

IRE1 α (YB-17): sc-100772

BACKGROUND

The accumulation of unfolded proteins within the endoplasmic reticulum (ER) of yeast and mammalian cells activates the unfolded protein response (UPR) pathway and leads to the transcription of ER-specific genes involved in protein folding. The activation of the UPR requires the ER transmembrane kinase IRE1p (for inositol-requiring and ER-to-nucleus signaling protein). IRE1 α and IRE1 β are two mammalian homologs of the yeast IRE1p. These related proteins localize to the ER lumen and contain both a short transmembrane domain that spans the ER membrane and a cytosolic Ser/Thr kinase domain. IRE1 activation involves the oligomerization and trans-phosphorylation of the cytosolic portion of the proteins, which then potentiates its intrinsic kinase activity and, in turn, stimulates transcription of UPR-targeted genes. In response to stress, sensors for the ER mammalian cells activate IRE1 α and IRE1 β , which then results in the phosphorylation of JNK (Jun N-terminal kinase) and the activation of the cellular MAP kinase pathway.

REFERENCES

1. Cox, J.S., et al. 1993. Transcriptional induction of genes encoding endoplasmic reticulum resident proteins requires a transmembrane protein kinase. *Cell* 73: 1197-1206.
2. Welihinda, A.A., et al. 1997. Gene induction in response to unfolded protein in the endoplasmic reticulum is mediated through IRE1p kinase interaction with a transcriptional co-activator complex containing Ada5p. *Proc. Natl. Acad. Sci. USA* 94: 4289-4294.
3. Brewer, J.W., et al. 1997. A pathway distinct from the mammalian unfolded protein response regulates expression of endoplasmic reticulum chaperones in non-stressed cells. *EMBO J.* 16: 7207-7216.
4. Wang, X.Z., et al. 1998. Cloning of mammalian Ire1 reveals diversity in the ER stress responses. *EMBO J.* 17: 5708-5717.
5. Tirasophon, W., et al. 1998. A stress response pathway from the endoplasmic reticulum to the nucleus requires a novel bifunctional protein kinase/endoribonuclease (IRE1p) in mammalian cells. *Genes Dev.* 12: 1812-1824.

CHROMOSOMAL LOCATION

Genetic locus: ERN1 (human) mapping to 17q23.3.

SOURCE

IRE1 α (YB-17) is a mouse monoclonal antibody raised against recombinant IRE1 α of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

IRE1 α (YB-17) is recommended for detection of IRE1 α of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IRE1 α siRNA (h): sc-40705, IRE1 α shRNA Plasmid (h): sc-40705-SH and IRE1 α shRNA (h) Lentiviral Particles: sc-40705-V.

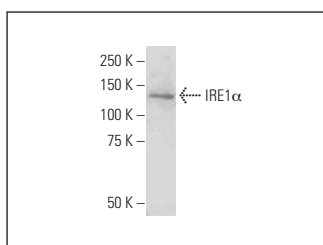
Molecular Weight of IRE1 α : 120 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or DU 145 cell lysate: sc-2268.

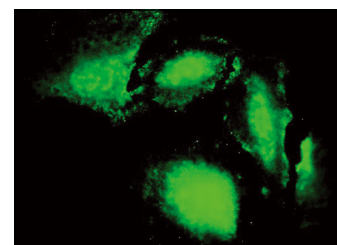
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



IRE1 α (YB-17): sc-100772. Western blot analysis of IRE1 α expression in HeLa whole cell lysate.



IRE1 α (YB-17): sc-100772. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing membrane and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Hromas, R., et al. 2022. BRCA1 mediates protein homeostasis through the ubiquitination of PERK and IRE1. *iScience* 25: 105626.

RESEARCH USE

For research use only, not for use in diagnostic procedures.



See **IRE1 α (B-12): sc-390960** for IRE1 α antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.