Revision 1

Store at -20C

#14175

ADAR1 (D7E2M) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H Mk	Endogenous	110, 150	Rabbit IgG	#P55265	103

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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

ADAR1 (D7E2M) Rabbit mAb recognizes endogenous levels of total ADAR1 protein.

Species predicted to react based on 100% sequence homology

Guinea Pig

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Trp454 of human ADAR1 protein.

Background

Post-transcriptional processing of RNAs, such as RNA editing, is an important mechanism by which diversity in RNA and protein is achieved that is not otherwise encoded by the genome (1,2). The most common form of RNA editing is the conversion of adenosine (A) into inosine (I) on double-stranded RNA by the adenosine deaminase acting on RNA (ADAR) family of proteins (1-3). Since inosine base pairs with cytidine, it is interpreted as a guanosine by the splicing and translational machinery, leading to alteration in the protein sequence, as well as generation of splicing isoforms (1,4-6). A-to-I editing can also influence RNA sequence recognition by RNA-binding proteins and non-coding RNA, such as miRNAs, affecting subsequent RNA processing, stability, and protein expression levels (2).

ADAR1 is ubiquitously expressed with two known isoforms, ADAR1L (p150) and ADAR1S (p110), resulting from transcription using alternative promoters and start codons. ADAR1S is constitutively expressed in the nucleus, while ADAR1L is interferon-inducible and present in both the nucleus and the cytoplasm. The induction of ADAR1L in response to cellular stress and viral infection suggests a role for RNA editing in the innate immune response (1,7). In addition, ADAR1 is essential in mammalian development, particularly in hematopoiesis and suppression of interferon signaling to protect hematopoietic stem cells from destruction in fetal liver and adult bone marrow (8,9).

Background References

1. Zinshteyn, B. and Nishikura, K. (2009) *Wiley Interdiscip Rev Syst Biol Med* 1, 202-9.
2. Nishikura, K. (2006) *Nat Rev Mol Cell Biol* 7, 919-31.
3. Bass, B.L. (2002) *Annu Rev Biochem* 71, 817-46.
4. Reenan, R.A. (2001) *Trends Genet* 17, 53-6.
5. Maas, S. et al. (2006) *RNA Biol* 3, 1-9.
6. Rueter, S.M. et al. (1999) *Nature* 399, 75-80.
7. Patterson, J.B. and Samuel, C.E. (1995) *Mol Cell Biol* 15, 5376-88.
8. Iizasa, H. and Nishikura, K. (2009) *Nat Immunol* 10, 16-8.
9. Hartner, J.C. et al. (2009) *Nat Immunol* 10, 109-15.

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

Cross-Reactivity Key

H: Human **Mk:** Monkey

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