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Datasheet for ABIN1381572 **alpha Tubulin ELISA Kit**

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Overview

Quantity:	96 tests
Target:	alpha Tubulin (TUBA1)
Reactivity:	Human, Mouse, Rat
Method Type:	Cell ELISA
Application:	ELISA

Product Details

Sample Type:	Cell Culture Cells
Analytical Method:	Qualitative
Detection Method:	Colorimetric
Specificity:	The Anti-Tubulin alpha antibody is a rabbit polyclonal antibody. It was tested on Western Blots
	for specificity. A single protein band was detected. This protein band can be blocked by the
	synthesized immunogen peptide.
	The Anti-GAPDH antibody is a mouse monoclonal antibody. It was tested on Western Blots with
	the tissue lysates from human, mouse, and rat for specificity. A single protein band was
	detected from all three lysates.
Characteristics:	1) Cell Line: The cell line must express the target protein. This protocol can be used directly for
	adherent cells. For suspension cells and loosely attached cells, two steps are required: Coat the
	plates with 100 μ L of 10 μ g/mL Poly-L-Lysine to each well of the 96-well plate for 30 minutes at
	37°C before proceeding to Step 1 of Assay Protocol. Use 8% formaldehyde to fix the cells on
	Step 5 of Assay Protocol.

- 2) Cell Number and Sensitivity: The number of cells plated onto the 96-well plates depends on the expression level of Tubulin alpha protein in the cells, cell size, treatment conditions and incubation time. The cells used for testing should be around 75-90% confluent. Typically for HeLa cells, seed 30,000 cells per well overnight for treatment the following day. The Tubulin alpha Colorimetric Cell-Based ELISA Kit can detect Tubulin alpha expression in as little as 5,000 HeLa cells.
- 3) Cell Treatment: The cells can be treated with inhibitors, activators, stimulators (ie. chemicals, proteins/peptides) or a combination of the substances listed above. The cells can be treated with UV and serum starvation to meet the needs of the end-user.
- 4) Positive and Negative Controls: Mouse Anti-GAPDH antibody (included) should be used to detect the internal positive controls for normalization of OD values of the target protein. The negative controls are HRP-Conjugated Anti-Rabbit IgG antibody and HRP- Conjugated Anti-Mouse IgG antibody alone in different wells (without the primary antibodies). Both positive and negative controls should be performed in the same plate with the Tubulin alpha target experiments.
- 5) Accuracy and Precision: Each condition should be performed in duplicate or in triplicate.

Components:

96-Well Cell Culture Clear-Bottom Microplate: 1 Plate

TBS: 24 mL (10x), Clear

Quenching Buffer: 24 mL (1x), Clear Blocking Buffer: 50 mL (1x), Clear Wash Buffer: 50 mL (10x), Clear

Anti-Tubulin alpha antibody (Rabbit Polyclonal): 60 µl (100x), Purple

Anti-GAPDH antibody (Mouse Monoclonal): 60 µl (100x), Green

HRP-Conjugated Anti-Rabbit IgG antibody: 6 mL (1x), Glass

HRP-Conjugated Anti-Mouse IgG antibody: 6 mL (1x), Glass

Primary antibody Diluent: 12 mL (1x), Clear Ready-to-Use Substrate: 12 mL (1x), Brown

Stop Solution: 12 mL (1x), Clear

Crystal Violet Solution: 6 mL (1x), Glass

SDS Solution: 24 mL (1x), Clear Adhesive Plate Seals: 4 Seals

Material not included:

The following materials and equipment are NOT provided in this kit but are necessary to

successfully conduct the experiment:

Microplate reader able to measure absorbance at 450 nm and/or 595 nm for Crystal Violet Cell Staining (Optional)

Micropipettes with capability of measuring volumes ranging from 1 μL to 1 mL 37% formaldehyde

Target Details

Target:	alpha Tubulin (TUBA1)
Alternative Name:	Tubulin alpha (TUBA1 Products)
Molecular Weight:	50136
OMIM:	602529
UniProt:	Q71U36, P68363
Pathways:	Microtubule Dynamics

Application Details

Plate:	Uncoated
Protocol:	The Colorimetric Cell-Based ELISA Kit allows for the detection of various target proteins and the
	effects that certain stimulation conditions have on target protein expression in different cell
	lines. Qualitative determination of target protein concentration is achieved by an indirect ELISA
	format. In essence, the target protein is captured by target-specific primary (1st) antibodies
	while the HRP-conjugated secondary (2nd) antibodies bind the Fc region of the 1st antibody.
	Through this binding, the HRP enzyme conjugated to the 2nd antibody can catalyze a
	colorimetric reaction upon substrate addition. Due to the qualitative nature of the Cell-Based
	ELISA, multiple normalization methods are described:
	1) a monoclonal antibody specific for human GAPDH is included to serve as an internal positive
	control in normalizing the target absorbance values.
	2) Following the colorimetric measurement of HRP activity via substrate addition, the Crystal
	Violet whole-cell staining method is used to determine cell density. After staining, the results
	can be analyzed by normalizing the absorbance values to cell amounts, by which the plating
	difference can be adjusted.
	3) If a phosphorylated target is being detected, an antibody against the non-phosphorylated
	counterpart will be provided for normalization purposes. The absorbance values obtained for
	the non-phosphorylated target can be used to normalize the absorbance values for the

phosphorylated target.

Tubulin alpha Colorimetric Cell-Based ELISA

The Tubulin alpha Cell-Based ELISA Kit is a convenient, lysate-free, high throughput and sensitive assay kit that can monitor Tubulin alpha protein expression profile in cells. The kit can be used for measuring the relative amounts of Tubulin alpha in cultured cells as well as screening for the effects that various treatments, inhibitors (ie. siRNA or chemicals), or activators have on Tubulin alpha.

Reagent Preparation:

Note: Please remember to allow all solutions to warm up to room temperature prior to use.

1x TBS: 1x TBS is used to wash cells seeded on the plate. 1x TBS can be prepared by adding 1 volume of 10x TBS provided in the kit to 9 volumes of ddH2O.

Fixing Solution: This solution is NOT provided. Fixing Solution is used to fix cells after cell culture. It is prepared by adding formaldehyde to 1x TBS with light mixing. The 4% formaldehyde is used for adherent cells and 8% formaldehyde is used for suspension cells and loosely attached cells.

Quenching Buffer: This solution is provided as ready-to-use. Quenching Buffer is used to inactivate the endogenous peroxidase activity of the seeded cells.

Blocking Buffer: This solution is provided as ready-to-use. Blocking Buffer is used to block additional binding sites in each well.

Wash Buffer: This buffer is provided as a 10x solution. 1x Wash Buffer can be prepared by adding 1 volume of 10x Wash Buffer provided in the kit to 9 volumes of ddH2O.

100x Anti-Tubulin alpha antibody: This antibody is a rabbit polyclonal antibody. This antibody was tested to be specific for the Tubulin alpha protein. The supplied antibody is a 100x solution. Make 1:100 dilutions in Primary antibody Diluent prior to use. The diluted primary antibody can be stored at 4°C for up to two weeks.

100x Anti-GAPDH antibody: This antibody is a mouse monoclonal antibody. This antibody was tested to be specific for GAPDH. The supplied antibody is a 100x solution. Make 1:100 dilutions in Primary antibody Diluent prior to use. The diluted primary antibody can be stored at 4°C for up to two weeks.

HRP-Conjugated Anti-Rabbit IgG antibody: This solution is provided as ready-to-use. HRP-Conjugated Anti-Rabbit IgG antibody is used as the secondary antibody to detect the target-bound, primary rabbit antibodies.

HRP-Conjugated Anti-Mouse IgG antibody: This solution is provided as ready-to-use. HRP-Conjugated Anti-Mouse IgG antibody is used as the secondary antibody to detect the target-bound, primary mouse antibodies.

Primary antibody Diluent: This solution is provided as ready-to-use. Use this solution to dilute

the provided antibodies.

Ready-to-Use Substrate: This solution is provided as ready-to-use. Ready-to-Use Substrate must be warmed to room temperature before use. Keep away from light as this solution is light-sensitive.

Stop Solution: This solution is provided as ready-to-use. Stop Solution must be handled with caution as it contains 2 N Sulfuric Acid (H2SO4) and is corrosive. Wear eye protection and gloves when handling.

Crystal Violet Solution: This solution is provided as ready-to-use. Crystal Violet is an intense stain used to stain cell nuclei. Avoid contact with skin and clothing.

SDS Solution: This solution is provided as ready-to-use. SDS is used to solubilize the Crystal Violet in preparation for cell staining. Store this solution at room temperature or warm up to room temperature if stored at 4°C.

Assay Procedure:

Note: Please read the whole manual before performing the experiment.

- 1) Seed 200 μ L of 20,000 adherent cells in culture medium in each well of a 96-well plate. The plates included in the kit are sterile and treated for cell culture. For suspension cells and loosely attached cells, coat the plates with 100 μ L of 10 μ g/mL Poly-L-Lysine (not included) to each well of a 96-well plate for 30 minutes at 37°C prior to adding cells.
- 2) Incubate the cells for overnight at 37°C, 5% CO2.
- 3) Treat the cells as desired.
- 4) Remove the cell culture medium and rinse with 200 μL of 1x TBS, twice.
- 5) Fix the cells by incubating with 100 μ L of Fixing Solution for 20 minutes at room temperature. The 4% formaldehyde is used for adherent cells and 8% formaldehyde is used for suspension cells and loosely attached cells. During the incubation, the plates should be sealed with Parafilm. Note: Fixing Solution is volatile. Wear appropriate personal protection equipment (mask, gloves and glasses) when using this chemical.
- 6) Remove the Fixing Solution and wash the plate 3 times with 200 μ L 1x Wash Buffer for five minutes each time with gentle shaking on the orbital shaker. The plate can be stored at 4°C for a week. Note: For all wash steps, tap the plate gently on absorbent papers to remove the solution completely.
- 7) Add 100 µL Quenching Buffer and incubate for 20 minutes at room temperature.
- 8) Wash the plate 3 times with 1x Wash Buffer for 5 minutes at a time, with gentle shaking on the shaker.
- 9) Add 200 μ L of Blocking Buffer and incubate for 1 hour at room temperature. 10) Wash 3 times with 200 μ L of 1x Wash Buffer for 5 minutes at a time, with gentle shaking on the shaker.
- 11) Add 50 µL of 1x primary antibodies (Anti-Tubulin alpha antibody and/or Anti-GAPDH

antibody) to the corresponding wells, cover with Parafilm and incubate for 16 hours (overnight) at 4°C. If the target expression is known to be high, incubate for 2 hours at room temperature with gentle shaking on the shaker.

- 12) Wash 3 times with 200 μ L of 1x Wash Buffer for 5 minutes at a time, with gentle shaking on the shaker.
- 13) Add 50 μ L of 1x secondary antibodies (HRP-Conjugated Anti- Rabbit IgG antibody and/or HRP-Conjugated Anti-Mouse IgG antibody) to corresponding wells and incubate for 1.5 hours at room temperature with gentle shaking on the shaker. Note: Add HRP-Conjugated Anti-Rabbit IgG antibody to the wells incubated with Anti-Tubulin alpha (rabbit, polyclonal) and add HRP-Conjugated Anti-Mouse IgG antibody to the wells incubated with Anti-GAPDH antibody (mouse, monoclonal).
- 14) Wash 3 times with 200 μ L of 1x Wash Buffer for 5 minutes at a time, with gentle shaking on the shaker.
- 15) Add 50 μ L of Ready-to-Use Substrate to each well and incubate for 30 minutes at room temperature in the dark with gentle shaking on the shaker. Note: Ready-to-Use Substrate is a light-sensitive reagent. Keep away from light.
- 16) Add 50 µL of Stop Solution to each well and read OD at 450 nm immediately using the microplate reader. Optional: Crystal Violet Cell Staining Crystal Violet binds to cell nuclei and gives absorbance readings proportional to cell counts at 595 nm.
- 17) After finishing reading the absorbance at 450 nm, wash the plate twice with 200 μ L of Wash Buffer and twice with 200 μ L of 1x TBS for 5 minutes each. Tap the plates on paper towel to remove the excess liquid. Let plate air dry for 5 minutes at room temperature.
- 18) Add 50 µL of Crystal Violet Solution to each well, incubate for 30 minutes at room temperature on the shaker. Note: Crystal Violet is an intense stain. Avoid contact with skin and clothing.
- 19) Flick the plate to remove Crystal Violet Solution, rinse the plate by filling the wells with running tap water, and wash the plate with 200 μ L of 1x TBS 3 times, 5 minutes each with gently shaking on the shaker.
- 20) Add 100 µL of SDS Solution into each well and incubate on the shaker at room temperature for 1 hour.
- 21) Read absorbance at 595 nm with microplate reader. If absorbance is too high, the solubilized Crystal Violet Solution can be diluted 10 times with H2O on a separate 96-well plate.

Calculation of Results:

GAPDH normalization: The OD450 values obtained for the target protein can be normalized using the OD450 values obtained for GAPDH.

Crystal Violet Staining normalization: The measured OD450 readings can be normalized using

	the OD595 values via the proportion, OD450/OD595.
Assay Precision:	Cell-Based
	This ELISA kit is intended for research purposes only, NOT for diagnostic or clinical procedures
	of any kind.
	Materials included in this kit should NOT be used past the expiration date on the kit label.
	Reagents or substrates included in this kit should NOT be mixed or substituted with reagents o
	substrates from any other kits.
	Variations in pipetting technique, washing technique, operator laboratory technique, kit age,
	incubation time or temperature may cause differences in binding affinity of the materials
	provided.
	The assay is designed to eliminate interference and background by other cellular
	macromolecules or factors present within any biological samples. However, the possibility of
	background noise cannot be fully excluded until all factors have been tested using the assay kit
Restrictions:	For Research Use only
Handling	
Precaution of Use:	Reagents provided in this kit may be harmful if ingested, inhaled or absorbed through the skin.
	Fixing Solution contains formaldehyde. Formaldehyde is known to be a highly toxic reagent.
	Personal protection is strongly recommended while working with this chemical.
	Stop Solution contains 2 N Sulfuric Acid (H2SO4) and is an extremely corrosive agent. Please
	wear proper eye, hand and face protection when handling this material. When the experiment is
	finished, be sure to rinse the plate with copious amounts of running water to dilute the Stop
	Solution prior to disposing the plate or strips.
	Crystal Violet is an intense stain reagent. Avoid contact with clothing.
Storage:	4 °C
Storage Comment:	Upon receipt, the kit should be stored at 4°C. The un-opened kit will be stable for up to 6
	months from the date of shipment if stored at 4°C. Diluted Anti-Tubulin alpha antibody and
	diluted Anti-GAPDH antibody can each be stored at 4°C for up to two weeks. HRP-Conjugated
	Anti-Rabbit IgG antibody and HRP-Conjugated Anti-Mouse IgG antibody will be stable at 4°C for
	up to six months. The SDS Solution should be stored at room temperature or warmed up to
	room temperature if stored at 4°C.
Expiry Date:	6 months