

## IRE1 Protein, Human (sf9)

Cat. No.:	HY-P73858
Synonyms:	Serine/threonine-protein kinase/endoribonuclease IRE1; IRE1a; ERN1; IRE1
Species:	Human
Source:	Sf9 insect cells
Accession:	O75460 (P465-L977)
Gene ID:	2081
Molecular Weight:	Approximately 65 kDa

### PROPERTIES

Biological Activity	Measured by its nuclease activity to cleave Xbp1 single stem-loop mini-substrate.
Appearance	Solution.
Formulation	Supplied as a 0.2 µm filtered solution of 20 mM Tris, 500 mM NaCl, 10% glycerol, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

### DESCRIPTION

#### Background

IRE1, a serine/threonine-protein kinase and endoribonuclease, serves as a pivotal sensor in the endoplasmic reticulum unfolded protein response (UPR). In the absence of cellular stress, the endoplasmic reticulum luminal domain maintains its inactive monomeric state through binding to the endoplasmic reticulum chaperone HSPA5/BiP. Upon the accumulation of misfolded proteins, the release of HSPA5/BiP allows the luminal domain to homodimerize, facilitating autophosphorylation of the kinase domain and subsequent activation of the endoribonuclease activity. This endoribonuclease activity is specific to XBP1 mRNA, excising 26 nucleotides from the XBP1 transcript. The resulting spliced XBP1 transcript encodes a transcriptional activator that up-regulates the expression of UPR target genes. Beyond its role in the UPR, IRE1 acts as an upstream signal for ER stress-induced GORASP2-mediated unconventional trafficking of CFTR to the cell membrane by modulating the expression and localization of SEC16A, highlighting its involvement in diverse cellular processes beyond the UPR.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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