

## Product datasheet

# Human Frataxin ELISA Kit ab176112

SimpleStep ELISA

★★★★★ 2 Abreviews 5 References 8 Images

### Overview

**Product name** Human Frataxin ELISA Kit

**Detection method** Colorimetric

**Precision**

Intra-assay

Sample	n	Mean	SD	CV%
HeLa	9			2.3%

Inter-assay

Sample	n	Mean	SD	CV%
HeLa	3			6.3%

**Sample type** Cell culture extracts, Tissue Extracts

**Assay type** Sandwich (quantitative)

**Sensitivity** 2.1 pg/ml

**Range** 9.88 pg/ml - 800 pg/ml

**Recovery**

Sample specific recovery

Sample type	Average %	Range
Serum	92	86% - 98%
Cell culture media	97	93% - 101%
EDTA Plasma	89	88% - 92%

**Assay time** 1h 30m

**Assay duration** One step assay

**Species reactivity** **Reacts with:** Human

**Product overview** Human Frataxin ELISA kit (ab176112) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of Frataxin protein in human cell culture and tissue extracts. It uses our

proprietary SimpleStep ELISA® technology. Quantitate human Frataxin with 1.1 pg/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.

**ASSAY SPECIFICITY** This kit recognizes both native and recombinant human Frataxin protein in cell and tissue extract samples only. Serum, plasma, saliva, and urine samples have not been tested with this kit.

## Notes

Frataxin is a 17 kDa nuclear-encoded mitochondrial protein. In humans the gene is localized on chromosome 9 and is highly conserved during evolution. The gene is expressed in every cell, although in varying levels in different tissues and during development. The specific function of frataxin is still unknown, but it has been shown to play a role in iron metabolism. Studies have demonstrated that the deletion of the frataxin gene in yeast results in iron accumulation in mitochondria and loss of respiration. Recombinant human frataxin has been shown to bind iron in vitro, and increased mitochondrial iron levels have been observed in patients with Friedreich's Ataxia (FRDA). FRDA is an autosomal recessive, progressive degenerative disease characterized by neurodegeneration and cardiomyopathy it is the most common inherited ataxia.

Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.

It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

## Platform

Microplate

## Properties

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

Components	1 x 96 tests
10X Human Frataxin Capture Antibody	1 x 600µl
10X Human Frataxin Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml

Components	1 x 96 tests
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent 4BI	1 x 6ml
Human Frataxin 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

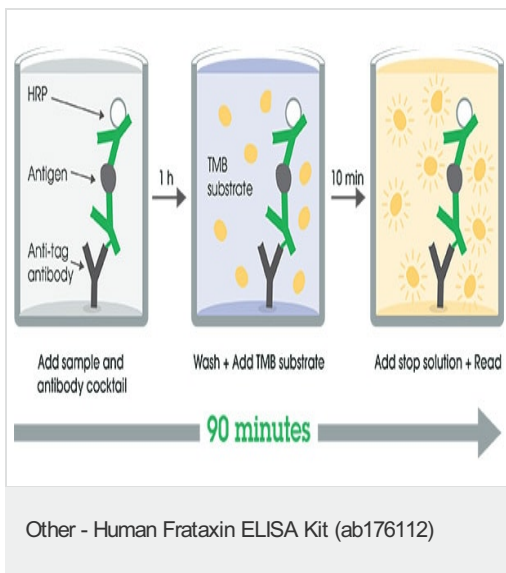
**Relevance**

Function: Promotes the biosynthesis of heme and assembly and repair of iron-sulfur clusters by delivering Fe<sup>2+</sup> to proteins involved in these pathways. May play a role in the protection against iron-catalyzed oxidative stress through its ability to catalyze the oxidation of Fe<sup>2+</sup> to Fe<sup>3+</sup>; the oligomeric form but not the monomeric form has in vitro ferroxidase activity. May be able to store large amounts of iron in the form of a ferrihydrite mineral by oligomerization; however, the physiological relevance is unsure as reports are conflicting and the function has only been shown using heterologous overexpression systems. Modulates the RNA-binding activity of ACO1.

**Cellular localization**

Cytoplasmic and Mitochondrial

**Images**

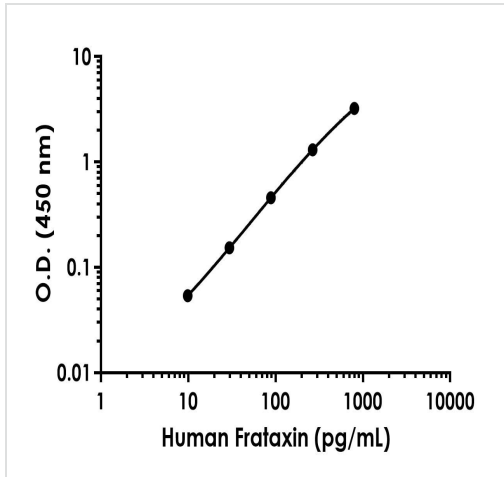


SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.

Standard Curve Measurement			
Concentration (pg/mL)	O.D 450nm		Mean O.D
	1	2	
0	0.056	0.063	0.060
9.88	0.117	0.111	0.114
29.6	0.223	0.204	0.213
88.9	0.552	0.486	0.519
267	1.432	1.309	1.371
800	3.368	3.207	3.288

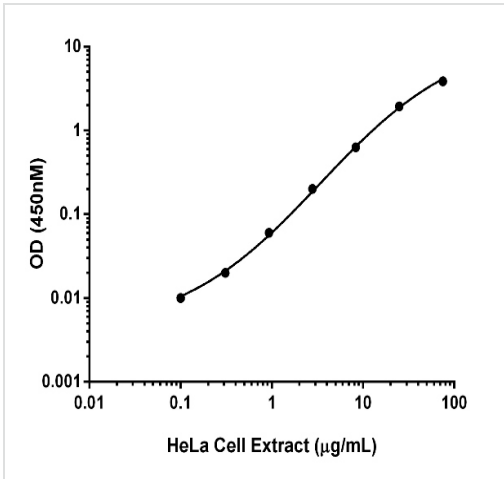
Raw data values are shown in the table

Raw data value for example of frataxin standard curve



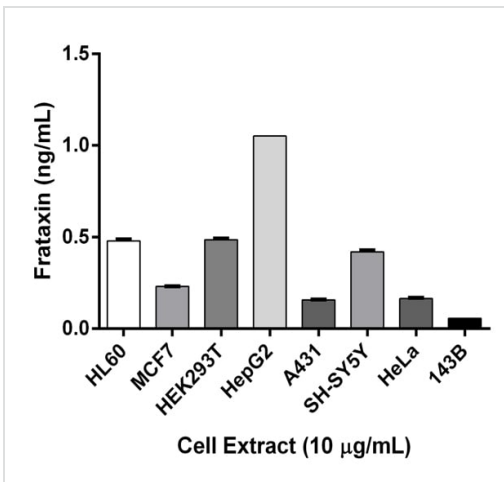
Background-subtracted data values (mean +/- SD) are graphed.

Example of Frataxin standard curve



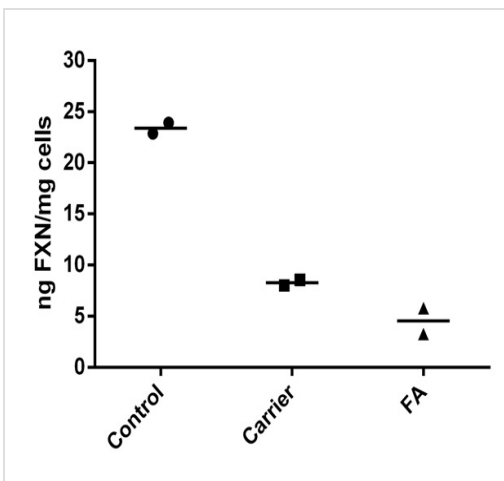
Background subtracted data from duplicate measurements are plotted.

Titration of HeLa cell extract within the working range of the assay



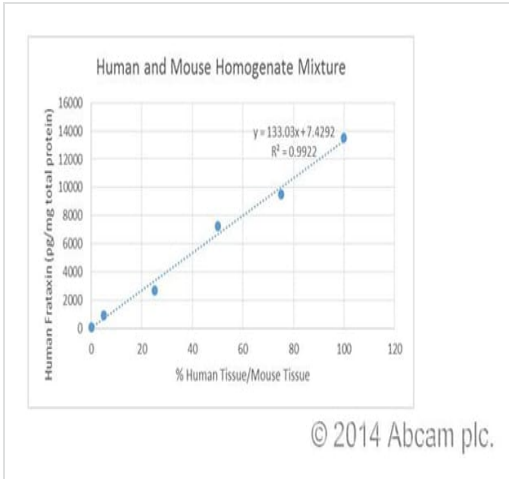
Interpolated values of Frataxin are plotted for the indicated cell lines based on a extract load of 10 µg/mL.

Quantification of Frataxin expression in different cell lines



Transformed B lymphocyte cells from Friedreich's Ataxia (FRDA) samples, due to a stable homozygous GAA repeat insertion, are compared to heterozygous carrier B lymphocyte cells and control B lymphocyte cells. B lymphocyte cell extracts were analyzed across a 7-point titration (0.1-100 µg/mL) and frataxin levels were interpolated from the standard curve. Average interpolated values of Frataxin are plotted.

Quantification of Frataxin expression in different human patient samples



Standard curve generated using Abcam's Frataxin Human SimpleStep ELISA™ Kit (ab176112) with human brain tissue homogenate mixed in different proportions with mouse brain tissue homogenate. ab176112 did not cross-react with mouse frataxin. Both kinetic and endpoint readouts were used sequentially for a larger dynamic range. [ab110353](#), 12ng human frataxin full length protein was also used to extended the standard curve to 12ng/ml.

Sandwich ELISA - Frataxin Human SimpleStep ELISA™ Kit (ab176112)

This image is courtesy of an anonymous Abreview

Dilution Factor	Interpolated value	Sample Diluent	50% Conditioned Media	10% Human Serum	10 % Human Plasma (EDTA)
Undiluted	pg/mL	191.32	181.03	166.62	172.75
	% Expected value	100	100	100	100
2	pg/mL	98.97	93.15	84.59	81.66
	% Expected value	103	103	102	95
4	pg/mL	47.36	46.92	44.03	45.23
	% Expected value	99	104	106	105
8	pg/mL	23.48	23.12	20.58	20.98
	% Expected value	98	102	99	97
16	pg/mL	10.19	10.35	9.21	10.48
	% Expected value	85	91	88	97

Recombinant Frataxin was measured in biological samples in a 2-fold dilution series

Linearity of dilution for Recombinant Frataxin

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

**Our Abpromise to you: Quality guaranteed and expert technical support**

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit <https://www.abcam.com/abpromise> or contact our technical team.

## Terms and conditions

---

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors