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Product Information

Anti-VDAC/Porin
produced in rabbit, IgG fraction of antiserum

Catalog Number **V2139**

Product Description

Anti-VDAC/Porin is produced in rabbit using as immunogen a synthetic peptide located at an internal putative cytoplasmic loop of human VDAC1/Porin (amino acids 152-169) conjugated to KLH. This sequence is identical in bovine and rabbit VDAC1, highly conserved in mouse and rat VDAC1 (single amino acid substitution), and has considerable homology (60-70%) with the human, rat, and mouse VDAC isoforms VDAC2 and VDAC3. Whole antiserum is purified to provide an IgG fraction of antiserum.

Anti-VDAC/Porin recognizes VDAC/Porin (31 kDa). Applications include the detection of VDAC/Porin by immunoblotting. Staining of VDAC/Porin in immunoblotting is specifically inhibited with the immunizing peptide.

Voltage-dependent anion channel (VDAC, also termed mitochondrial Porin) is a small (31 kDa) pore-forming channel protein localized in the outer mitochondrial membrane (OMM) of cells of all eukaryotic organisms.[1,2] It is the main component of the OMM (about 20%). The VDAC protein is thought to provide the major pathway through which adenine nucleotides, such as ATP, are transferred through the OMM.[3,4] Coordinated regulation of this outer membrane channel with those of the inner mitochondrial membrane (IMM) play an important role in mitochondrial function and signaling. VDAC is associated with the adenine nucleotide translocator (ANT) at contact points between the inner and outer mitochondrial membrane, to form a large conductance channel permeable to molecules of up to 5 kDa. In addition, VDAC binds several kinases that are important in intermediary metabolism, including hexokinase and glycerol kinase. VDAC is thought to provide the kinases with preferential access to mitochondrial ATP derived from oxidative phosphorylation. Although the exact *in vivo* roles of VDAC are not yet known, it is thought to be involved in coupling cellular energy demand to mitochondrial energy production. VDAC has also been implicated in the formation of the mitochondrial permeability transition pore (MPTP) complex in apoptosis.[5-8] This complex, formed by VDAC, ANT, and cyclophylin D (CypD) is thought to allow the mitochondria to undergo metabolic uncoupling and irreversible morphological changes that lead to mitochondria disruption and apoptosis. Bax and Bak, the pro-apoptotic bcl-2 family of proteins, also bind to and accelerate the opening of VDAC, to form a larger channel that is permeable to cytochrome c. On the other hand, the anti-apoptotic protein Bcl-x_L closes VDAC by binding to it directly. Three VDAC isoforms have been characterized in mammals, VDAC1, VDAC2 and VDAC3, which may differ in their subcellular localization and development expression pattern.[1,9,10]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing, or storage in frost-free freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a minimum working dilution of 1:2,000 is recommended using rat liver mitochondria extract or rat liver extract ..

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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DS,PHC 06/15-1