

**PARK8 (LRRK2) Antibody (E285) Blocking Peptide**  
**Synthetic peptide**  
**Catalog # BP7099d****Specification****PARK8 (LRRK2) Antibody (E285) Blocking Peptide**  
**- Product Information**

Primary Accession [Q5S007](#)  
Other Accession [NP\\_940980](#)

**PARK8 (LRRK2) Antibody (E285) 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 [AP7099d](/product/products/AP7099d) was selected from the LRRK2 region of human PARK8 (LRRK2). 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.

**PARK8 (LRRK2) Antibody (E285) Blocking Peptide**  
**- Protein Information**

**Name** LRRK2

**PARK8 (LRRK2) Antibody (E285) Blocking Peptide - Background**

Parkinson is the second most common neurodegenerative disease after Alzheimers. About 1 percent of people over the age of 65 and 3 percent of people over the age of 75 are affected by the disease. The mutation is the most common cause of Parkinson's disease identified to date. LRRK2, a genetic mutation, was recently found linked to about 5 percent of inherited cases of Parkinson's disease. By high-resolution recombination mapping and candidate gene sequencing in 46 families, 6 disease-segregating mutations (5 missense and 1 putative splice site mutation). It may be central to the pathogenesis of several major neurodegenerative disorders associated with parkinsonism. LRRK2 belongs to the ROCO protein family and includes a protein kinase domain of the MAPKKK class and several other major functional domains.

**PARK8 (LRRK2) Antibody (E285) Blocking Peptide - References**

Shen J. Neuron. 2004. 44:575. Paisan-Ruiz C, et al. Neuron. 2004. 44(4):595. Zimprich A, et al. Neuron. 2004. 44(4):601. Wszolek ZK, et al. Neurology. 2004. 62(9):1619. Park YJ, et al. Transplant Proc. 2004. 36(2):353. Zimprich A, et al. Am J Hum Genet. 2004. 74:11. Bonifati V. Lancet Neurol. 2002. 1:83. Funayama M, et al. Ann Neurol. 2002. 51:296.

## Synonyms PARK8

### 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:<a href="http://www.uniprot.org/citations/20949042" target="\_blank">20949042</a>, PubMed:<a href="http://www.uniprot.org/citations/22012985" target="\_blank">22012985</a>, PubMed:<a href="http://www.uniprot.org/citations/26824392" target="\_blank">26824392</a>, PubMed:<a href="http://www.uniprot.org/citations/29125462" target="\_blank">29125462</a>, PubMed:<a href="http://www.uniprot.org/citations/28720718" target="\_blank">28720718</a>, PubMed:<a href="http://www.uniprot.org/citations/29127255" target="\_blank">29127255</a>, PubMed:<a href="http://www.uniprot.org/citations/30398148" target="\_blank">30398148</a>, PubMed:<a href="http://www.uniprot.org/citations/29212815" target="\_blank">29212815</a>, PubMed:<a href="http://www.uniprot.org/citations/30635421" target="\_blank">30635421</a>, PubMed:<a href="http://www.uniprot.org/citations/21850687" target="\_blank">21850687</a>, PubMed:<a href="http://www.uniprot.org/citations/23395371" target="\_blank">23395371</a>, PubMed:<a href="http://www.uniprot.org/citations/17114044" target="\_blank">17114044</a>, PubMed:<a href="http://www.uniprot.org/citations/24687852" target="\_blank">24687852</a>, PubMed:<a href="http://www.uniprot.org/citations/26014385" target="\_blank">26014385</a>, PubMed:<a href="http://www.uniprot.org/citations/25201882" target="\_blank">25201882</a>). Is a key regulator of RAB GTPases by regulating the GTP/GDP exchange and interaction partners of RABs through phosphorylation (PubMed:<a href="http://www.uniprot.org/citations/26824392" target="\_blank">26824392</a>).

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

Regulates primary ciliogenesis through phosphorylation of RAB8A and RAB10, which promotes SHH signaling in the brain (PubMed:<a href="http://www.uniprot.org/citations/29125462" target="\_blank">29125462</a>, PubMed:<a href="http://www.uniprot.org/citations/30398148" target="\_blank">30398148</a>). 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:<a href="http://www.uniprot.org/citations/23395371" target="\_blank">23395371</a>). Regulates neuronal process morphology in the intact central nervous system (CNS) (PubMed:<a href="http://www.uniprot.org/citations/17114044" target="\_blank">17114044</a>). Plays a role in synaptic vesicle trafficking (PubMed:<a href="http://www.uniprot.org/citations/24687852" target="\_blank">24687852</a>). 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:<a href="http://www.uniprot.org/citations/25201882" target="\_blank">25201882</a>). Positively regulates autophagy through a calcium-dependent activation of the CaMKK/AMPK signaling pathway (PubMed:<a href="http://www.uniprot.org/citations/22012985" target="\_blank">22012985</a>). The process involves activation of nicotinic acid adenine dinucleotide phosphate (NAADP) receptors, increase in lysosomal pH, and calcium release from lysosomes (PubMed:<a href="http://www.uniprot.org/citations/22012985" target="\_blank">22012985</a>). Phosphorylates PRDX3 (PubMed:<a href="http://www.uniprot.org/citations/21850687" target="\_blank">21850687</a>). 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:<a href="http://www.uniprot.org/citations/28720718" target="\_blank">28720718</a>). Independent of its kinase activity, inhibits

the proteosomal degradation of MAPT, thus promoting MAPT oligomerization and secretion (PubMed:<a href="http://www.uniprot.org/citations/26014385" target="\_blank">26014385</a>). In addition, has GTPase activity via its Roc domain which regulates LRRK2 kinase activity (PubMed:<a href="http://www.uniprot.org/citations/18230735" target="\_blank">18230735</a>, PubMed:<a href="http://www.uniprot.org/citations/26824392" target="\_blank">26824392</a>, PubMed:<a href="http://www.uniprot.org/citations/29125462" target="\_blank">29125462</a>, PubMed:<a href="http://www.uniprot.org/citations/28720718" target="\_blank">28720718</a>, PubMed:<a href="http://www.uniprot.org/citations/29212815" target="\_blank">29212815</a>).

### **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.

### **PARK8 (LRRK2) Antibody (E285) Blocking Peptide - Protocols**

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

- [Blocking Peptides](#)