Grp78/BiP ELISA kit

High-sensitivity ELISA kit for quantifying both normal and upregulated levels of GRP78/BiP for unfolded protein response, cancer and neurodegenerative disease research.

The GRP78/BiP ELISA kit is a colorimetric, competitive immunoassay kit with results in 2.5 hours.

Glucose-regulated protein (GRP78) also known as binding immunoglobulin protein or BiP, is a resident molecular chaperone of the ER involved in the folding and assembly of proteins, transport of newly synthesized polypeptides across the ER membrane, regulation of calcium homeostasis and targeting misfolded proteins for degradation. GRP78 also regulates the transmembrane proteins, PERK, IRE1 and ATF6 by binding the N-terminal domains in the lumen of the ER preventing these signal transducers from initiating the unfolded protein response (UPR), an adaptive response to changes in the intracellular environment meant to restore normal ER function.
When protein misfolding occurs, exposed hydrophobic residues on the protein are bound by GRP78 preventing protein aggregation, further transit, and secretion. Intracellular stress such as glucose deprivation and viral infection can lead to a rapid accumulation of unfolded proteins. As unfolded proteins accumulate, more available GRP78 is required to bind the hydrophobic regions causing it to dissociate from the transmembrane signaling proteins thus initiating the UPR. After dissociation from GRP78, activated PERK attenuates general translation to prevent further protein synthesis, ATF6 and IRE1 upregulate the production of ER folding and chaperone proteins including GRP78, and proteins that promote degradation of misfolded proteins through ER-associated protein degradation (ERAD). The overexpression of GRP78 as a result of UPR activation is believed to contribute to the pathology of metabolic disease, inflammatory disease, neurodegenerative disorders, and cancer.

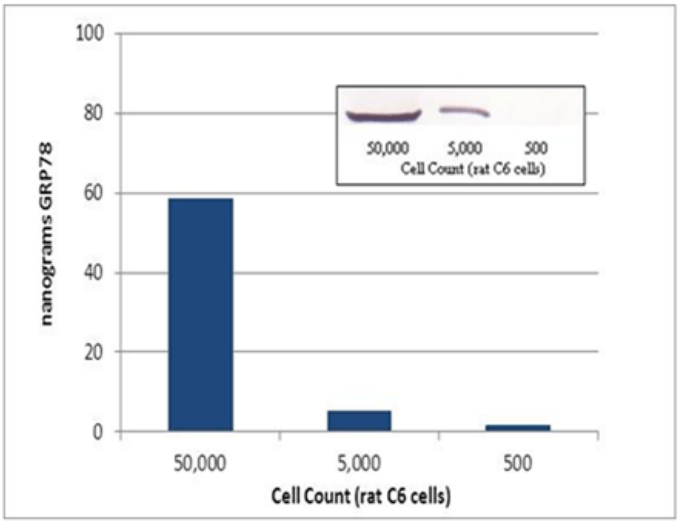
Citations: 15 View Online »

- High throughput format with results for up to 40 samples in duplicate in just 2.5 hours
- Highly sensitive, reliably measuring 8.4ng/ml of GRP78/BiP
- Fully quantitative results surpass semi-quantitative Western blot analysis
- Easy-to-use and simplified protocol with less steps compared to sandwich assay formats

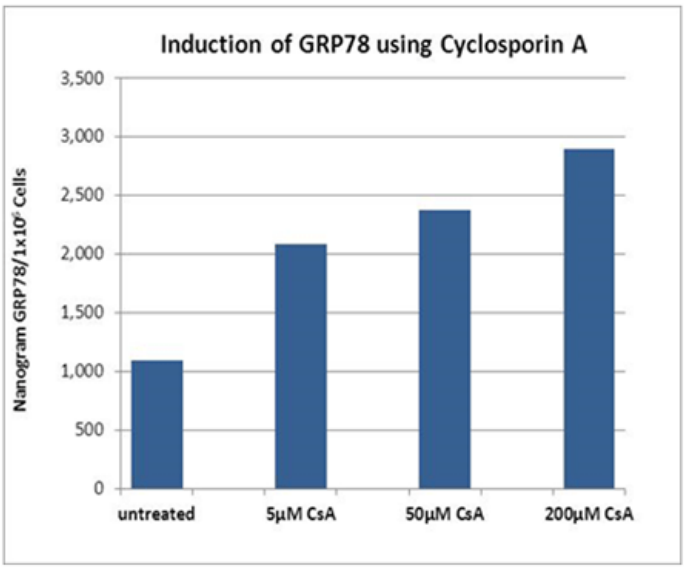
Ordering Information Order Online »

ADI-900-214-0001	96 wells

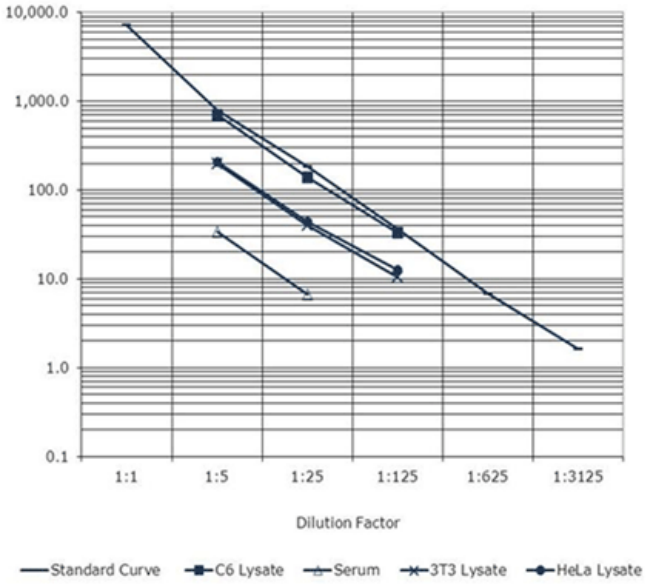
Manuals, SDS & CofA View Online »



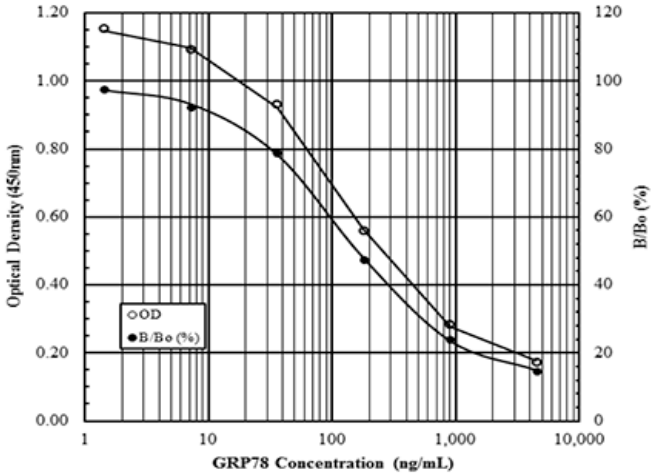
ELISA versus Western blot analysis correlation comparison of Grp78/BiP using C6 cell lysates. Lysates were serially diluted and either run in the ELISA or run on a 12% Tris-glycine gel, transferred to nitrocellulose membrane and probed for GRP78 with a monoclonal antibody to the KDEL portion of the GRP78 protein.



Induction analysis GRP78 using Cyclosporin A: HeLa cells were treated for 5 hours with 5µM, 50µM or 200µM concentrations of cyclosporine A. Following the incubation, treated and untreated cells were lysed with Extraction Reagent #2 as described above. The lysates were then evaluated in the assay. This data agrees with the results reported in the literature, low concentrations of cyclosporine A lead to the induction of GRP78 in HeLa cells (Paslaru, L. et al. (1994)) and supports the claim that the Enzo ELISA is able to detect and quantitate changes in native levels of GRP78.



Parallelism analysis of HeLa, 3T3, and C6 lysates and serum samples standard curves demonstrates that the antigen binding characteristics are similar enough to allow the accurate determination of native analyte levels in diluted samples of human, mouse, and rat origin.



Handling & Storage

Use/Stability	Store all components at 4°C, except conjugate at -80°C.
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Glucose-regulated protein 78, Binding immunoglobulin protein
Application	Colorimetric detection, ELISA
Application Notes	For the quantitative determination of human, mouse and rat GRP78/BiP in cell lysate and serum samples.
Assay Time	2.5 hours
Compatibility	This product is compatible with the **Absorbance 96 Plate Reader**.
Contents	Microtiter Plate, Conjugate, Antibody, Assay Buffer, Wash Buffer Concentrate, Standard, TMB Substrate, Stop Solution 2, Extraction Reagent
Crossreactivity	No cross-reactivity with other similar molecules (Grp94, PDI, Calreticulin) detected using this assay.
Sensitivity	8.4ng/ml (range 1.4-4500ng/ml)
Species Reactivity	Human, Mouse, Rat
UniProt ID	P11021 (human), P20029 (mouse), P06761 (rat)
Wavelength	450 nm

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