

**LysRS Antibody**

**Orders:** 877-616-CELL (2355)  
orders@cellsignal.com

**Support:** 877-678-TECH (8324)

**Web:** info@cellsignal.com  
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

**For Research Use Only. Not for Use in Diagnostic Procedures.**

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

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

Western Blotting  
Immunoprecipitation

**Dilution**

1:1000  
1:50

**Storage**

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

**Specificity/Sensitivity**

LysRS Antibody detects the endogenous levels of total LysRS protein.

**Source / Purification**

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Glu325 of human LysRS protein. Antibodies were purified by protein A and peptide affinity chromatography.

**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

**Cross-Reactivity Key**

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

## Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

All other trademarks are the property of their respective owners. Visit [cellsignal.com/trademarks](http://cellsignal.com/trademarks) for more information.

## Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.