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DNM1L Blocking Peptide (C-term)

Synthetic peptide
Catalog # BP21339b

Specification

DNM1L Blocking Peptide (C-term) - Product Information

Primary Accession O00429

DNM1L Blocking Peptide (C-term) - Additional Information

Gene ID 10059

Other Names
Dynamin-1-like protein, Dnm1p/Vps1p-like protein, DVLP, Dynamin family member proline-rich carboxyl-terminal domain less, Dymple, Dynamin-like protein, Dynamin-like protein 4, Dynamin-like protein IV, HdynIV, Dynamin-related protein 1, DNM1L, DLP1, DRP1

Target/Specificity
The synthetic peptide sequence is selected from aa 557-570 of HUMAN DNM1L

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

DNM1L Blocking Peptide (C-term) - Protein Information

Name DNM1L

Synonyms DLP1, DRP1

DNM1L Blocking Peptide (C-term) - Background

Functions in mitochondrial and peroxisomal division. Mediates membrane fission through oligomerization into membrane- associated tubular structures that wrap around the scission site to constrict and sever the mitochondrial membrane through a GTP hydrolysis-dependent mechanism. Through its function in mitochondrial division, ensures the survival of at least some types of postmitotic neurons, including Purkinje cells, by suppressing oxidative damage. Required for normal brain development, including that of cerebellum. Facilitates developmentally regulated apoptosis during neural tube formation. Required for a normal rate of cytochrome c release and caspase activation during apoptosis; this requirement may depend upon the cell type and the physiological apoptotic cues. Also required for mitochondrial fission during mitosis. Required for formation of endocytic vesicles. Proposed to regulate synaptic vesicle membrane dynamics through association with BCL2L1 isoform Bcl-X(L) which stimulates its GTPase activity in synaptic vesicles; the function may require its recruitment by MFF to clathrin-containing vesicles. Required for programmed necrosis execution.

DNM1L Blocking Peptide (C-term) - References

Shin H.-W.,et al.J. Biochem. 122:525-530(1997).
Hong Y.-R.,et al.Biochem. Biophys. Res. Commun. 249:697-703(1998).
Imoto M.,et al.J. Cell Sci. 111:1341-1349(1998).
Chen C.-H.,et al.DNA Cell Biol. 19:189-194(2000).
Ota T.,et al.Nat. Genet. 36:40-45(2004).

Function

Functions in mitochondrial and peroxisomal division (PubMed:9570752, PubMed:9786947, PubMed:11514614, PubMed:12499366, PubMed:17301055, PubMed:17553808, PubMed:17460227, PubMed:18695047, PubMed:18838687, PubMed:19638400, PubMed:19411255, PubMed:19342591, PubMed:23921378, PubMed:23283981, PubMed:23530241, PubMed:29478834, PubMed:32484300, PubMed:27145208, PubMed:<a href="http://www.uniprot.org/ci

tations/26992161"
target="_blank">26992161,
PubMed:<a href="http://www.uniprot.org/ci
tations/27301544"
target="_blank">27301544,
PubMed:<a href="http://www.uniprot.org/ci
tations/27328748"
target="_blank">27328748). Mediates
membrane fission through oligomerization
into membrane-associated tubular
structures that wrap around the scission
site to constrict and sever the mitochondrial
membrane through a GTP
hydrolysis-dependent mechanism
(PubMed:<a href="http://www.uniprot.org/c
itations/23530241"
target="_blank">23530241,
PubMed:<a href="http://www.uniprot.org/ci
tations/23584531"
target="_blank">23584531). The
specific recruitment at scission sites is
mediated by membrane receptors like MFF,
MIEF1 and MIEF2 for mitochondrial
membranes (PubMed:<a href="http://www.
uniprot.org/citations/23921378"
target="_blank">23921378,
PubMed:<a href="http://www.uniprot.org/ci
tations/23283981"
target="_blank">23283981,
PubMed:<a href="http://www.uniprot.org/ci
tations/29899447"
target="_blank">29899447). While
the recruitment by the membrane receptors
is GTP-dependent, the following hydrolysis
of GTP induces the dissociation from the
receptors and allows DNM1L filaments to
curl into closed rings that are probably
sufficient to sever a double membrane
(PubMed:<a href="http://www.uniprot.org/c
itations/29899447"
target="_blank">29899447). Acts
downstream of PINK1 to promote
mitochondrial fission in a PRKN-dependent
manner (PubMed:<a href="http://www.unip
rot.org/citations/32484300"
target="_blank">32484300). Plays an
important role in mitochondrial fission
during mitosis (PubMed:<a href="http://ww
w.uniprot.org/citations/19411255"
target="_blank">19411255,
PubMed:<a href="http://www.uniprot.org/ci
tations/26992161"
target="_blank">26992161,
PubMed:<a href="http://www.uniprot.org/ci
tations/27301544"
target="_blank">27301544,
PubMed:<a href="http://www.uniprot.org/ci

tations/27328748"
target="_blank">27328748). Through its function in mitochondrial division, ensures the survival of at least some types of postmitotic neurons, including Purkinje cells, by suppressing oxidative damage (By similarity). Required for normal brain development, including that of cerebellum (PubMed:<a href="http://www.uniprot.org/citations/17460227"
target="_blank">17460227, PubMed:<a href="http://www.uniprot.org/citations/27145208"
target="_blank">27145208, PubMed:<a href="http://www.uniprot.org/citations/26992161"
target="_blank">26992161, PubMed:<a href="http://www.uniprot.org/citations/27301544"
target="_blank">27301544, PubMed:<a href="http://www.uniprot.org/citations/27328748"
target="_blank">27328748). Facilitates developmentally regulated apoptosis during neural tube formation (By similarity). Required for a normal rate of cytochrome c release and caspase activation during apoptosis; this requirement may depend upon the cell type and the physiological apoptotic cues (By similarity). Required for formation of endocytic vesicles (PubMed:<a href="http://www.uniprot.org/citations/9570752"
target="_blank">9570752, PubMed:<a href="http://www.uniprot.org/citations/20688057"
target="_blank">20688057, PubMed:<a href="http://www.uniprot.org/citations/23792689"
target="_blank">23792689). Proposed to regulate synaptic vesicle membrane dynamics through association with BCL2L1 isoform Bcl-X(L) which stimulates its GTPase activity in synaptic vesicles; the function may require its recruitment by MFF to clathrin-containing vesicles (PubMed:17015472, PubMed:<a href="http://www.uniprot.org/citations/23792689"
target="_blank">23792689). Required for programmed necrosis execution (PubMed:<a href="http://www.uniprot.org/citations/22265414"
target="_blank">22265414). Rhythmic control of its activity following phosphorylation at Ser-637 is essential for

the circadian control of mitochondrial ATP production (PubMed:29478834).

Cellular Location

Cytoplasm, cytosol. Golgi apparatus. Endomembrane system; Peripheral membrane protein. Mitochondrion outer membrane; Peripheral membrane protein. Peroxisome Membrane, clathrin-coated pit. Cytoplasmic vesicle, secretory vesicle, synaptic vesicle membrane {ECO:0000250|UniProtKB:O35303}. Note=Mainly cytosolic. Recruited by RALA and RALBP1 to mitochondrion during mitosis (PubMed:21822277) Translocated to the mitochondrial membrane through O-GlcNAcylation and interaction with FIS1. Colocalized with MARCHF5 at mitochondrial membrane. Localizes to mitochondria at sites of division. Localizes to mitochondria following necrosis induction. Recruited to the mitochondrial outer membrane by interaction with MIEF1. Mitochondrial recruitment is inhibited by C11orf65/MFI (By similarity). Associated with peroxisomal membranes, partly recruited there by PEX11B. May also be associated with endoplasmic reticulum tubules and cytoplasmic vesicles and found to be perinuclear. In some cell types, localizes to the Golgi complex (By similarity). Binds to phospholipid membranes (By similarity). {ECO:0000250, ECO:0000250|UniProtKB:Q8K1M6, ECO:0000269|PubMed:21822277}

Tissue Location

Ubiquitously expressed with highest levels found in skeletal muscles, heart, kidney and brain. Isoform 1 is brain-specific Isoform 2 and isoform 3 are predominantly expressed in testis and skeletal muscles respectively. Isoform 4 is weakly expressed in brain, heart and kidney. Isoform 5 is dominantly expressed in liver, heart and kidney. Isoform 6 is expressed in neurons

DNM1L Blocking Peptide (C-term) - Protocols

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

- Blocking Peptides