

LRRK2 Blocking Peptide (C-term)

Synthetic peptide

Catalog # BP21200b

Specification

LRRK2 Blocking Peptide (C-term) - Product Information

Primary Accession

[Q5S007](#)**LRRK2 Blocking Peptide (C-term) - Additional Information**

Gene ID 120892

Other Names

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

Target/Specificity

The synthetic peptide sequence is selected from aa 2171-2187 of HUMAN LRRK2

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 Blocking Peptide (C-term) - Protein Information

Name LRRK2

Synonyms PARK8

Function

Serine/threonine-protein kinase which phosphorylates a broad range of proteins involved in multiple processes such as neuronal plasticity, innate immunity, autophagy, and vesicle trafficking (PubMed:20949042, PubMed:22012985, PubMed:26824392, PubMed:27830463, 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:28720718
PubMed:29127255
PubMed:30398148
PubMed:29212815
PubMed:29125462
PubMed:30635421). Phosphorylates RAB3A, RAB3B, RAB3C, RAB3D, RAB5A, RAB5B,
RAB5C, RAB8A, RAB8B, RAB10, RAB12, RAB35, and RAB43 (PubMed:26824392,
PubMed:28720718,
PubMed:29127255,
PubMed:30398148,
PubMed:29212815,
PubMed:29125462,
PubMed:30635421). Regulates
the RAB3IP-catalyzed GDP/GTP exchange for RAB8A through the phosphorylation of 'Thr-72' on
RAB8A (PubMed:26824392).
Inhibits the interaction between RAB8A and GDI1 and/or GDI2
by phosphorylating 'Thr-72' on RAB8A (PubMed: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). Acts as a positive regulator of innate immunity by mediating
phosphorylation of RIPK2 downstream of NOD1 and NOD2, thereby enhancing RIPK2 activation
(PubMed:27830463).
Independent of its kinase activity, inhibits the proteasomal 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. Cytoplasm, cytoskeleton. 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 dopaminergic areas.

LRRK2 Blocking Peptide (C-term) - Protocols

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

- [Blocking Peptides](#)

LRRK2 Blocking Peptide (C-term) - Images

LRRK2 Blocking Peptide (C-term) - Background

Positively regulates autophagy through a calcium- dependent activation of the CaMKK/AMPK signaling pathway. The process involves activation of nicotinic acid adenine dinucleotide phosphate (NAADP) receptors, increase in lysosomal pH, and calcium release from lysosomes. 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. Regulates neuronal process morphology in the intact central nervous system (CNS). Phosphorylates PRDX3. May also have GTPase activity. May play a role in the phosphorylation of proteins central to Parkinson disease.

LRRK2 Blocking Peptide (C-term) - References

Zimprich A.,et al.Neuron 44:601-607(2004).
Scherer S.E.,et al.Nature 440:346-351(2006).
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