

Product datasheet

Human FOXO1A ELISA Kit ab215087

SimpleStep ELISA[®]

[4 Images](#)

Overview

Product name Human FOXO1A ELISA Kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
Overall	5			2.7%

Inter-assay

Sample	n	Mean	SD	CV%
Overall	3			5.5%

Sample type Cell culture extracts, Tissue Extracts

Assay type Sandwich (quantitative)

Sensitivity 40 pg/ml

Range 0.23 ng/ml - 15 ng/ml

Recovery

Sample specific recovery

Sample type	Average %	Range
Cell culture extracts	107	102% - 113%

Assay time 1h 30m

Assay duration One step assay

Species reactivity **Reacts with:** Mouse, Rat, Human

Product overview

FOXO1A *in vitro* SimpleStep ELISA (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of FOXO1A protein in human cell and tissue extract.

The SimpleStep ELISA 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.

Notes FOXO1A (also known as Forkhead box protein O1 and forkhead in rhabdomyosarcoma) is an intracellular transcription factor. FOXO1A has widespread expression and functions in metabolic homeostasis and insulin signaling. Human FOXO1A has 92% protein sequence identity to mouse and rat FOXO1A.

Tested applications **Suitable for:** Sandwich ELISA

Platform Pre-coated microplate (12 x 8 well strips)

Properties

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

Components	1 x 96 tests
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent CPI	1 x 6ml
10X Human FOXO1A Capture Antibody	1 x 600µl
10X Human FOXO1A Detector Antibody	1 x 600µl
Human FOXO1A Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS	1 x 12ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

Function Transcription factor which acts as a regulator of cell responses to oxidative stress. In the presence of KIRT1, mediates down-regulation of cyclin D1 and up-regulation of CDKN1B levels which are required for cell transition from proliferative growth to quiescence.

Tissue specificity Ubiquitous.

Involvement in disease Defects in FOXO1 are a cause of rhabdomyosarcoma type 2 (RMS2) [MIM:268220]. It is a form of rhabdomyosarcoma, a highly malignant tumor of striated muscle derived from primitive

mesenchymal cells and exhibiting differentiation along rhabdomyoblastic lines.

Rhabdomyosarcoma is one of the most frequently occurring soft tissue sarcomas and the most common in children. It occurs in four forms: alveolar, pleomorphic, embryonal and botryoidal rhabdomyosarcomas. Note=Chromosomal aberrations involving FOXO1 are found in rhabdomyosarcoma. Translocation (2;13)(q35;q14) with PAX3; translocation t(1;13)(p36;q14) with PAX7. The resulting protein is a transcriptional activator.

Sequence similarities

Contains 1 fork-head DNA-binding domain.

Post-translational modifications

Phosphorylated by AKT1; insulin-induced (By similarity). IGF1 rapidly induces phosphorylation of Ser-256, Thr-24, and Ser-319. Phosphorylation of Ser-256 decreases DNA-binding activity and promotes the phosphorylation of Thr-24, and Ser-319, permitting phosphorylation of Ser-322 and Ser-325, probably by CK1, leading to nuclear exclusion and loss of function. Phosphorylation of Ser-329 is independent of IGF1 and leads to reduced function. Phosphorylated upon DNA damage, probably by ATM or ATR.

Cellular localization

Cytoplasm. Nucleus. Shuttles between cytoplasm and nucleus.

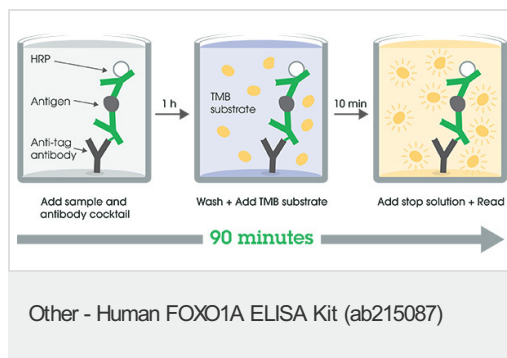
Applications

Our [Abpromise guarantee](#) covers the use of **ab215087** in the following tested applications.

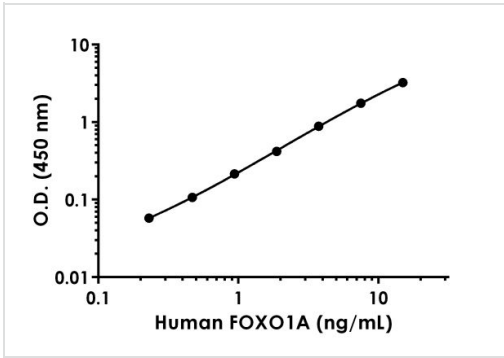
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
Sandwich ELISA		Use at an assay dependent concentration.

Images

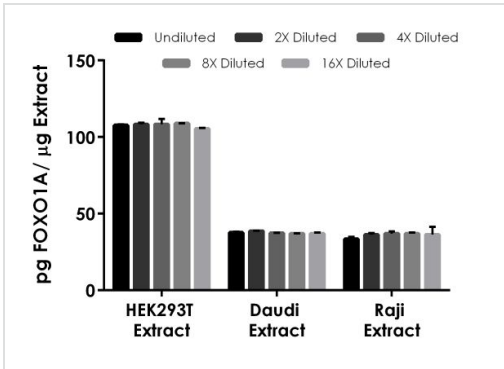


SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



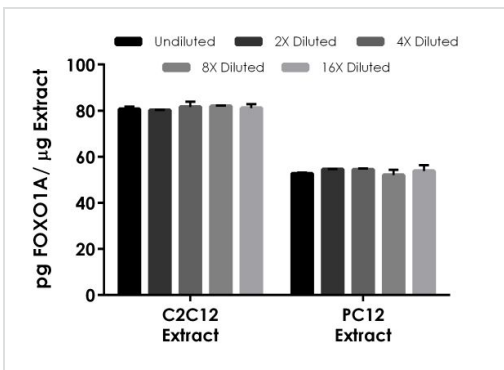
Example of human FOXO1A standard curve.

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



Interpolated concentrations of native FOXO1A in human HEK293T, Daudi and Raji cell extract samples.

The concentrations of FOXO1A were measured in duplicate and interpolated from the FOXO1A standard curve and corrected for sample dilution and extract load. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean FOXO1A concentration was determined to be 107.7 pg/µg HEK293T extract, 37.5 pg/µg Daudi extract, and 35.9 pg/µg Raji extract.



Interpolated concentrations of native FOXO1A in mouse C2C12 extract, and rat PC12 extract.

The concentrations of FOXO1A were measured in duplicate and interpolated from the human FOXO1A standard curve and corrected for sample dilution and extract load. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean FOXO1A concentration was determined to be 81.1 pg/µg C2C12 extract and 53.5 pg/µg PC12 extract.

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