#12869 Store at -20°C

LGP2 (D3I3L) Rabbit mAb

☑ 100 µl
(10 western blots)

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rev. 03/17/14

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Entrez Gene ID #79132
UniProt ID #Q96C10

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W Endogenous	H	77 kDa	Rabbit IgG**

Background: Antiviral innate immunity depends on the combination of parallel pathways triggered by virus detecting proteins in the Toll-like receptor (TLR) family and RNA helicases, such as Rig-I (retinoic acid-inducible gene I) and MDA-5 (melanoma differentiation-associated antigen 5), which promote the transcription of type I interferons (IFN) and antiviral enzymes (1-3). TLRs and helicase proteins contain sites that recognize the molecular patterns of different virus types, including DNA, single-stranded RNA (ssRNA), double-stranded RNA (dsRNA), and glycoproteins. These antiviral proteins are found in different cell compartments; TLRs (i.e. TLR3, TLR7, TLR8, and TLR9) are expressed on endosomal membranes and helicases are localized to the cytoplasm. Rig-I expression is induced by retinoic acid, LPS, IFN, and viral infection (4,5). Both Rig-I and MDA-5 share a DExD/H-box helicase domain that detects viral dsRNA and two amino-terminal caspase recruitment domains (CARD) that are required for triggering downstream signaling (4-7). Rig-I binds both dsRNA and viral ssRNA that contains a 5'-triphosphate end not seen in host RNA (8,9). Though structurally related, Rig-I and MDA-5 detect a distinct set of viruses (10,11). The CARD domain of the helicases, which is sufficient to generate signaling and IFN production, is recruited to the CARD domain of the MAVS/VISA/Cardif/IPS-1 mitochondrial protein, which triggers activation of NF-κB, TBK1/IKKε, and IRF-3/IRF-7 (12-15).

The DExD/H-box family helicase laboratory of genetics and physiology 2 (LGP2, DHX58) is a Rig-I-like receptor (RLR) that lacks the CARD domain and associated signaling ability (6,16). Research studies demonstrate that LGP2 helicase binds dsRNA and inhibits the Rig-I-like receptors Rig-I and MDA-5. Expression of LGP2 is induced by interferon, dsRNA, and viral infection (17). Studies using LGP2-deficient animals demonstrate a complicated interaction between LGP2 and the other RLRs that involves both positive and negative effects on interferon regulation (18-20). In addition, LGP2 may regulate apoptosis, contribute to CD8+ T cell survival, and protect cancer cells from ionizing radiation (21,22).

Specificity/Sensitivity: LGP2 (D3I3L) Rabbit mAb recognizes endogenous levels of total LGP2 protein.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val478 of human LGP2 protein.

Background References:

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(4) Imaizumi, T. et al. (2002) *Biochem Biophys Res Commun* 292, 274-9.
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(6) Yoneyama, M. et al. (2005) *J Immunol* 175, 2851-8.
(7) Yoneyama, M. et al. (2004) *Nat Immunol* 5, 730-7.
(8) Hornung, V. et al. (2006) *Science* 314, 994-7.
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(10) Kato, H. et al. (2006) *Nature* 441, 101-5.
(11) Childs, K. et al. (2007) *Virology* 359, 190-200.
(12) Meylan, E. et al. (2005) *Nature* 437, 1167-72.
(13) Xu, L.G. et al. (2005) *Mol Cell* 19, 727-40.
(14) Kawai, T. et al. (2005) *Nat Immunol* 6, 981-8.
(15) Seth, R.B. et al. (2005) *Cell* 122, 669-82.
(16) Rothenfusser, S. et al. (2005) *J Immunol* 175, 5260-8.
(17) Komuro, A. and Horvath, C.M. (2006) *J Virol* 80, 12332-42.
(18) Venkataraman, T. et al. (2007) *J Immunol* 178, 6444-55.
(19) Childs, K.S. et al. (2013) *PLoS One* 8, e64202.
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(21) Suthar, M.S. et al. (2012) *Immunity* 37, 235-48.
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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.*

***Species cross-reactivity is determined by western blot.**

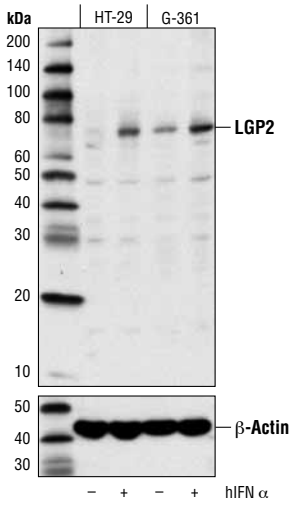
****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000

For product specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.



Western blot analysis of extracts from various cell lines, untreated (-) or treated with Human Interferon-α1 (hIFNα) #8927 (10 ng/ml, overnight; +), using LGP2 (D3I3L) Rabbit mAb (upper) and β-Actin (D6A8) Rabbit mAb #8457 (lower).

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

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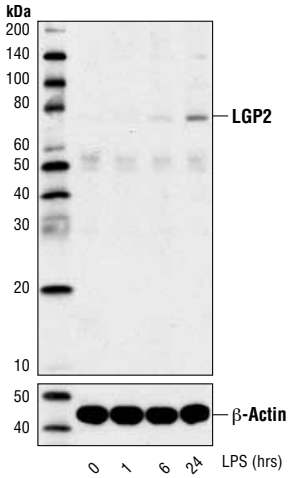
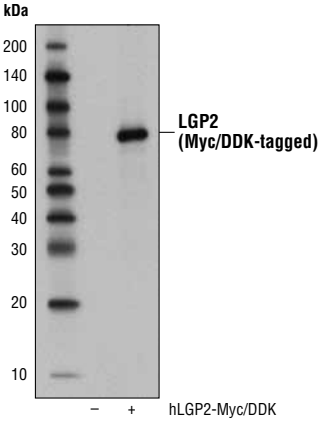
Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.



Western blot analysis of extracts from THP-1 cells differentiated with TPA #4174 (80 nM, overnight), untreated or LPS-treated (1 µg/ml for indicated times), using LGP2 (D3I3L) Rabbit mAb (upper) or β-Actin (D6A8) #8457 (lower).



Western blot analysis of extracts from 293T cells, mock transfected (-) or transfected with a construct expressing Myc/DDK-tagged full-length human LGP2 protein (hLGP2-Myc/DDK; +), using LGP2 (D3I3L) Rabbit mAb.