Revision 1

Store at -20C

#3294

IRE1α (14C10) Rabbit mAb

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP	H M R	Endogenous	130	Rabbit IgG	#O75460	2081

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

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

IRE1α (14C10) Rabbit mAb detects endogenous levels of total IRE1α protein.

Source / Purification

IRE1α (14C10) Rabbit mAb is produced by immunizing rabbits with a synthetic peptide corresponding to residues surrounding His963 of human IRE1α.

Background

The secretory, intra-organellar and transmembrane proteins translocate into the endoplasmic reticulum (ER) after their synthesis. Inside the ER, they are post-translationally modified and properly folded. Disruptions of ER homeostasis leads to the accumulation of unfolded proteins (1). The ER has developed an adaptive mechanism called unfolded protein response (UPR) to counteract compromised protein folding (1). One of the players in UPR, IRE1, was first identified in *Saccharomyces cerevisiae* as a transmembrane serine/threonine kinase (2-4). This kinase was proposed to be a proximal sensor for UPR that transmits the unfolded protein signal across the ER membrane (3,4). A human homolog of this kinase, IRE1α, was later identified and shown to be ubiquitously expressed in human tissues (5). Upon activation of UPR, IRE1α splices X-box binding protein (XBP1) mRNA by an unconventional mechanism using its endoribonuclease activity (6). This converts XBP1 into a potent transcriptional activator that induces many UPR responsive genes (6). Recently, IRE1α was shown to mediate the rapid degradation of certain mRNAs based on the ER-localization and primary sequences of their encoded proteins, suggesting a novel mechanism in UPR (7).

Background References

1. Kaufman, R.J. et al. (2002) *Nat Rev Mol Cell Biol* 3, 411-421.
2. Nikawa, J. and Yamashita, S. (1992) *Mol. Microbiol.* 6, 1441-1446.
3. Cox, J.S. et al. (1993) *Cell* 73, 1197-1206.
4. Mori, K. et al. (1993) *Cell* 74, 743-756.
5. Tirasophon, W. et al. (1998) *Genes Dev.* 12, 1812-1824.
6. Lee, K. et al. (2002) *Genes Dev.* 16, 452-466.
7. Hollien, J. and Weissman, J.S. (2006) *Science* 313, 104-107.

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

WB: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **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 **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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