abcam

ab201964

# Anti-PDK2 antibody [3F2D7]

KO Validated

## Key facts

| | |
|---|---|
| **Isotype** | IgG2b |
| **Host species** | Mouse |
| **Storage buffer** | Preservative: 0.05% Sodium azide Constituents: PBS |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | Recombinant Fragment Protein within Human PDK2 aa 150-450. The exact immunogen used to generate this antibody is proprietary information. Database link Q15119 |
| **Clone number** | 3F2D7 |
| **Purification technique** | Affinity purification Protein G |
| **Concentration** | 1 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |
| **Purification notes** | Purified from tissue culture supernatant. |

## Reactivity data

## Flow Cyt

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/200 - 1/400 |

| | |
|---|---|
| **Notes** | ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody. |

### Expected

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

### Predicted

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Recombinant fragment - Human |
| **Dilution info** | - |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 - 1/2000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Recombinant fragment - Human |
| **Dilution info** | 1/500 - 1/2000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/500 - 1/2000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | African green monkey |
| **Dilution info** | 1/500 - 1/2000 |
| **Notes** | - |

### Predicted

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information PDK2

**Function**

Kinase that plays a key role in the regulation of glucose and fatty acid metabolism and homeostasis via phosphorylation of the pyruvate dehydrogenase subunits PDHA1 and PDHA2. This inhibits pyruvate dehydrogenase activity, and thereby regulates metabolite flux through the tricarboxylic acid cycle, down-regulates aerobic respiration and inhibits the formation of acetyl-coenzyme A from pyruvate. Inhibition of pyruvate dehydrogenase decreases glucose utilization and increases fat metabolism. Mediates cellular responses to insulin. Plays an important role in maintaining normal blood glucose levels and in metabolic adaptation to nutrient availability. Via its regulation of pyruvate dehydrogenase activity, plays an important role in maintaining normal blood pH and in preventing the accumulation of ketone bodies under starvation. Plays a role in the regulation of cell proliferation and in resistance to apoptosis under oxidative stress. Plays a role in p53/TP53-mediated apoptosis.

## Storage

| | |
|---|---|
| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage duration** | 1-2 weeks |
| **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 |

## Supplementary info

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

| | |
|---|---|
| **Activity summary** | PDK2 also known as Pyruvate Dehydrogenase Kinase 2 is a mitochondrial protein involved in the regulation of glucose metabolism. It phosphorylates and inactivates the pyruvate dehydrogenase complex (PDC) which plays an important role in controlling the conversion of pyruvate to acetyl-CoA. PDK2 has a molecular mass of approximately 46 kDa and shows expression in various tissues including the heart liver and kidneys. The expression pattern indicates its significance in tissues with high metabolic demands. |
| **Biological function summary** | PDK2 regulates cellular energy metabolism by phosphorylating the E1 component of PDC resulting in lowered acetyl-CoA production. PDK2 often acts as part of a regulatory complex with PDC influencing metabolic flux within the mitochondria. Its activity can alter ATP production and fatty acid synthesis impacting overall cellular function and energy homeostasis. In response to different metabolic needs the availability and activity of PDK2 modulate the balance between carbohydrate utilization and lipid oxidation. |
| **Pathways** | PDK2 has an important role in the glucose and lipid metabolic pathways by interacting with PDC. The pathways where PDK2 is active are essential for maintaining energy homeostasis and are sensitive to different physiological conditions. PDK2's regulation of pyruvate oxidation influences the tricarboxylic acid (TCA) cycle affecting key metabolic enzymes such as pyruvate dehydrogenase phosphatase 1 (PDP1) and PDK1. Its activity is often fine-tuned by factors impacting energy needs insulin signaling and nutrient availability. |
| **Associated diseases and disorders** | Abnormal PDK2 activity associates with metabolic conditions like diabetes and cancer. In diabetes the dysregulation of PDK2 alters the metabolic processing of carbohydrates leading to increased reliance on lipid oxidation and contributing to hyperglycemia. In cancer PDK2's role in promoting aerobic glycolysis also known as the Warburg effect supports rapid cell growth and survival. The link between PDK2 and these diseases highlights its involvement alongside other proteins such as hypoxia-inducible factor 1-alpha (HIF-1α) in promoting altered energy metabolism in pathological states. |

## 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.

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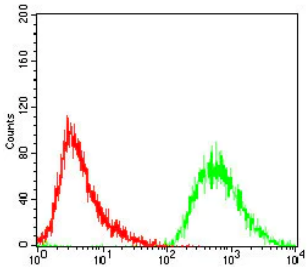
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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## 5 product images

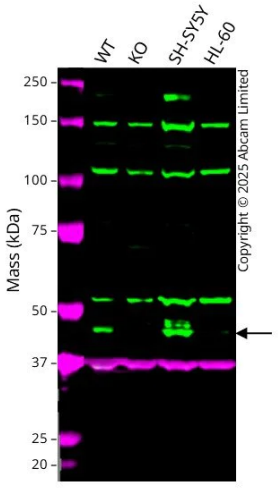



### Flow Cytometry - Anti-PDK2 antibody [3F2D7] (ab201964)

PDK2 Flow Cytometry staining using mouse Anti-PDK2 antibody

Flow cytometric analysis of A431 cells labeling PDK2 with ab201964 at 1/200 dilution (green). Negative control (red).

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### Western blot - Anti-PDK2 antibody [3F2D7] (ab201964)

PDK2 Western blot staining using mouse Anti-PDK2 antibody

Western blot: Mouse Monoclonal [3F2D7] to PDK2 ab201964 staining at 1/500 dilution, shown in green; Rabbit anti GAPDH ab181602 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 45 kDa in Wild-type U-87 MG cell lysates with no signal observed at this size in PDK2 knockout U-87 MG cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3pc Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Mouse 800CW and Goat anti-Rabbit 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-PDK2 antibody [3F2D7] (ab201964) at 1/500 dilution

Lane 1:
Wild-type U-87 MG at 20 µg

Lane 2:
PDK2 knockout U-87 MG at 20 µg

Lane 3:
SH-SY5Y at 20 µg

Lane 4:
HL-60 at 20 µg

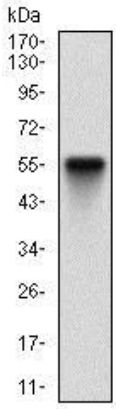
Secondary

All lanes:
Goat anti-Mouse 800CW & Goat anti-Rabbit 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 46 kDa

Observed band size: 45 kDa, 36 kDa

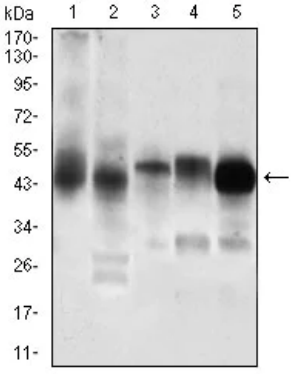



## Western blot - Anti-PDK2 antibody [3F2D7] (ab201964)

All lanes:
Western blot - Anti-PDK2 antibody [3F2D7] (ab201964) at 1/500 dilution

All lanes:
Human recombinant PDK2 (aa178-404) protein

Predicted band size: 46 kDa




## Western blot - Anti-PDK2 antibody [3F2D7] (ab201964)

All lanes:
Western blot - Anti-PDK2 antibody [3F2D7] (ab201964) at 1/500 dilution

Lane 1:
Jurkat cell lysate

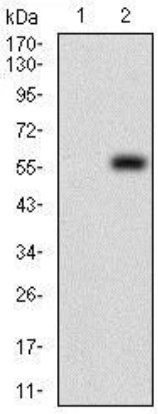
Lane 2:
C6 cell lysate

Lane 3:
COS7 cell lysate

Lane 4:
K562 cell lysate

Lane 5:
A431 cell lysate

Predicted band size: 46 kDa




# Western blot - Anti-PDK2 antibody [3F2D7] (ab201964)

All lanes:
Western blot - Anti-PDK2 antibody [3F2D7] (ab201964) at 1/500 dilution

Lane 1:
HEK293 cell lysate

Lane 2:
Human recombinant PDK2 (aa178-404)-hIgGFc transfected HEK293 cell lysate

Predicted band size: 46 kDa

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