

### **Anti-VDAC/Porin Antibody**

**Catalog # ABO11086** 

### **Specification**

## **Anti-VDAC/Porin Antibody - Product Information**

Application WB, IHC-P, IHC-F, ICC

Primary Accession P21796
Host Rabbit

Reactivity Human, Mouse, Rat

Clonality Polyclonal Lyophilized

**Description** 

Rabbit IgG polyclonal antibody for Voltage-dependent anion-selective channel protein 1(VDAC1) detection. Tested with WB, IHC-P, IHC-F, ICC in Human; Mouse; Rat.

#### Reconstitution

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

## Anti-VDAC/Porin Antibody - Additional Information

#### **Gene ID 7416**

#### **Other Names**

Voltage-dependent anion-selective channel protein 1, VDAC-1, hVDAC1, Outer mitochondrial membrane protein porin 1, Plasmalemmal porin, Porin 31HL, Porin 31HM, VDAC1, VDAC

## **Calculated MW**

30773 MW KDa

#### **Application Details**

Immunocytochemistry , 0.5-1  $\mu$ g/ml, Human, Mouse, Rat<br/>br>Immunohistochemistry(Frozen Section), 0.5-1  $\mu$ g/ml, Rat, Human, Mouse<br/>br>Immunohistochemistry(Paraffin-embedded Section), 0.5-1  $\mu$ g/ml, Human, Mouse, Rat, By Heat<br/>br>Western blot, 0.1-0.5  $\mu$ g/ml, Human, Mouse, Rat<br/>br>

### **Subcellular Localization**

Mitochondrion outer membrane. Cell membrane.

### **Tissue Specificity**

Heart, liver and skeletal muscle.

## **Protein Name**

Voltage-dependent anion-selective channel protein 1(VDAC-1/hVDAC1)

#### **Contents**

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.

### **Immunogen**

A synthetic peptide corresponding to a sequence in the middle region of human VDAC(163-178aa



RVTQSNFAVGYKTDEF), identical to the related rat and mouse sequences.

Purification

Immunogen affinity purified.

**Cross Reactivity** 

No cross reactivity with other proteins

Storage

At -20°C for one year. After r°Constitution, at 4°C for one month. It°Can also be aliquotted and stored frozen at -20°C for a longer time. Avoid repeated freezing and thawing.

**Sequence Similarities** 

Belongs to the eukaryotic mitochondrial porin family.

## **Anti-VDAC/Porin Antibody - Protein Information**

Name VDAC1 (HGNC:12669)

**Synonyms VDAC** 

#### **Function**

Non-selective voltage-gated ion channel that mediates the transport of anions and cations through the mitochondrion outer membrane and plasma membrane (PubMed:<a href="http://www.uniprot.org/citations/10661876" target=" blank">10661876</a>, PubMed:<a href="http://www.uniprot.org/citations/11845315" target="\_blank">11845315</a>, PubMed:<a href="http://www.uniprot.org/citations/18755977" target="\_blank">18755977</a>, PubMed:<a href="http://www.uniprot.org/citations/30061676" target="\_blank">30061676</a>, PubMed:<a href="http://www.uniprot.org/citations/8420959" target=" blank">8420959</a>). The channel at the outer mitochondrial membrane allows diffusion of small hydrophilic molecules; in the plasma membrane it is involved in cell volume regulation and apoptosis (PubMed:<a  $href="http://www.uniprot.org/citations/10661876" target="\_blank">10661876</a>, PubMed:<a href="http://www.uniprot.org/citations/11845315" target="_blank">11845315</a>, PubMed:$ href="http://www.uniprot.org/citations/18755977" target="\_blank">18755977</a>, PubMed:<a href="http://www.uniprot.org/citations/8420959" target="\_blank">8420959</a>). It adopts an open conformation at low or zero membrane potential and a closed conformation at potentials above 30-40 mV (PubMed: <a href="http://www.uniprot.org/citations/10661876" target=" blank">10661876</a>, PubMed:<a href="http://www.uniprot.org/citations/18755977" target="blank">18755977</a>, PubMed:<a href="http://www.uniprot.org/citations/8420959" target="blank">8420959</a>). The open state has a weak anion selectivity whereas the closed state is cation-selective (PubMed: <a href="http://www.uniprot.org/citations/18755977" target=" blank">18755977</a>, PubMed:<a href="http://www.uniprot.org/citations/8420959" target="blank">8420959</a>). Binds various signaling molecules, including the sphingolipid ceramide, the phospholipid phosphatidylcholine, and the sterols cholesterol and oxysterol (PubMed:<a href="http://www.uniprot.org/citations/18755977" target=" blank">18755977</a>, PubMed:<a href="http://www.uniprot.org/citations/31015432" target=" blank">31015432</a>). In depolarized mitochondria, acts downstream of PRKN and PINK1 to promote mitophagy or prevent apoptosis; polyubiquitination by PRKN promotes mitophagy, while monoubiquitination by PRKN decreases mitochondrial calcium influx which ultimately inhibits apoptosis (PubMed: <a href="http://www.uniprot.org/citations/32047033" target=" blank">32047033</a>). May participate in the formation of the permeability transition pore complex (PTPC) responsible for the release of mitochondrial products that triggers apoptosis (PubMed: <a href="http://www.uniprot.org/citations/15033708" target=" blank">15033708</a>, PubMed:<a href="http://www.uniprot.org/citations/25296756" target="blank">25296756</a>). May mediate



ATP export from cells (PubMed:<a href="http://www.uniprot.org/citations/30061676" target="\_blank">30061676</a>). Part of a complex composed of HSPA9, ITPR1 and VDAC1 that regulates mitochondrial calcium-dependent apoptosis by facilitating calcium transport from the ER lumen to the mitochondria intermembrane space thus providing calcium for the downstream calcium channel MCU that directly releases it into mitochondria matrix (By similarity). Mediates cytochrome c efflux (PubMed:<a href="http://www.uniprot.org/citations/20230784" target="blank">20230784</a>).

## **Cellular Location**

Mitochondrion outer membrane; Multi-pass membrane protein. Cell membrane; Multi-pass membrane protein. Membrane raft; Multi-pass membrane protein. Note=Found in a complex with HSPA9 and VDAC1 at the endoplasmic reticulum- mitochondria contact sites. {ECO:0000250|UniProtKB:Q9Z2L0}

#### **Tissue Location**

Expressed in erythrocytes (at protein level) (PubMed:27641616). Expressed in heart, liver and skeletal muscle (PubMed:8420959).

## **Anti-VDAC/Porin Antibody - Protocols**

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- <u>Immunohistochemistry</u>
- Immunofluorescence
- <u>Immunoprecipitation</u>
- Flow Cytomety
- Cell Culture

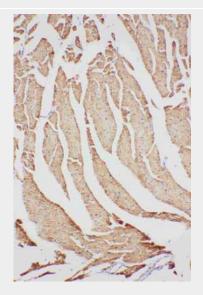
### **Anti-VDAC/Porin Antibody - Images**



Anti-VDAC/Porin antibody, ABO11086, Western blottingAll lanes: Anti VDAC/Porin (ABO11086) at 0.5ug/mlLane 1: Rat Skeletal Muscle Tissue Lysate at 50ugLane 2: Rat Heart Tissue Lysate at 50ugLane 3: Rat Liver Tissue Lysate at 50ugLane 4: HELA Whole Cell Lysate at 40ugLane 5: A431 Whole Cell Lysate at 40ugLane 6: A549 Whole Cell Lysate at 40ugLane 7: SMMC Whole Cell Lysate at 40ugLane 8: HT1080 Whole Cell Lysate at 40ugPredicted bind size: 31KDObserved bind size:



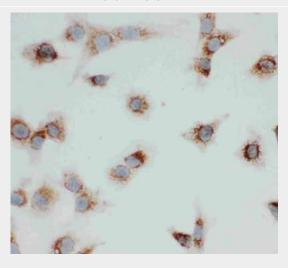
31KD



Anti-VDAC/Porin antibody, ABO11086, IHC(P)IHC(P): Rat Cardiac Muscle Tissue



Anti-VDAC/Porin antibody, ABO11086, IHC(P)IHC(P): Rat Skeletal Muscle Tissue



Anti-VDAC/Porin antibody, ABO11086, ICCICC: NIH3T3 Cell

# Anti-VDAC/Porin Antibody - Background

The voltage-dependent anion channel(VDAC) of the outer mitochondrial membrane is a small, abundant outer membrane pore-forming protein found in the outer membranes of all eukaryotic mitochondria. The VDAC protein is though to form the major pathway for movement of adenine nucleotides through the outer membrane and to be the mitochondrial binding site for hexokinase





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and glycerol kinase. At low transmembrane voltage, VDAC is open for anions such as phosphate, chloride, and adenine nucleotides. At higher transmembrane voltage, VDAC functions as a selective channel for cations and uncharged molecules. These features make VDAC likely to play a role in mitochondrial energy metabolism. Huizing et al. studied by Northern and Western blot analyses the human tissue distribution of mitochondrial transmembrane metabolite carriers. They found that VDAC1 mRNA has a ubiquitous distribution, with most pronounced expression in heart, liver, and skeletal muscle, whereas the VDAC2 isoform appears to be expressed only in the heart.