

IRE1 Protein, Human, Recombinant (aa 465-977, His & GST)

General Information

Synonyms:	hIRE1p;endoplasmic reticulum to nucleus signaling 1;IRE1P;IRE1a;IRE1
Protein Construction:	A DNA sequence encoding the human ERN1 isoform 1 (O75460-1) cytoplasmic domain (Pro 465-Leu 977) was fused with the N-terminal polyhistidine-tagged GST tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	O75460-1
Molecular Weight:	86 kDa (predicted); 90 kDa (reducing conditions)

QC Testing

Biological Activity:	The specific activity was determined to be 5 nmol/min/mg using MBP as substrate.
Purity:	> 80 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Supplied as sterile 20 mM Tris, 500M NaCl, 25% glycerol, 0.1 mM EDTA, 0.5 mM TCEP, 2 mM GSH, pH 7.5.

Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	Proteins are shipped with blue ice.

Protein Background

Endoplasmic reticulum stress and hypoxia are necessary components of malignant tumors growth and suppression of ERN1 (from endoplasmic reticulum to nuclei-1) signalling pathway, which is linked to the apoptosis and cell death processes, significantly decreases proliferative processes. An enhanced expression of TP53 gene in ERN1 knockdown glioma cells correlates with the decreased level of ubiquitin ligase MDM2 and increased expression level of USP7 which deubiquitinates TP53 and MDM2 and induces TP53-dependent cell growth repression and apoptosis. Thus, the expression of genes encoding TP53 and related to TP53 factors depends upon the endoplasmic reticulum stress signaling as well as on hypoxia, and correlates with suppression of glioma

growth under ERN1 knockdown. The dependence of insulin-like growth binding proteins as well as IGF2BP3 and HTRA1 gene expressions in U87 glioma cells on ERN1 signaling enzyme function and hypoxia, indicating its participation in the regulation of metabolic and proliferative processes via IGF/INS receptors, because endoplasmic reticulum stress is an important component of tumor growth and metabolic diseases.

Reference

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Liu C.Y., et al., 2003, J. Biol. Chem. 278:17680-7.

Oppermann F.S., et al., 2009, Mol. Cell. Proteomics 8:1751-64.

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