

**LysRS (D16D1) Rabbit mAb**

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IF-IC	H M R Mk	Endogenous	75	Rabbit IgG	#Q15046	3735

**Product Usage Information****Application**

Western Blotting  
Immunoprecipitation  
Immunofluorescence (Immunocytochemistry)

**Dilution**

1:1000  
1:50  
1:200

**Storage**

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

**Specificity/Sensitivity**

LysRS (D16D1) Rabbit mAb recognizes endogenous levels of total LysRS protein.

**Source / Purification**

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human LysRS protein.

**Background**

Lysyl-tRNA synthetase (LysRS) is a multifunctional protein that has both regular and mitochondrial forms. The regular form of LysRS belongs to a family of aminoacyl-tRNA synthetases (aaRSs) that catalyze amino acid attachment to its cognate tRNA. In mammalian systems, LysRS forms a multisystem complex (MSC) with several other aaRSs (1-3). In addition to its conventional function, LysRS regulates diadenosine tetraphosphate (Ap4A) production (3). Cellular and metabolic stress increases the level of Ap4A, which functions as a cellular alarm system (3-5). Following FcεRI aggregation in mast cells, MAPK/Erk kinase (MEK) phosphorylates LysRS at Ser207 (5). Serine phosphorylation of LysRS leads to the release of LysRS from MSC and its translocation into the nucleus (5), as well as increased synthesis of Ap4A (5,6). LysRS binds to microphthalmia transcription factor (MITF) and MITF repressor Hint-1. Upon binding of Ap4A, Hint-1 is released from the complex that in turn allows the transcription of MITF-responsive genes (5-7). LysRS is also involved in HIV viral assembly through incorporation into HIV-1 virions via an interaction with HIV-1 Gag (8). Research studies have shown that in the presence of mutant Cu,Zn-superoxide dismutase (SOD1), mitochondrial LysRS tends to be misfolded and degraded by proteasomal degradation, contributing to mitochondrial dysfunction in Amyotrophic Lateral Sclerosis (ALS) (9). LysRS is also secreted and has cytokine-like functions (10). LysRS was also found to be an autoantigen in autoimmune responses (11).

**Background References**

1. Szymański, M. et al. (2000) *Acta Biochim Pol* 47, 821-34.
2. Bandyopadhyay, A.K. and Deutscher, M.P. (1971) *J Mol Biol* 60, 113-22.
3. Wahab, S.Z. and Yang, D.C. (1985) *J Biol Chem* 260, 5286-9.
4. Yannay-Cohen, N. et al. (2009) *Mol Cell* 34, 603-11.
5. Lee, Y.N. and Razin, E. (2005) *Mol Cell Biol* 25, 8904-12.
6. Lee, Y.N. et al. (2004) *Immunity* 20, 145-51.
7. Nechushtan, H. and Razin, E. (2002) *Mol Immunol* 38, 1177-80.
8. Kovaleski, B.J. et al. (2006) *J Biol Chem* 281, 19449-56.
9. Kawamata, H. et al. (2008) *J Biol Chem* 283, 28321-8.
10. Park, S.G. et al. (2005) *Proc Natl Acad Sci USA* 102, 6356-61.
11. Linke, A.T. et al. (2001) *Clin Exp Immunol* 126, 173-9.

**Species Reactivity**

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

**Western Blot Buffer**

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

**Applications Key**

**W:** Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

**Cross-Reactivity Key**

**H:** Human **M:** Mouse **R:** Rat **Mk:** Monkey

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