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PARL Antibody

Catalog # ASC10749

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q9H300
Other Accession	Q9H300, 143811433
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	42190
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	PARL antibody can be used for detection of PARL by Western blot at 1 - 2 g/mL. Despite its predicted molecular weight of ~42kDa, PARL is observed at a higher molecular weight in SDS-PAGE. Antibody can also be used for immunocytochemistry starting at 2.5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	55486
Other Names	Presenilins-associated rhomboid-like protein, mitochondrial, 3.4.21.105, Mitochondrial intramembrane cleaving protease PARL, P-beta, Pbeta, PARL, PSARL
Target/Specificity	PARL;
Reconstitution & Storage	PARL antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	PARL Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PARL
Synonyms	PSARL
Function	Required for the control of apoptosis during postnatal growth. Essential for proteolytic processing of an antiapoptotic form of OPA1 which prevents the release of mitochondrial cytochrome c in response to intrinsic apoptotic signals (By similarity). Required for the maturation of PINK1 into its 52kDa

	mature form after its cleavage by mitochondrial-processing peptidase (MPP) (PubMed:22354088). Promotes cleavage of serine/threonine-protein phosphatase PGAM5 in damaged mitochondria in response to loss of mitochondrial membrane potential (PubMed:22915595). Mediates differential cleavage of PINK1 and PGAM5 depending on the health status of mitochondria, disassociating from PINK1 and associating with PGAM5 in response to mitochondrial membrane potential loss (PubMed:22915595). Required for processing of CLPB into a form with higher protein disaggregase activity by removing an autoinhibitory N-terminal peptide (PubMed:28288130, PubMed:32573439). Promotes processing of DIABLO/SMAC in the mitochondrion which is required for DIABLO apoptotic activity (PubMed:28288130). Also required for cleavage of STARD7 and TTC19 (PubMed:28288130). Promotes changes in mitochondria morphology regulated by phosphorylation of P-beta domain (PubMed:14732705, PubMed:17116872).
Cellular Location	Mitochondrion inner membrane; Multi-pass membrane protein

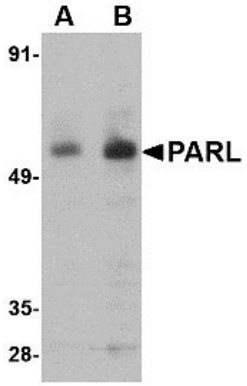
Background

PARL Antibody: PARL is a mitochondrial integral membrane protein and a member of the highly conserved rhomboid superfamily of membrane proteins. PARL is required for the control of apoptosis during postnatal growth and is required for the processing of OPA1, a protein that prevents the release of cytochrome C from the mitochondria in response to apoptotic signals. In lymphocytes and neurons, PARL's association with other proteins, such as the Bcl-2 family-related protein Hax1 and Omi can lead to the proteolytic processing of Omi by PARL, preventing the accumulation of Bax, thereby suppressing apoptosis. Variations in this gene have been associated with increased risk for type 2 diabetes. PARL may also play a role in the progression of Alzheimer's disease through its associations with presenilin-1 and -2. Multiple isoforms of PARL are known to exist.

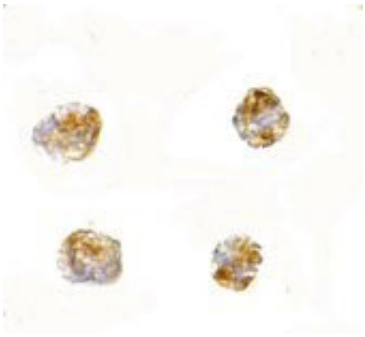
References

Pellegrini L, Passer BJ, Canelles M, et al. PAMP and PARL, two novel putative metalloproteases interacting with the COOH-terminus of Presenilin-1 and -2. J. Alzheimers Dis.2001; 3:181-90.
Cipolat S, Rudka T, Hartmann D, et al. Mitochondrial rhomboid PARL regulates cytochrome c release during apoptosis via OPA1-dependent cristae remodeling. Cell2006; 126:163-75.
Chao JR, Parganas E, Boyd K, et al. Hax1-mediated processing of HtrA2 by PARL allows survival of lymphocytes and neurons. Nature2008; 452:98-102.
Walder K, Kerr-Bayles L, Civitarese A, et al. The mitochondrial rhomboid protease PSARL is a new candidate gene for type 2 diabetes. Diabetologia2005; 48:459-68.

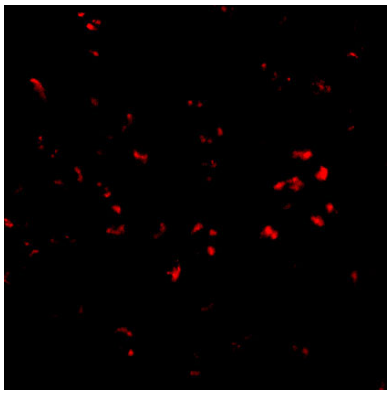
Images



Western blot analysis of PARL in 3T3 cell lysate with PARL antibody at (A) 1 and (B) 2 µg/mL.



Immunocytochemistry of PARL in 3T3 cells with PARL antibody at 2.5 µg/mL.



Immunofluorescence of PARL in 3T3 cells with PARL antibody at 2.50 µg/mL.