



### **DNM1L Blocking Peptide (C-term)**

Synthetic peptide Catalog # BP21339b

### **Specification**

**DNM1L Blocking Peptide (C-term) - Product Information** 

Primary Accession 000429

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:<a href="http://www.uniprot.org/citations/9570752"

target=" blank">9570752</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/9786947"

target=" blank">9786947</a>,

PubMed: <a href="http://www.uniprot.org/ci tations/11514614"

target=" blank">11514614</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/12499366"

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PubMed:<a href="http://www.uniprot.org/ci tations/17301055"

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PubMed:<a href="http://www.uniprot.org/ci tations/17553808"

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PubMed:<a href="http://www.uniprot.org/ci tations/17460227"

target=" blank">17460227</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/18695047"

target=" blank">18695047</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/18838687"

target=" blank">18838687</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/19638400"

target=" blank">19638400</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/19411255"

target=" blank">19411255</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/19342591"

target=" blank">19342591</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/23921378"

target=" blank">23921378</a>,

PubMed: <a href="http://www.uniprot.org/ci tations/23283981"

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PubMed:<a href="http://www.uniprot.org/ci tations/23530241"

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PubMed:<a href="http://www.uniprot.org/ci tations/29478834"

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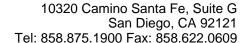
PubMed:<a href="http://www.uniprot.org/ci tations/32484300"

target=" blank">32484300</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/27145208"

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tations/26992161"

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PubMed:<a href="http://www.uniprot.org/ci

tations/27301544"

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PubMed:<a href="http://www.uniprot.org/ci

tations/27328748"

target="\_blank">27328748</a>). 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</a>,

PubMed:<a href="http://www.uniprot.org/ci

tations/23584531"

 $target="\_blank">23584531</a>). The$ 

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</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/23283981"

target=" blank">23283981</a>,

PubMed:<a href="http://www.uniprot.org/ci

tations/29899447"

target="\_blank">29899447</a>). 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">http://www.uniprot.org/c</a>

itations/29899447"

target="\_blank">29899447</a>). Acts

downstream of PINK1 to promote

mitochondrial fission in a PRKN-dependent manner (PubMed:<a href="http://www.unip">http://www.unip</a>

rot.org/citations/32484300"

target="\_blank">32484300</a>). Plays an important role in mitochondrial fission

during mitosis (PubMed:<a href="http://www.uniprot.org/citations/19411255"

target=" blank">19411255</a>,

PubMed: <a href="http://www.uniprot.org/ci tations/26992161"

target=" blank">26992161</a>,

PubMed:<a href="http://www.uniprot.org/ci

tations/27301544"

target=" blank">27301544</a>,

PubMed:<a href="http://www.uniprot.org/ci



tations/27328748"

target=" blank">27328748</a>). 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/c itations/17460227"

target=" blank">17460227</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/27145208"

target=" blank">27145208</a>.

PubMed:<a href="http://www.uniprot.org/ci tations/26992161"

target=" blank">26992161</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/27301544"

target=" blank">27301544</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/27328748"

target=" blank">27328748</a>).

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</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/20688057"

target=" blank">20688057</a>,

PubMed:<a href="http://www.uniprot.org/ci tations/23792689"

target=" blank">23792689</a>). 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: <a hre f="http://www.uniprot.org/citations/170154 72" target=" blank">17015472</a>, PubMed:<a href="http://www.uniprot.org/ci tations/23792689"

target=" blank">23792689</a>). Required for programmed necrosis execution (PubMed:<a href="http://www.uniprot.org/c

itations/22265414"

target=" blank">22265414</a>).

Rhythmic control of its activity following phosphorylation at Ser-637 is essential for



the circadian control of mitochondrial ATP production (PubMed:<a href="http://www.u niprot.org/citations/29478834" target="\_blank">29478834</a>).

### **Cellular Location**

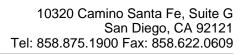
Cytoplasm, cytosol. Golgi apparatus. Endomembrane system; Peripheral membrane protein. Mitochondrion outer membrane; Peripheral membrane protein. Peroxisome Membrane, clathrin-coated pit. Cytoplasmic vesicle, secretory vesicle, synaptic vesicle membrane {ECO:0000250|UniProtKB:035303}. Note=Mainly cytosolic. 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