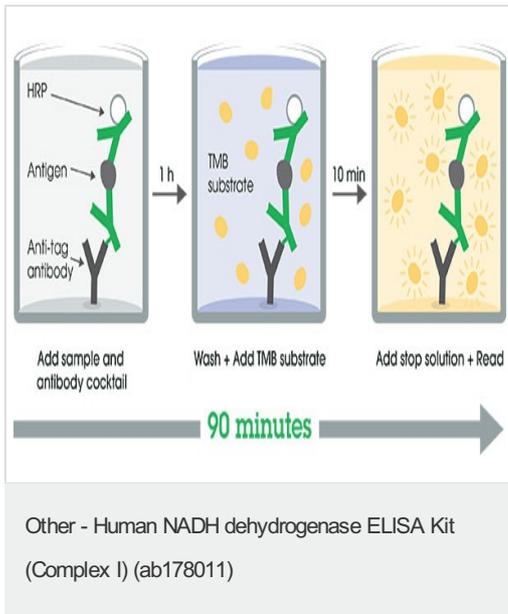
Properties

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

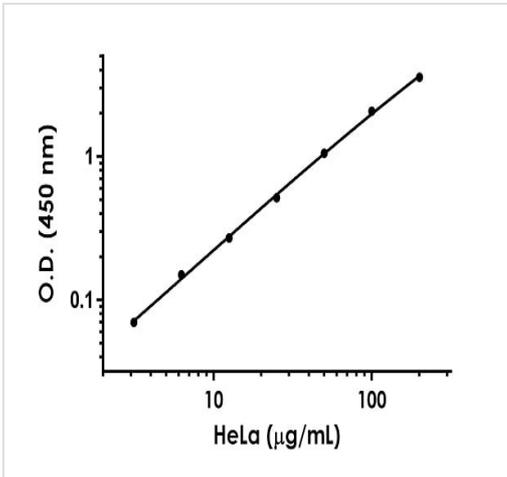
Components	1 x 96 tests
10X Human NADH Dehydrogenase Capture Antibody	1 x 600µl
10X Human NADH Dehydrogenase Detector Antibody	1 x 600µl
10X Wash Buffer LM	1 x 20ml
2X Cell Extraction Buffer LM	1 x 10ml

Components	1 x 96 tests
Antibody Diluent 5B	1 x 6ml
HeLa Human Lyophilized 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

Images

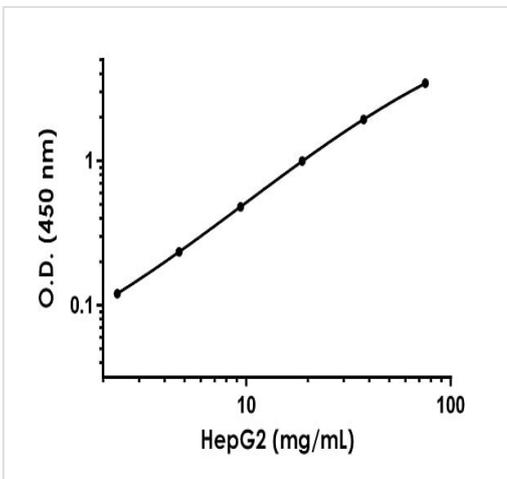


SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



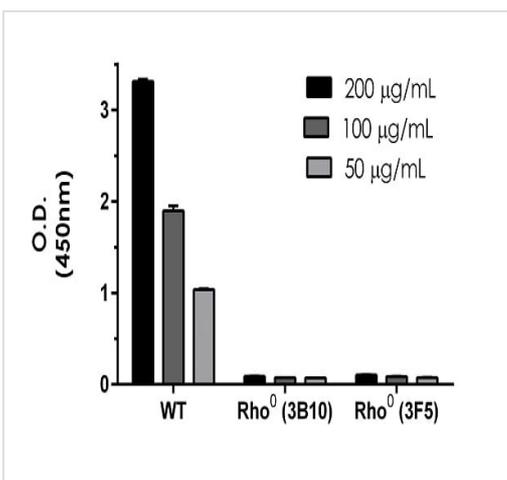
Example of NADH Dehydrogenase standard curve.

Example of human NADH Dehydrogenase control curve in 1X Cell Extraction Buffer LM. The NADH Dehydrogenase control curve was prepared as described in Section 10. Raw data values are shown in the table. Background-subtracted data values (mean +/- SD) are graphed.



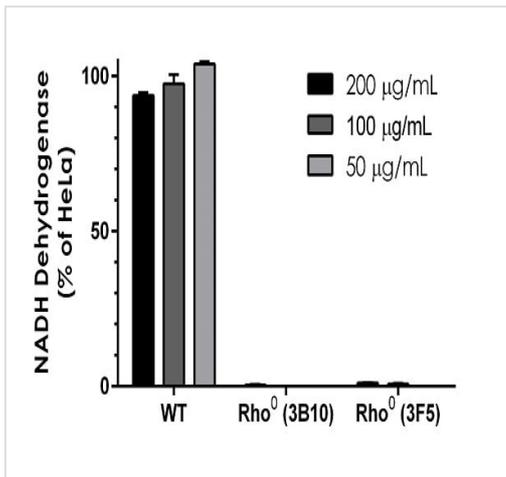
Titration of HepG2 cell lysate within the working range of the assay.

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



Comparison of NADH Dehydrogenase expression in 143B wildtype (WT) and two clones (3B10 and 3F5) of 143B-derived Rho0 (mitochondrial DNA-depleted) cells.

Background-subtracted data values from triplicate measurements of three lysate concentrations (200, 100 and 50 µg/mL) are graphed as mean +/- SD.



Quantification of NADH Dehydrogenase expression in 143B wildtype (WT) and two clones (3B10 and 3F5) of 143B-derived Rho⁰ (mitochondrial DNA-depleted) cells.

Quantification of NADH Dehydrogenase expression in 143B wildtype (WT) and two clones (3B10 and 3F5) of 143B-derived Rho⁰ (mitochondrial DNA-depleted) cells. The concentrations of NADH Dehydrogenase were interpolated from data values shown in Figure 3 using NADH Dehydrogenase control curve of the HeLa Lyophilized Lysate Control, corrected for sample dilution, and graphed in percent relative to NADH Dehydrogenase expression in HeLa cell extract. The concentration of NADH Dehydrogenase in both Rho⁰ cell lines was less than 1% of the concentration in the WT 143B cells.

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