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VDAC1 Antibody

Rabbit mAb
Catalog # AP90443

Product Information

Application	WB, IHC, IF, ICC, IHF
Primary Accession	P21796
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Other Names	VDAC1;MGC111064;PORIN;PORIN-31-HL;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	30773

Additional Information

Dilution	WB 1:500~1:2000 IHC 1:50~1:200 ICC/IF 1:50~1:200
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human VDAC1
Description	Voltage-dependent anion channel (VDAC), ubiquitously expressed and located in the outer mitochondrial membrane, is generally thought to be the primary means by which metabolites diffuse in and out of the mitochondria (1). In addition, this channel plays a role in apoptotic signaling. The change in mitochondrial permeability characteristic of apoptosis is mediated by Bcl-2 family proteins, which bind to VDAC, altering the channel kinetics (2). Homodimerization of VDAC may be a mechanism for changing mitochondrial permeability and supporting release of cytochrome c (3). In mammalian cells, there are three VDAC isoforms, VDAC1, which is the most widely expressed isoform, as well as VDAC2 and VDAC3 (4,5).
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

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:10661876, PubMed:11845315, PubMed:18755977, PubMed:30061676, PubMed:8420959). 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:10661876, PubMed:11845315, PubMed:18755977,

PubMed:8420959). It adopts an open conformation at low or zero membrane potential and a closed conformation at potentials above 30-40 mV (PubMed:10661876, PubMed:18755977, PubMed:8420959). The open state has a weak anion selectivity whereas the closed state is cation-selective (PubMed:18755977, PubMed:8420959). Binds various signaling molecules, including the sphingolipid ceramide, the phospholipid phosphatidylcholine, and the sterols cholesterol and oxysterol (PubMed:18755977, PubMed:31015432). 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:32047033). May participate in the formation of the permeability transition pore complex (PTPC) responsible for the release of mitochondrial products that triggers apoptosis (PubMed:15033708, PubMed:25296756). May mediate ATP export from cells (PubMed:30061676). 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:20230784).

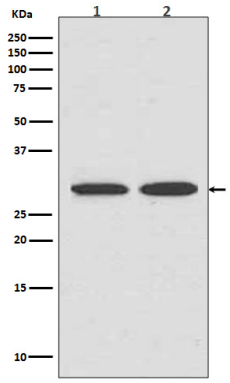
Cellular Location

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).

Images



Western blot analysis of VDAC1 expression in (1) HepG2 cell lysate; (2) Jurkat cell lysate.

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