



## Glucose Regulated Protein 78 (Grp78, BiP, GRP 78)

### Catalog number

G3057-20A

### Supplier

United States Biological

Within the ER misfolded proteins are detected by Bip (GPR78). In the presence of misfolded proteins, Bip dissociates from PERK, allowing it to homodimerize and autophosphorylate. In its dimerized, phosphorylated form PERK phosphorylates eIF2. The phosphorylation of eIF2 blocks the majority of translation to prevent the continued accumulation of protein in the ER.

Bip also binds to IRE1 and ATF6 under normal ER conditions, but dissociates upon accumulation of misfolded proteins. Unbound ATF6 is translocated to the golgi where it is converted into a cleaved, active form. The cleaved form of ATF6 is then able to up-regulate transcription of UPR genes including XBP1. Activated IRE1 acts as an endoribonuclease to an intron from XBP1 transcripts. The XBP1 splice variant codes for an active transcription factor which activates transcription of P58IPK. P58IPK is a HSP40 protein which binds to and inhibits PERK. Thus, if the accumulated, misfolded proteins have been removed, P58IPK acts to shut down the UPR by removing the block to translation.

### Applications

Suitable for use in Western Blot. Other applications not tested.

### Recommended Dilution

Western Blot: 2ug/ml

Optimal dilutions to be determined by the researcher.

### Positive Control

Rat liver extract

### Storage and Stability

May be stored at 4°C for short-term only. For long-term storage, aliquot and store at -20°C. Aliquots are stable for at least 12 months at -20°C. For maximum recovery of product, centrifuge the original vial after thawing and prior to removing the cap. Further dilutions can be made in assay buffer.

### Immunogen

Synthetic peptide corresponding to aa643-654 of rat GRP78 BiP (C-TGEEDTSEKDEL).

### Formulation

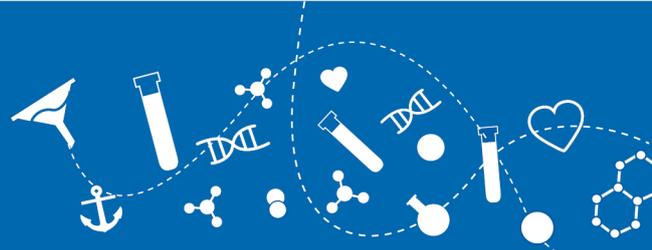
Supplied as a liquid in 0.05% sodium azide, before the addition of glycerol to 40 .

### Purity

Purified by immunoaffinity chromatography.

### Specificity

Recognizes glucose regulated protein 78/BiP (GRP78) at ~78kD from rodent species only. Does not detect GRP78 from human cell lines or COS cells. Species Crossreactivity: Hamster, mouse, rat. Does not crossreact with Human or African Green Monkey (COS cells).

**Product Type**

Pab

**Source**

rat

**Isotype**

IgG

**Grade**

Affinity Purified

**Applications**

WB

**Crossreactivity**

Hm Mo Rt

**Storage**

-20°C

**Reference**

Roy S et al. In vitro assembly of the component chains of fibrinogen requires endoplasmic reticulum factors. *J Biol Chem* 271:24544-50 (1996). <PUBMED:8798716>Kuznetsov G et al. Several endoplasmic reticulum stress proteins, including ERp72, interact with thyroglobulin during its maturation. *J Biol Chem* 269:22990-5 (1994). <PUBMED:7916014> Ziegler H et al. A mouse cytomegalovirus glycoprotein retains MHC class I complexes in the ERGIC/cis-Golgi compartments. *Immunity* 6:57-66 (1997). <PUBMED:9052837>Morris JA et al. Immunoglobulin binding protein (BiP) function is required to protect cells from endoplasmic reticulum stress but is not required for the secretion of selective proteins. *J Biol Chem* 272:4327-34 (1997). <PUBMED:9020152>Hendershot L et al. Inhibition of immunoglobulin folding and secretion by dominant negative BiP ATPase mutants. *Proc Natl Acad Sci U S A* 93:5269-74 (1996). <PUBMED:8643565>Hendershot LM et al. In vivo expression of mammalian BiP ATPase mutants causes disruption of the endoplasmic reticulum. *Mol Biol Cell* 6:283-96 (1995). <PUBMED:7612964>Green JM et al. Generation and characterization of monoclonal antibodies specific for members of the mammalian 70-kDa heat shock protein family. *Hybridoma* 14:347-54 (1995). <PUBMED:8522346>Takemoto H et al. Heavy chain binding protein (BiP/GRP78) and endoplasmic reticulum chaperone are exported from the endoplasmic reticulum in rat exocrine pancreatic cells, similar to protein disulfide-isomerase. *Arch Biochem Biophys* 296:129-36 (1992). <PUBMED:1318687>Gething MJ & Sambrook J Protein folding in the cell. *Nature* 355:33-45 (1992). <PUBMED:1731198>