

GFP ELISA Kit

GFP ELISA Kit is a single-wash 90-min SimpleStep ELISA used to quantify GFP with a sensitivity of 2.8 pg/mL. The assay uses a simple mix-wash-read protocol with just one incubation and one wash step.

- Colorimetric sandwich ELISA - 450 nm readout : works on any standard plate reader
- Different formats for different needs: 10x96 plates for bulk orders and 384-well plate for higher throughput
- For higher sensitivity and a broader dynamic range, check our chemiluminescent SimpleStep Ignite™ ab325363

SimpleStep

Key facts

Detection method	Colorimetric
Sample types	Tissue Lysate, Cell Lysate
Assay type	Sandwich
Range	18.8 - 1200 pg/mL
Assay time	1 h 30m
Assay Platform	Microplate
Sensitivity	= 2.8 pg/mL

What's included?

1 x 384 Tests

Components

Plate Seal
1 x 1 Unit

Stop Solution
2 x 12 mL

5X Cell Extraction Buffer PTR (ab193970)

1 x 50 mL

4X Antibody Diluent EB

1 x 6 mL

50X Cell Extraction Enhancer Solution (ab193971)

6 x 1 mL

10X Wash Buffer PT (ab206977)

1 x 20 mL

TMB Development Solution

2 x 12 mL

10X GFP Capture Antibody

1 x 600 µL

GFP Lyophilized Recombinant Protein

2 x 1 Vial

384 well CaptSure™ microplates

1 x 1 Unit

10X GFP Detector Antibody

1 x 600 µL

1 x 384 Tests

Components

Plate Seal

1 x 1 Unit

50X Cell Extraction Enhancer Solution (ab193971)

6 x 1 mL

5X Cell Extraction Buffer PTR (ab193970)

1 x 50 mL

GFP Lyophilized Recombinant Protein

2 x 1 Vial

384 well CaptSure™ microplates

1 x 1 Unit

Stop Solution

2 x 12 mL

TMB Development Solution

2 x 12 mL

10X GFP Capture Antibody

1 x 600 µL

10X GFP Detector Antibody

1 x 600 µL

4X Antibody Diluent EB

1 x 6 mL

10X Wash Buffer PT (ab206977)

1 x 20 mL

1 x 96 Tests

Components

Plate Seal

1 x 1 Unit

SimpleStep Pre-Coated 96-Well Microplate (ab206978)

1 x 1 Unit

4X Antibody Diluent EB

1 x 6 mL

10X Wash Buffer PT (ab206977)

1 x 20 mL

Stop Solution

1 x 12 mL

50X Cell Extraction Enhancer Solution (ab193971)

1 x 1 mL

5X Cell Extraction Buffer PTR (ab193970)

1 x 10 mL

Sample Diluent NS (ab193972)

1 x 12 mL

TMB Development Solution

1 x 12 mL

10X GFP Capture Antibody

1 x 600 µL

GFP Lyophilized Recombinant Protein

2 x 1 Vial

10X GFP Detector Antibody

1 x 600 µL

1 x 96 Tests

Components

Plate Seal

1 x 1 Unit

50X Cell Extraction Enhancer Solution (ab193971)

1 x 1 mL

GFP Lyophilized Recombinant Protein

2 x 1 Vial

10X Wash Buffer PT (ab206977)

1 x 20 mL

SimpleStep Pre-Coated 96-Well Microplate (ab206978)

1 x 1 Unit

10X GFP Detector Antibody

1 x 600 µL

TMB Development Solution

1 x 12 mL

Sample Diluent NS (ab193972)

1 x 12 mL

4X Antibody Diluent EB

1 x 6 mL

10X GFP Capture Antibody

1 x 600 µL

Stop Solution

1 x 12 mL

5X Cell Extraction Buffer PTR (ab193970)

1 x 10 mL

10 x 96 Tests

Components

Plate Seal

10 x 1 Unit

Stop Solution

1 x 120 mL

5X Cell Extraction Buffer PTR (ab193970)

2 x 50 mL

4X Antibody Diluent EB

10 x 6 mL

50X Cell Extraction Enhancer Solution (ab193971)

10 x 1 mL

10X Wash Buffer PT (ab206977)

1 x 200 mL

TMB Development Solution

1 x 120 mL

SimpleStep Pre-Coated 96-Well Microplate (ab206978)

10 x 1 Unit

GFP Lyophilized Recombinant Protein

10 x 2 Vial

10X GFP Capture Antibody

10 x 600 µL

10X GFP Detector Antibody

10 x 600 µL

10 x 96 Tests

Components

Plate Seal

10 x 1 Unit

50X Cell Extraction Enhancer Solution (ab193971)

10 x 1 mL

SimpleStep Pre-Coated 96-Well Microplate (ab206978)

10 x 1 Unit

4X Antibody Diluent EB

10 x 6 mL

10X Wash Buffer PT (ab206977)

1 x 200 mL

10X GFP Detector Antibody

10 x 600 µL

TMB Development Solution

1 x 120 mL

Stop Solution

1 x 120 mL

5X Cell Extraction Buffer PTR (ab193970)

2 x 50 mL

GFP Lyophilized Recombinant Protein

10 x 2 Vial

10X GFP Capture Antibody

10 x 600 µL

Precision

Intra assay

Sample	n	C.V.
Cell Lysate	9	3.1

Inter assay

Sample	n	C.V.
Cell Lysate	3	8.2

Recovery

Sample specific recovery

Sample type	Average %	Range
Fetal Bovine Serum	= 97	96 - 98 %

Target data

[See full target information GFP](#) 

Function	Energy-transfer acceptor. Its role is to transduce the blue chemiluminescence of the protein aequorin into green fluorescent light by energy transfer. Fluoresces in vivo upon receiving energy from the Ca(2+)-activated photoprotein aequorin.
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Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	+4°C

Notes

GFP ELISA Kit ab171581 is a rapid single-wash 90-min ELISA kit to measure GFP (Green Fluorescence Protein) in tissue lysates and cell lysates. This SimpleStep ELISA® sensitivity is 2.8 pg/mL.

How the assay works

GFP (Green Fluorescence Protein) SimpleStep ELISA® 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.

Assay Specificity

This kit has been validated to detect both the Enhanced and Superfold variants of GFP.

GFP ELISA Kit ab171581 protocol summary:

1. Mix: add samples/standards to the wells together with the capture and detector antibody cocktail. Incubate for 1 hr at room temperature
2. Wash
3. Add TMB development solution - incubate for 10 min
4. Add stop solution
5. Read the results on a plate reader at 450nm

How other researchers are using GFP ELISA Kit ab171581:

GFP ELISA Kit ab171581 has been used to visualize tauopathy in Alzheimer's disease ⁽¹⁾, to study adeno-associated viral vectors for human gene transfer ⁽²⁾, and to analyze protein secretions from Parkinson's Disease patients ⁽³⁾.

References:

⁽¹⁾Marcia N Gordon et al. 2023, PMID: 36970910,

⁽²⁾Catherine O'Riordan et al. 2020, PMID: 32578442,

⁽³⁾Bruno Manadas et al. 2020, PMID: 32266064

Save your precious samples

Our 384-well plate GFP ELISA Kit only requires a maximum of 12.5µL

Related and recommended products

GFP ELISA Kit ab171581 is commonly used to study gene expression and protein interactions. GFP is a fluorescent protein used for labeling and visualizing cellular processes.

Other ELISA kits for labeling and visualization include:

- mCherry ELISA kit ab221829

Secondary antibodies for labeling and visualization include:

- Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) ab150077

- Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) ab150113

Green fluorescent protein (GFP) is a 27 kDa protein derived from the jellyfish *Aequorea victoria*, which emits green light (emission peak at a wavelength of 509 nm) when excited by blue light (excitation peak at a wavelength of 395 nm). GFP has become an invaluable tool in cell biology research, since its intrinsic fluorescence can be visualized in living cells. GFP fluorescence is stable under fixation conditions and suitable for a variety of applications. GFP has

been widely used as a reporter for gene expression, enabling researchers to visualize and localize GFP-tagged proteins within living cells without the need for chemical staining. Other applications of GFP include assessment of protein protein interactions through the yeast two hybrid system and measurement of distance between proteins through fluorescence energy transfer (FRET) protocols. GFP technology has considerably contributed to a greater understanding of cellular physiology.

REACH authorisation

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.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary

GFP also known as Green Fluorescent Protein acts as a bioluminescent marker derived from the jellyfish *Aequorea victoria*. GFP is popular in molecular biology for its fluorescence properties making it useful for visualizing proteins. This protein has a molecular weight of approximately 27 kDa. Researchers and scientists often express GFP in various organisms as a luminescent tag helping them observe protein expression localization and interaction within cells. GFP tagging involves the fusion of GFP to a protein of interest enabling the study of the protein's function and dynamics without affecting the host cell.

Biological function summary

GFP serves as a marker due to its ability to emit green fluorescence without requiring additional substrates or cofactors. GFP does not function within complexes like other proteins but acts as a standalone tool to monitor physiological processes. Scientists utilize techniques such as Western blot ELISA and microscopy along with GFP to track and quantify proteins inside living cells. Anti-GFP antibodies can detect GFP fusion proteins in various applications providing valuable insights into protein behavior and allowing robust assays involving GFP.

Pathways

GFP itself does not participate actively in traditional biochemical or signaling pathways. Instead it enables visual tracking within pathways. Researchers utilize GFP to study pathways like MAPK/ERK and PI3K/AKT where they track proteins related to these pathways using GFP tagging. For instance fusing GFP with proteins like ERK1/2 allows tracking phosphorylation events and signal transduction in living cells leading to better understanding of cellular responses to different stimuli.

Associated diseases and disorders

Researchers use GFP as a model to study gene expression and protein interactions under disease conditions. For example in neurological disorders GFP helps visualize neuronal pathways and protein aggregation processes. By tagging proteins such as amyloid precursor protein (APP) or tau with GFP scientists can study their role in Alzheimer's disease progression. Similarly GFP facilitates the investigation of cancer pathways allowing visualization of tumor-related proteins and helping researchers study how cancer cells grow and invade tissues supporting cancer research and therapy development.

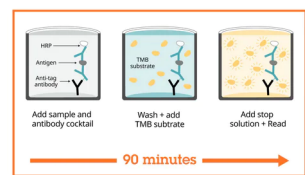
Product promise

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

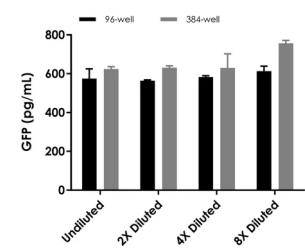
Full details and terms and conditions can be found here:
Terms & Conditions.

10 product images



Sandwich ELISA - GFP ELISA Kit (ab171581)

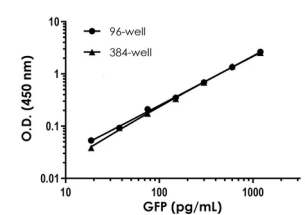
SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



Sandwich ELISA - GFP ELISA Kit (ab171581)

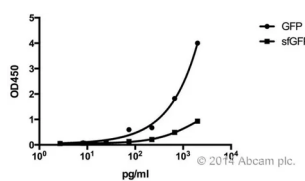
Interpolated concentrations of spiked GFP in HeLa cell extract in 96-well and 384-well plates

Recombinant GFP was spiked into the following human samples and diluted in a 2-fold dilution series in 1X Cell Extraction Buffer PTR in 96-well and 384-well plates. Undiluted samples are 125 µg/mL HeLa cell extract. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).



Sandwich ELISA - GFP ELISA Kit (ab171581)

Example of GFP standard curve in 1X Cell Extraction Buffer PTR in 96-well and 384-well plate. Background-subtracted data values (mean +/- SD) are graphed.



ELISA - GFP ELISA Kit (ab171581)

The kit works with superfold GFP.
See Abreview for more detail.

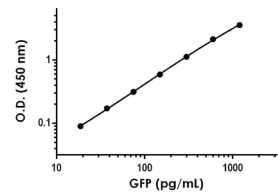
This image is courtesy
submitted by Ling Chun

LINEARITY OF DILUTION -

GFP spiked 143B lysate Dilution	GFP spiked 143B lysate (pg/mL)	% Expected Value
undiluted	744.1	100
1:3	248.0	100
1:9	86.6	105
1:27	31.3	114

Sandwich ELISA - GFP ELISA Kit (ab171581)

Linearity of dilution for spiked GFP.
GFP spiked 143B lysate was measured in 3-fold dilution series



ELISA - GFP ELISA Kit (ab171581)

Example GFP standard curve.
Background-subtracted data values (mean +/- SD) are graphed.

Standard Curve Measurements			
Concentration (pg/mL)	O.D 450 nm		Mean O.D
	1	2	
0	0.055	0.052	0.054
18.8	0.145	0.143	0.144
37.5	0.232	0.220	0.226
75	0.368	0.367	0.368
150	0.651	0.638	0.645
300	1.197	1.155	1.176
600	2.215	2.149	2.182
1,200	3.588	3.625	3.606

Sandwich ELISA - GFP ELISA Kit (ab171581)

Example of raw data for GFP standard curve.
Raw data values are shown in the table



Sandwich ELISA - GFP ELISA Kit (ab171581)

"Representative image of GFP ELISA Kit (ab171581)
Components shown from left to right :

- 10X Wash Buffer PT ([ab206977](#))
- 10X GFP Capture Antibody
- 10X GFP Detector Antibody
- GFP Lyophilised Purified Protein (2 vials)
- 50X Cell Extraction Enhancer Solution ([ab193971](#))
- Sample diluent NS
- TMB solution
- Stop Solution
- 5X Cell Extraction Buffer PTR ([ab193970](#))
- Antibody Diluent EB

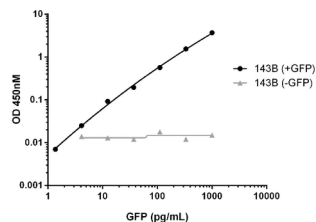
SimpleStep Pre-Coated 96-Well Microplate ([ab206978](#)) - shown behind bottles / vials.

Plate Seals - shown underneath bottles / vials.

Note : The vial labels shown in this image use generic names for illustrative purposes only and may not exactly match the specific component names included in the ELISA kit.

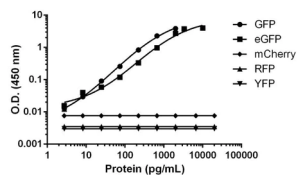
Note : Colors of solutions in image may not precisely match the shade of colors in the actual kit

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ELISA - GFP ELISA Kit (ab171581)

Titration of GFP spiked 143B cell lysate within the working range of the assay. Background subtracted data from triplicate measurements are plotted.



ELISA - GFP ELISA Kit (ab171581)

GFP cross reactivity data.

This kit recognizes both GFP and enhanced GFP (eGFP) in cell and tissue extracts. No reactivity with mCherry, RFP or YFP was observed.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.