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KD-Validated Anti-PARK7 Rabbit Polyclonal Antibody

Rabbit polyclonal antibody
Catalog # AGI2137

Specification

KD-Validated Anti-PARK7 Rabbit Polyclonal Antibody - Product Information

Application	**WB**
Primary Accession	Q99497
Reactivity	**Human**
Clonality	**Polyclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 20 kDa, observed, 22 kDa KDa**
Gene Name	**PARK7**
Aliases	**PARK7; Parkinsonism Associated Deglycase; DJ-1; GATD2; DJ1; Parkinson Disease (Autosomal Recessive, Early Onset) 7; Protein/Nucleic Acid Deglycase DJ-1; Parkinson Disease Protein 7; Parkinson Protein 7; Maillard Deglycase; Oncogene DJ1; Protein DJ-1; Epididymis Secretory Sperm Binding Protein Li 67p; Parkinsonism-Associated Deglycase; Protein Deglycase DJ-1; EC 3.5.1.124; EC 3.1.2.-; EC 3.5.1.-; HEL-S-67p**
Immunogen	**A synthesized peptide derived from human DJ-1**

KD-Validated Anti-PARK7 Rabbit Polyclonal Antibody - Additional Information

Gene ID	**11315**

Other Names
Parkinson disease protein 7, Maillard deglycase, Oncogene DJ1, Parkinsonism-associated deglycase {ECO:0000312|HGNC:HGNC:16369}, Protein DJ-1, DJ-1, Protein/nucleic acid deglycase DJ-1, 3.1.2.-, 3.5.1.-, 3.5.1.124, PARK7 (HGNC:16369)

KD-Validated Anti-PARK7 Rabbit Polyclonal Antibody - Protein Information

Name PARK7 (HGNC:16369)

Function
Multifunctional protein with controversial molecular function which plays an important role in cell protection against oxidative stress and cell death acting as oxidative stress sensor and redox-sensitive chaperone and protease (PubMed:12796482, PubMed:17015834, PubMed:18711745, PubMed:<a href="http://www.uniprot.org/citations/19229105"

target="_blank">19229105, PubMed:20304780, PubMed:25416785, PubMed:26995087, PubMed:28993701). It is involved in neuroprotective mechanisms like the stabilization of NFE2L2 and PINK1 proteins, male fertility as a positive regulator of androgen signaling pathway as well as cell growth and transformation through, for instance, the modulation of NF-kappa-B signaling pathway (PubMed:12612053, PubMed:14749723, PubMed:15502874, PubMed:17015834, PubMed:18711745, PubMed:21097510). Has been described as a protein and nucleotide deglycase that catalyzes the deglycation of the Maillard adducts formed between amino groups of proteins or nucleotides and reactive carbonyl groups of glyoxals (PubMed:25416785, PubMed:28596309). But this function is rebuted by other works (PubMed:27903648, PubMed:31653696). As a protein deglycase, repairs methylglyoxal- and glyoxal-glycated proteins, and releases repaired proteins and lactate or glycolate, respectively. Deglycates cysteine, arginine and lysine residues in proteins, and thus reactivates these proteins by reversing glycation by glyoxals. Acts on early glycation intermediates (hemithioacetals and aminocarbinols), preventing the formation of advanced glycation endproducts (AGE) that cause irreversible damage (PubMed:25416785, PubMed:26995087, PubMed:28013050). Also functions as a nucleotide deglycase able to repair glycated guanine in the free nucleotide pool (GTP, GDP, GMP, dGTP) and in DNA and RNA. Is thus involved in a major nucleotide repair system named guanine glycation repair (GG repair), dedicated to reversing methylglyoxal and glyoxal damage via nucleotide sanitization and direct nucleic acid repair (PubMed:28596309). Protects histones from adduction by methylglyoxal, controls the levels of methylglyoxal- derived argininine modifications on chromatin (PubMed:30150385). Able to remove the glycations and restore histone 3, histone glycation disrupts both local and global chromatin architecture by altering histone-DNA interactions as well as histone acetylation and ubiquitination levels (PubMed:30150385, PubMed:30894531). Displays a very low glyoxalase activity that may reflect its deglycase activity (PubMed:22523093, PubMed:28993701, PubMed:31653696). Eliminates hydrogen peroxide and protects cells against hydrogen peroxide-induced cell death (PubMed:16390825). Required for correct mitochondrial morphology and function as well as for autophagy of dysfunctional mitochondria (PubMed:16632486, PubMed:19229105). Plays a role in regulating expression or stability of the mitochondrial uncoupling proteins SLC25A14 and SLC25A27 in dopaminergic neurons of the substantia nigra pars compacta and attenuates the oxidative stress induced by calcium entry into the neurons via L-type channels during pacemaking (PubMed:18711745). Regulates astrocyte inflammatory responses, may modulate lipid rafts-dependent endocytosis in astrocytes and neuronal cells (PubMed:<a href="http://www.uniprot.org/citations/23847046"

target="_blank">23847046). In pancreatic islets, involved in the maintenance of mitochondrial reactive oxygen species (ROS) levels and glucose homeostasis in an age- and diet dependent manner. Protects pancreatic beta cells from cell death induced by inflammatory and cytotoxic setting (By similarity). Binds to a number of mRNAs containing multiple copies of GG or CC motifs and partially inhibits their translation but dissociates following oxidative stress (PubMed:18626009). Metal-binding protein able to bind copper as well as toxic mercury ions, enhances the cell protection mechanism against induced metal toxicity (PubMed:23792957). In macrophages, interacts with the NADPH oxidase subunit NCF1 to direct NADPH oxidase-dependent ROS production, and protects against sepsis (By similarity).

Cellular Location
Cell membrane {ECO:0000250|UniProtKB:Q99LX0}; Lipid-anchor {ECO:0000250|UniProtKB:Q99LX0}. Cytoplasm. Nucleus. Membrane raft {ECO:0000250|UniProtKB:O88767}. Mitochondrion. Endoplasmic reticulum. Note=Under normal conditions, located predominantly in the cytoplasm and, to a lesser extent, in the nucleus and mitochondrion. Translocates to the mitochondrion and subsequently to the nucleus in response to oxidative stress and exerts an increased cytoprotective effect against oxidative damage (PubMed:18711745). Detected in tau inclusions in brains from neurodegenerative disease patients (PubMed:14705119). Membrane raft localization in astrocytes and neuronal cells requires palmitoylation

Tissue Location
Highly expressed in pancreas, kidney, skeletal muscle, liver, testis and heart. Detected at slightly lower levels in placenta and brain (at protein level). Detected in astrocytes, Sertoli cells, spermatogonia, spermatids and spermatozoa. Expressed by pancreatic islets at higher levels than surrounding exocrine tissues (PubMed:22611253).

KD-Validated Anti-PARK7 Rabbit Polyclonal Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

KD-Validated Anti-PARK7 Rabbit Polyclonal Antibody - Images

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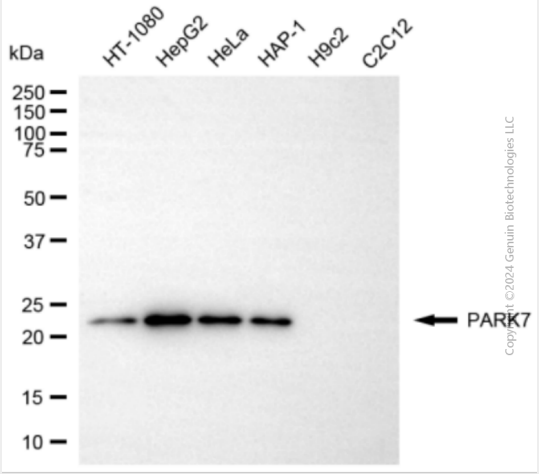
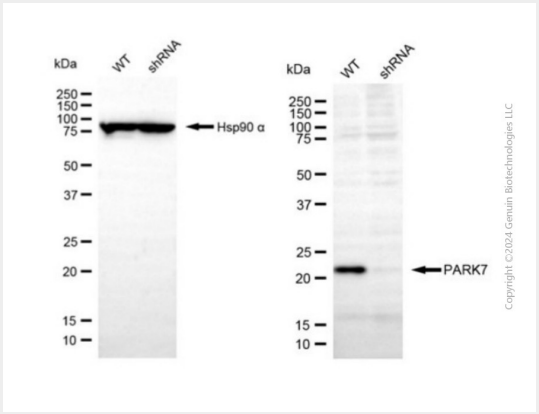


Western blotting analysis using anti-PARK7 antibody (Cat#AGI2137). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-PARK7 antibody (Cat#AGI2137, 1:1,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Western blotting analysis using anti-PARK7 antibody (Cat #AGI2137). PARK7 expression in wild-type (WT) and PARK7 shRNA knockdown (KD) HeLa cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-PARK7 antibody (Cat #AGI2137, 1:1,000) and HRP-conjugated goat anti-rabbit secondary antibody (Cat #201, 1:20,000) respectively.