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LRRK2 (PARK8) Mutant G2019S Antibody Blocking Peptide

Synthetic peptide
Catalog # BP7100a

Specification

LRRK2 (PARK8) Mutant G2019S Antibody Blocking Peptide - Product Information

Primary Accession Q5S007

LRRK2 (PARK8) Mutant G2019S Antibody Blocking Peptide - Additional Information

Gene ID 120892

Other Names
Leucine-rich repeat serine/threonine-protein kinase 2, Dardarin, LRRK2, PARK8

Target/Specificity
The synthetic peptide sequence used to generate the antibody AP7100a was selected from the PARK8 region of human LRRK2 (PARK8) Mutant G2019S. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

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.

LRRK2 (PARK8) Mutant G2019S Antibody Blocking Peptide - Protein Information

Name LRRK2

Synonyms PARK8

LRRK2 (PARK8) Mutant G2019S Antibody Blocking Peptide - Background

LRRK2 is a member of the leucine-rich repeat kinase family. The protein possesses an ankryin repeat region, a leucine-rich repeat (LRR) domain, a kinase domain, a DFG-like motif, a RAS domain, a GTPase domain, a MLK-like domain, and a WD40 domain. The protein is present largely in the cytoplasm but also associates with the mitochondrial outer membrane. Mutations in thisgene have been associated with Parkinson disease-8.

LRRK2 (PARK8) Mutant G2019S Antibody Blocking Peptide - References

Ozelius,L.J. et al. N. Engl. J. Med. 354 (4), 424-425 (2006)Lesage,S. et al. N. Engl. J. Med. 354 (4), 422-423 (2006)Smith,W.W. et al. Proc. Natl. Acad. Sci. U.S.A. 102 (51), 18676-18681 (2005)Bialecka,M. et al. Neurosci. Lett. 390 (1), 1-3 (2005)Hernandez,D. et al. Neurosci. Lett. 389 (3), 137-139 (2005)

Function

Serine/threonine-protein kinase which phosphorylates a broad range of proteins involved in multiple processes such as neuronal plasticity, autophagy, and vesicle trafficking (PubMed:20949042, PubMed:22012985, PubMed:26824392, PubMed:29125462, PubMed:28720718, PubMed:29127255, PubMed:30398148, PubMed:29212815, PubMed:30635421, PubMed:21850687, PubMed:23395371, PubMed:17114044, PubMed:24687852, PubMed:26014385, PubMed:25201882). Is a key regulator of RAB GTPases by regulating the GTP/GDP exchange and interaction partners of RABs through phosphorylation (PubMed:26824392, PubMed:<a href="http://www.uniprot.org/ci

tations/28720718"
target="_blank">28720718,
PubMed:<a href="http://www.uniprot.org/ci
tations/29127255"
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PubMed:<a href="http://www.uniprot.org/ci
tations/30398148"
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tations/29212815"
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PubMed:<a href="http://www.uniprot.org/ci
tations/29125462"
target="_blank">29125462,
PubMed:<a href="http://www.uniprot.org/ci
tations/30635421"
target="_blank">30635421).
Phosphorylates RAB3A, RAB3B, RAB3C,
RAB3D, RAB5A, RAB5B, RAB5C, RAB8A,
RAB8B, RAB10, RAB12, RAB35, and RAB43
(PubMed:<a href="http://www.uniprot.org/c
itations/26824392"
target="_blank">26824392,
PubMed:<a href="http://www.uniprot.org/ci
tations/28720718"
target="_blank">28720718,
PubMed:<a href="http://www.uniprot.org/ci
tations/29127255"
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tations/29212815"
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tations/29125462"
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tations/30635421"
target="_blank">30635421,
PubMed:<a href="http://www.uniprot.org/ci
tations/23395371"
target="_blank">23395371).
Regulates the RAB3IP-catalyzed GDP/GTP
exchange for RAB8A through the
phosphorylation of 'Thr-72' on RAB8A
(PubMed:<a href="http://www.uniprot.org/c
itations/26824392"
target="_blank">26824392). Inhibits
the interaction between RAB8A and GDI1
and/or GDI2 by phosphorylating 'Thr- 72' on
RAB8A (PubMed:<a href="http://www.unipr
ot.org/citations/26824392"
target="_blank">26824392).
Regulates primary ciliogenesis through
phosphorylation of RAB8A and RAB10,

which promotes SHH signaling in the brain (PubMed:29125462, PubMed:30398148). Together with RAB29, plays a role in the retrograde trafficking pathway for recycling proteins, such as mannose-6-phosphate receptor (M6PR), between lysosomes and the Golgi apparatus in a retromer-dependent manner (PubMed:23395371). Regulates neuronal process morphology in the intact central nervous system (CNS) (PubMed:17114044). Plays a role in synaptic vesicle trafficking (PubMed:24687852). Plays an important role in recruiting SEC16A to endoplasmic reticulum exit sites (ERES) and in regulating ER to Golgi vesicle-mediated transport and ERES organization (PubMed:25201882). Positively regulates autophagy through a calcium-dependent activation of the CaMKK/AMPK signaling pathway (PubMed:22012985). The process involves activation of nicotinic acid adenine dinucleotide phosphate (NAADP) receptors, increase in lysosomal pH, and calcium release from lysosomes (PubMed:22012985). Phosphorylates PRDX3 (PubMed:21850687). By phosphorylating APP on 'Thr-743', which promotes the production and the nuclear translocation of the APP intracellular domain (AICD), regulates dopaminergic neuron apoptosis (PubMed:28720718). Independent of its kinase activity, inhibits the proteosomal degradation of MAPT, thus promoting MAPT oligomerization and

secretion (PubMed:26014385). In addition, has GTPase activity via its Roc domain which regulates LRRK2 kinase activity (PubMed:18230735, PubMed:26824392, PubMed:29125462, PubMed:28720718, PubMed:29212815).

Cellular Location
Cytoplasmic vesicle. Perikaryon. Golgi apparatus membrane; Peripheral membrane protein. Cell projection, axon. Cell projection, dendrite. Endoplasmic reticulum membrane; Peripheral membrane protein. Cytoplasmic vesicle, secretory vesicle, synaptic vesicle membrane. Endosome {ECO:0000250|UniProtKB:Q5S006}. Lysosome Mitochondrion outer membrane; Peripheral membrane protein Note=Colocalized with RAB29 along tubular structures emerging from Golgi apparatus (PubMed:23395371). Localizes to endoplasmic reticulum exit sites (ERES), also known as transitional endoplasmic reticulum (tER) (PubMed:25201882).

Tissue Location
Expressed in pyramidal neurons in all cortical laminae of the visual cortex, in neurons of the substantia nigra pars compacta and caudate putamen (at protein level). Expressed in neutrophils (at protein level) (PubMed:29127255). Expressed in the brain. Expressed throughout the adult brain, but at a lower level than in heart and liver. Also expressed in placenta, lung, skeletal muscle, kidney and pancreas. In the brain, expressed in the cerebellum, cerebral cortex, medulla, spinal cord occipital pole, frontal lobe, temporal lobe and putamen. Expression is particularly high in brain dopaminoceptive areas.

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LRRK2 (PARK8) Mutant G2019S Antibody Blocking Peptide - Protocols

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

- Blocking Peptides