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IRE1p Antibody

Catalog # ASC10376

Product Information

Application	WB, IF, ICC, E
Primary Accession	O75460
Other Accession	O75460, 193806335
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	109735
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	IRE1p antibody can be used for the detection of IRE1p by Western blot at 0.5 - 2 g/mL. Antibody can also be used for immunocytochemistry starting at 1 g/mL. For immunofluorescence start at 2 g/mL.

Additional Information

Gene ID	2081
Other Names	IRE1p Antibody: IRE1, IRE1P, IRE1a, hIRE1p, IRE1, Endoplasmic reticulum-to-nucleus signaling 1, endoplasmic reticulum to nucleus signaling 1
Target/Specificity	ERN1;
Reconstitution & Storage	IRE1p antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	IRE1p Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ERN1 (HGNC:3449)
Function	Serine/threonine-protein kinase and endoribonuclease that acts as a key sensor for the endoplasmic reticulum unfolded protein response (UPR) (PubMed:11175748, PubMed:11779464, PubMed:12637535, PubMed:19328063, PubMed:21317875, PubMed:28128204, PubMed:30118681, PubMed:36739529, PubMed:9637683). In unstressed cells, the endoplasmic reticulum luminal domain is maintained in its inactive monomeric state by binding to the endoplasmic reticulum chaperone HSPA5/BiP (PubMed:21317875). Accumulation of misfolded proteins in the

	endoplasmic reticulum causes release of HSPA5/BiP, allowing the luminal domain to homodimerize, promoting autophosphorylation of the kinase domain and subsequent activation of the endoribonuclease activity (PubMed:21317875). The endoribonuclease activity is specific for XBP1 mRNA and excises 26 nucleotides from XBP1 mRNA (PubMed:11779464, PubMed:21317875, PubMed:24508390). The resulting spliced transcript of XBP1 encodes a transcriptional activator protein that up-regulates expression of UPR target genes (PubMed:11779464, PubMed:21317875, PubMed:24508390). Acts as an upstream signal for ER stress-induced GORASP2-mediated unconventional (ER/Golgi-independent) trafficking of CFTR to cell membrane by modulating the expression and localization of SEC16A (PubMed:21884936, PubMed:28067262).
Cellular Location	Endoplasmic reticulum membrane; Single-pass type I membrane protein
Tissue Location	Ubiquitously expressed. High levels observed in pancreatic tissue.

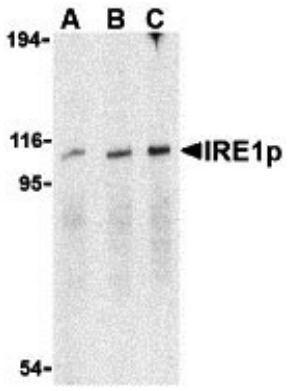
Background

IRE1p Antibody: Accumulation of malfolded proteins in the endoplasmic reticulum (ER) activates the unfolded protein response (UPR) and the upregulation of the ER molecular chaperones GRP78 and GRP 94. These proteins are normally bound to ER transmembrane proteins such as IRE1p and ATF6 but ER stress causes their dissociation. This allows IRE1p, a serine-threonine protein kinase to transduce the unfolded protein signal from the ER to the nucleus. IRE1p also has an endoribonuclease activity that is required to splice X-box binding protein (XBP1) mRNA converting it to a potent UPR transcriptional activation. Depletion of IRE1p through the expression of a dominant negative form of IRE1p has no effect on transfected cells, but cell death via apoptosis occurs under stress conditions that cause unfolded proteins to accumulate in the ER. Two alternatively spliced transcript variants encoding different isoforms have been found for this gene.

References

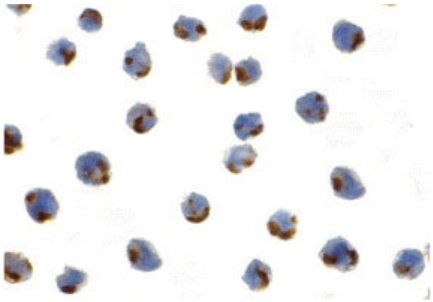
Little E, Ramakrishnan M, Roy B, et al. The glucose-regulated proteins (GRP78 and GRP94): functions, gene regulation, and applications. Crit. Rev. Eukaryot. Gene Expr.1994; 4:1-18.
Lee AS. The ER chaperone and signaling regulator GRP78/BiP as a monitor of endoplasmic reticulum stress. Methods2005; 35:373-81.
Bertolotti A, Zhang Y, Hendershot LM, et al. Dynamic interaction of BiP and ER stress transducers in the unfolded-protein response. Nat. Cell Biol.2000; 2:326-32.
Shen J, Chen X, Hendershot L, et al. ER stress regulation of ATF6 localization by dissociation of BiP/GRP78 binding and unmasking of Golgi localization signals. Dev. Cell2002; 3:99-111.

Images

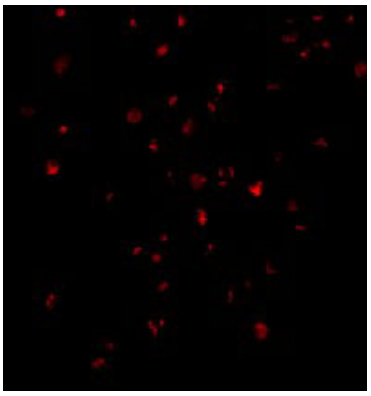


Western blot analysis of IRE1p in A-20 cell lysate with IRE1p antibody at (A) 0.5, (B) 1 and (C) 2 µg/mL.

Immunocytochemistry of IRE1p in A-20 cells with IRE1p



antibody at 1 µg/mL.



Immunofluorescence of IRE1p in A20 cells with IRE1p antibody at 2 µg/mL.