abcam

ab81461

Anti-GLO1 antibody [6F10]

KO Validated

Key facts

Isotype	IgG2b
Host species	Rat
Storage buffer	pH: 6 - 8.5 Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	6F10
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	The antibody was produced from the hybridoma cultured in serum free medium and purified under mild conditions by propriety chromatography processes. It is filter sterilized.

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/1000

Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Species	African green monkey
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, African green monkey
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab18536 - Rat monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, African green monkey
Dilution info	Use at an assay dependent concentration.

Notes	-

Target data

See full target information GLO1

Function	Catalyzes the conversion of hemimercaptal, formed from methylglyoxal and glutathione, to S-lactoylglutathione (PubMed:20454679, PubMed:23122816, PubMed:9705294). Involved in the regulation of TNF-induced transcriptional activity of NF-kappa-B (PubMed:19199007). Required for normal osteoclastogenesis (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

ab81461 also reacts with Simian.

Supplementary info

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

Activity summary	The GLO1 protein also known as glyoxalase I plays an important role in cellular metabolism by detoxifying methylglyoxal a byproduct of glycolysis. It catalyzes the conversion of methylglyoxal into S-D-lactoylglutathione using glutathione as a cofactor. This enzyme has a mass of approximately 29 kDa and is expressed in various tissues throughout the body with higher levels found in the liver and kidney. Glyoxalase I (GLO1) expression is increased in response to stress conditions indicating its role in cellular defense mechanisms.
Biological function summary	Glyoxalase I is important for maintaining cellular homeostasis by mitigating harmful compounds. It forms part of the glyoxalase system which includes

	glyoxalase II functioning downstream of GLO1. This system prevents the accumulation of advanced glycation end-products (AGEs) which are implicated in cellular aging and dysfunction. By reducing the levels of methylglyoxal GLO1 supports normal physiological processes and protects cellular integrity.
Pathways	Glyoxalase I is an important component of the glyoxalase pathway. This pathway integrates into the detoxification network working alongside other important enzymes such as superoxide dismutase and catalase. These relationships highlight its function in cellular oxidative stress responses. GLO1's activity impacts pathways related to glycolysis and overall energy metabolism due to its role in reducing metabolic byproducts.
Associated diseases and disorders	GLO1 has significant implications in diabetic complications and cancer. In diabetes increased methylglyoxal can worsen tissue damage making GLO1's role protective against advanced glycation end-product formation. In cancer GLO1 is overexpressed contributing to cellular proliferation and survival. Its interaction with proteins such as Hsp70 in cancer illustrates the adaptive mechanisms that tumor cells use for progression and chemoresistance.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

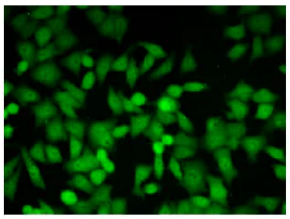
We do not recommend this combination. It is not covered by our product promise.

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.

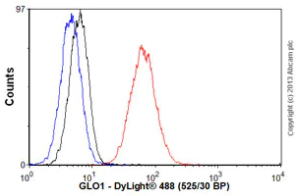
4 product images



Immunocytochemistry/ Immunofluorescence - Anti-GLO1 antibody [6F10] (ab81461)

GLO1 Immunocytochemistry/ Immunofluorescence staining of HeLa cells using rat Anti-GLO1 antibody

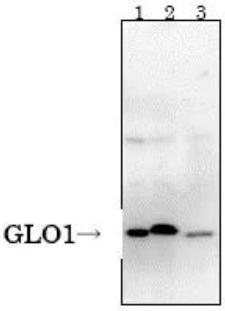
Immunofluorescent staining of HeLa cells with ab81461 at a 1/500 dilution. Cells fixed with 4% paraformaldehyde and permeabilized with 0.2% Triton X-100. As the second antibody, goat anti-rat IgG antibody conjugated with FITC was used at 1/5,000 dilution.



Flow Cytometry (Intracellular) - Anti-GLO1 antibody [6F10] (ab81461)

GLO1 Flow Cytometry (Intracellular) staining using rat Anti-GLO1 antibody

Overlay histogram showing HeLa cells stained with ab81461 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab81461, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rat IgG (H+L) (ab98386) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rat IgG2b [RTK4530] (ab18541, 1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line). Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.



Western blot - Anti-GLO1 antibody [6F10] (ab81461)

GLO1 Western blot staining using rat Anti-GLO1 antibody

Mouse (COS-1) GLO1 shows a single band of 27 kDa while human (HeLa) and simian (L929) ones show 29 kDa.
All lanes:
Western blot - Anti-GLO1 antibody [6F10] (ab81461) at 1/1000 dilution

Lane 1:
COS-1 (simian) whole cell extract

Lane 2:
L929 (mouse) whole cell extract

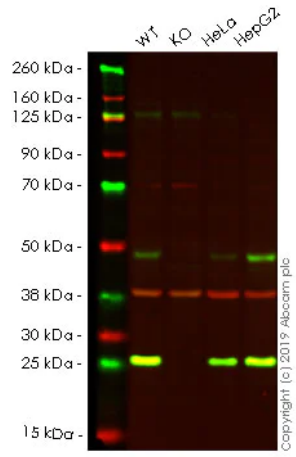
Lane 3:
HeLa (human) whole cell extract

Secondary

All lanes:
Goat anti-rat IgG antibody conjugated with HRP at 1/10000 dilution

Predicted band size: 21 kDa

Observed band size: 27-29 kDa



Western blot - Anti-GLO1 antibody [6F10] (ab81461)

GLO1 Western blot staining using rat Anti-GLO1 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab81461 observed at 21 kDa. Red - loading control, ab181602, observed at 37 kDa.
ab81461 was shown to specifically react with in wild-type HAP1 cells as signal was lost in GLO1 knockout cells. Wild-type and GLO1 knockout samples were subjected to SDS-PAGE. The membrane was blocked with 3% Milk. ab81461 and ab181602 (Rabbit anti-GAPDH loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Rat IgG H&L (IRDye® 800CW) preabsorbed and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed ab216777 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-GLO1 antibody [6F10] (ab81461) at 1/1000 dilution

Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
GLO1 knockout HAP1 whole cell lysate at 20 µg

Lane 3:
HeLa whole cell lysate at 20 µg

Lane 4:
HepG2 whole cell lysate at 20 µg

Predicted band size: 21 kDa

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