

# Product Datasheet

## Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody - BSA Free NB110-93479

Unit Size: 0.05 ml

Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

[www.novusbio.com](http://www.novusbio.com)



[technical@novusbio.com](mailto:technical@novusbio.com)

**Reviews: 5 Publications: 61**

Protocols, Publications, Related Products, Reviews, Research Tools and Images at:  
[www.novusbio.com/NB110-93479](http://www.novusbio.com/NB110-93479)

Updated 9/9/2025 v.20.1

Earn rewards for product  
reviews and publications.

Submit a publication at [www.novusbio.com/publications](http://www.novusbio.com/publications)

Submit a review at [www.novusbio.com/reviews/destination/NB110-93479](http://www.novusbio.com/reviews/destination/NB110-93479)

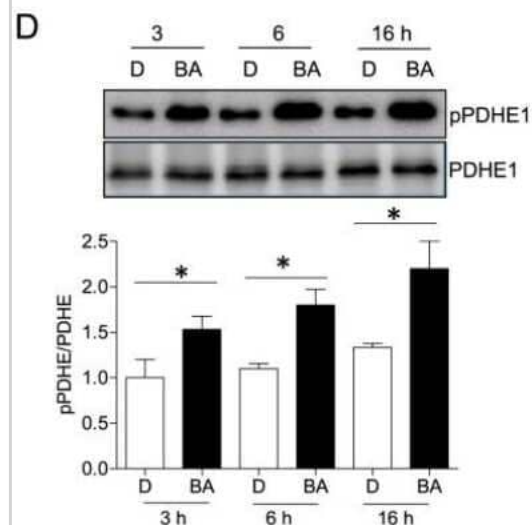


**NB110-93479****Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody - BSA Free**

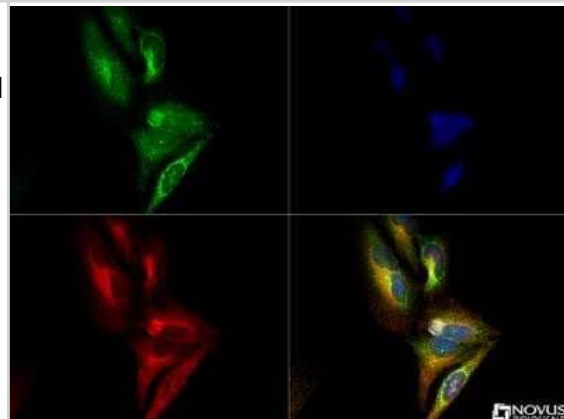
<b>Product Information</b>	
<b>Unit Size</b>	0.05 ml
<b>Concentration</b>	1 mg/ml
<b>Storage</b>	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
<b>Clonality</b>	Polyclonal
<b>Preservative</b>	0.02% Sodium Azide
<b>Isotype</b>	IgG
<b>Purity</b>	Immunogen affinity purified
<b>Buffer</b>	PBS
<b>Target Molecular Weight</b>	43 kDa
<b>Product Description</b>	
<b>Description</b>	Novus Biologicals Knockout (KO) Validated Rabbit Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody - BSA Free (NB110-93479) is a polyclonal antibody validated for use in IHC, WB, Flow, ICC/IF, Simple Western and IP. Anti-Pyruvate Dehydrogenase E1-alpha subunit Antibody: Cited in 59 publications. All Novus Biologicals antibodies are covered by our 100% guarantee.
<b>Host</b>	Rabbit
<b>Gene ID</b>	5160
<b>Gene Symbol</b>	PDHA1
<b>Species</b>	Human, Mouse, Rat
<b>Specificity/Sensitivity</b>	This is specific for the phosphorylated Serine 293 form of the PDHE1 alpha protein.
<b>Immunogen</b>	A synthetic peptide surrounding the phosphorylated serine 293 of the human Pyruvate Dehydrogenase E1-alpha subunit protein. [Swiss-Prot: #P08559]
<b>Product Application Details</b>	
<b>Applications</b>	Western Blot, Simple Western, Flow Cytometry, Immunoblotting, Immunocytochemistry/ Immunofluorescence, Immunoprecipitation, Knockout Validated
<b>Recommended Dilutions</b>	Western Blot 1:1000-1:5000, Simple Western, Flow Cytometry reported in scientific literature (PMID 31900478), Immunocytochemistry/ Immunofluorescence 1:50-1:250, Immunoprecipitation reported in scientific literature (PMID 27450723), Immunoblotting, Knockout Validated reported in scientific literature (PMID 31742248)
<b>Application Notes</b>	In Western blot, a band is seen ~43 kDa. It is recommended that BSA rather than non-fat milk be used in membrane blocking and antibody dilution.

## Images

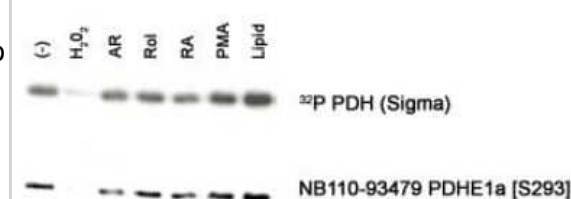
**Western Blot: Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody - BSA Free [NB110-93479] - Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody [NB110-93479] - MEF** were treated with 10  $\mu$ M BA or DMSO (0.1%) for 16 h before they were subjected to a glycolysis stress test as described under "Materials and Methods". MEF were treated with DMSO (0.1%, D) and 10  $\mu$ M BA for the indicated periods of time before total cell lysates were subjected to immunoblot analyses for pPDHE1 (Ser273) and total PDHE1 (molecular weight 43 kDa). Representative blots out of three experiments are shown. The graph below depicts compiled densitometric values of pPDHE/PDHE. Representative blots out of three independent experiments are shown. The graph below depicts compiled densitometric values of GLUT1/actin and GLUT3/actin, respectively. Image collected and cropped by CiteAb from the following publication (<https://dx.plos.org/10.1371/journal.pone.0115683>) licensed under a CC-BY license.



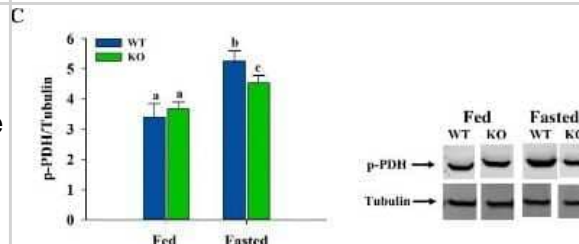
**Immunocytochemistry/Immunofluorescence: Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody [NB110-93479] - Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] antibody (1:250)** was tested in HeLa cells with DyLight 488 (green). Nuclei and alpha-tubulin were counterstained with DAPI (blue) and DyLight 550 (red).



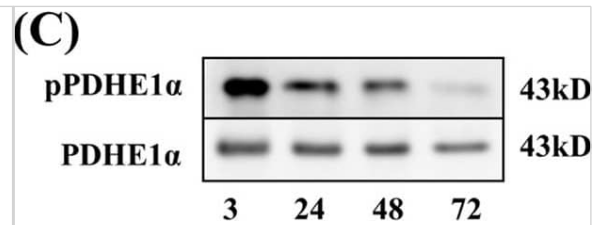
**Western Blot: Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody [NB110-93479] - Detection of PDHE1 alpha [S293] in an in vitro autophosphorylation of PDH complex in response to different stimulants:** (-) none, H<sub>2</sub>O<sub>2</sub>-hydrogen peroxide, AR-anhydroretinol, Rol-retinol, RA-retinoic acid, PMA, Lipid-PKC lipid activator. Photo courtesy of Dr. Beatrice Hoyos, Memorial Sloan-Kettering Cancer Center.



**Western Blot: Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody [NB110-93479] - PDH activity and protein levels of PDK4 and p-PDH in hindlimb skeletal muscle.** Samples were resolved by electrophoresis, transferred and probed by antibodies and representative immunoblots and normalization of pPDH are presented. The following comparisons were made: within a genotype, fed versus fasted; across genotypes, fed versus fed and fasted versus fasted. Bars that do not share a common symbol differ significantly ( $P < 0.05$ ). Data presented as mean  $\pm$  SEM ( $n = 6$ ). Image collected and cropped by CiteAb from the following publication (<https://dx.plos.org/10.1371/journal.pone.0124204>), licensed under a CC-BY license.



Western Blot: Pyruvate Dehydrogenase E1-alpha subunit [p Ser293] Antibody - BSA Free [NB110-93479] - PDK4 expression during syncytialization of human placental trophoblasts. (A) Changes of the RPKM values for PDK family members in trophoblasts before (red column, 3 hours) & after (blue column, 48 hours) syncytialization. (B) Changes in PDK4 mRNA (black column, n = 4) & protein (white column, n = 4) abundance during syncytialization. (C) Changes in the phosphorylation of PDHE1 $\alpha$  during syncytialization n = 4. (D) Representative images showing intense staining of PDK4 (red) in the cytotrophoblast layer & weak staining of PDK4 in the syncytial layer of human chorionic villi at early gestation. The syncytial & cytotrophoblast layers were labeled with  $\beta$ -hCG (green) & SPINT1 (green) respectively. Nuclei were counterstained with DAPI (blue). n = 3; \*P < 0.05; \*\*P < 0.01; \*\*\*P < 0.001 against 3 hours; n.s., not significant. Image collected & cropped by CiteAb from the following publication (<https://www.nature.com/articles/s41598-017-09163-8>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



## Publications

- Ismaeel A, Peck B, Montgomery M et al. microRNA-1 regulates metabolic flexibility by programming adult skeletal muscle pyruvate metabolism. *Molecular metabolism* 2025-06-07 [PMID: 40490136]
- Horie M, Takagane K, Itoh G, Kuriyama S et Al. Exosomes secreted by ST3GAL5(high) cancer cells promote peritoneal dissemination by establishing a premetastatic microenvironment *Mol Oncol* 2023-09-16 [PMID: 37716915]
- Moutaoufik MT, Malty R, Amin S et Al. Rewiring of the Human Mitochondrial Interactome during Neuronal Reprogramming Reveals Regulators of the Respirasome and Neurogenesis *iScience* 2019-09-04 [PMID: 31536960]
- Yoon J, Grinchuk OV, Kannan S et Al. A chemical biology approach reveals a dependency of glioblastoma on biotin distribution *Sci Adv* 2021-09-01 [PMID: 34516894]
- Huo J, Prasad V, Grimes KM et al. MCUB is an inducible regulator of calcium-dependent mitochondrial metabolism and substrate utilization in muscle *Cell reports* 2023-11-28 [PMID: 37976157]
- Li Y, Cai J, Liu Y et al. CcpA-Knockout *Staphylococcus aureus* Induces Abnormal Metabolic Phenotype via the Activation of Hepatic STAT5/PDK4 Signaling in Diabetic Mice *Pathogens* 2023-10-30 [PMID: 38003764] (WB, Mouse)
- Abdon B The Role of Endoplasmic Reticulum Associated Degradation in Skeletal Muscle Growth and Metabolism Thesis 2023-01-01 (IHC-FrFI, IHC-Fr, Mouse)
- Bekeova C, Han JI, Xu H et al. Acyl-CoA thioesterase-2 facilitates  $\beta$ -oxidation in glycolytic skeletal muscle in a lipid supply dependent manner *bioRxiv : the preprint server for biology* 2023-06-27 [PMID: 37425757] (WB, Mouse)
- Rossi SP, Matzkin ME, Riviere E et al. Melatonin improves oxidative state and lactate metabolism in rodent Sertoli cells *Molecular and cellular endocrinology* 2023-07-27 [PMID: 37516434] (WB, Human)
- Details:  
1:1000 WB dilution
- Li J, Zhu X, Oberdier MT et al. A cell-penetrating PHLPP peptide improves cardiac arrest survival in murine and swine models *The Journal of clinical investigation* 2023-05-01 [PMID: 37115695] (WB, Mouse)
- Holloway C, Zhong G, Kim YK et al. Retinoic acid regulates pyruvate dehydrogenase kinase 4 (Pdk4) to modulate fuel utilization in the adult heart: Insights from wild-type and beta-carotene 9',10' oxygenase knockout mice *FASEB journal : official publication of the Federation of American Societies for Experimental Biology* 2022-09-01 [PMID: 36004605] (WB, Mouse)
- Gatie M, Cooper T, Khazaee R et al. Lactate enhances mouse ES cell differentiation towards XEN cells in vitro *Stem Cells* 2022-03-24 [PMID: 35323987]

More publications at <http://www.novusbio.com/NB110-93479>



### **Novus Biologicals USA**

10730 E. Briarwood Avenue  
Centennial, CO 80112  
USA  
Phone: 303.730.1950  
Toll Free: 1.888.506.6887  
Fax: 303.730.1966  
nb-customerservice@bio-techne.com

### **Bio-Techne Canada**

21 Canmotor Ave  
Toronto, ON M8Z 4E6  
Canada  
Phone: 905.827.6400  
Toll Free: 855.668.8722  
Fax: 905.827.6402  
canada.inquires@bio-techne.com

### **Bio-Techne Ltd**

19 Barton Lane  
Abingdon Science Park  
Abingdon, OX14 3NB, United Kingdom  
Phone: (44) (0) 1235 529449  
Free Phone: 0800 37 34 15  
Fax: (44) (0) 1235 533420  
info.EMEA@bio-techne.com

### **General Contact Information**

www.novusbio.com  
Technical Support: nb-technical@bio-techne.com  
Orders: nb-customerservice@bio-techne.com  
General: novus@novusbio.com

### **Products Related to NB110-93479**

---

NBL1-14241	Pyruvate Dehydrogenase E1-alpha subunit Overexpression Lysate
NBP2-33376H	Blue Marker Antibody (6F4-F6) [HRP]
HAF008	Goat anti-Rabbit IgG Secondary Antibody [HRP]
NB7160	Goat anti-Rabbit IgG (H+L) Secondary Antibody [HRP]
NBP2-24891	Rabbit IgG Isotype Control

---

### **Limitations**

This product is for research use only and is not approved for use in humans or in clinical diagnosis. Primary Antibodies are guaranteed for 1 year from date of receipt.

For more information on our 100% guarantee, please visit [www.novusbio.com/guarantee](http://www.novusbio.com/guarantee)

Earn gift cards/discounts by submitting a review: [www.novusbio.com/reviews/submit/NB110-93479](http://www.novusbio.com/reviews/submit/NB110-93479)

Earn gift cards/discounts by submitting a publication using this product:  
[www.novusbio.com/publications](http://www.novusbio.com/publications)

