HSPA5/GRP-78 Protein, Mouse (P.pastoris, His)

Cat. No.:	HY-P71742
Synonyms:	Hspa5; Grp78; Endoplasmic reticulum chaperone BiP; EC 3.6.4.10; 78kDa glucose-regulated protein; GRP-78; HSP70 family protein 5
Species:	Mouse
Source:	P. pastoris
Accession:	P20029 (20E-655L)
Gene ID:	14828
Molecular Weight:	Approximately 72.5 kDa

PROPERTIES

AA Sequence

E E E D K K E D V G	T V V G I D L G T T	Y S C V G V F K N G	R V E I I A N D Q G
N R I T P S Y V A F	T P E G E R L I G D	A A K N Q L T S N P	E N T V F D A K R L
I G R T W N D P S V	Q Q D I K F L P F K	V V E K K T K P Y I	Q V D I G G G Q T K
T F A P E E I S A M	V L T K M K E T A E	A Y L G K K V T H A	V V T V P A Y F N D
A Q R Q A T K D A G	T I A G L N V M R I	I N E P T A A A I A	Y G L D K R E G E K
N I L V F D L G G G	T F D V S L L T I D	N G V F E V V A T N	G D T H L G G E D F
D Q R V M E H F I K	L Y K K K T G K D V	R K D N R A V Q K L	R R E V E K A K R A
L S S Q H Q A R I E	I E S F F E G E D F	S E T L T R A K F E	E L N M D L F R S T
M K P V Q K V L E D	S D L K K S D I D E	I V L V G G S T R I	P K I Q Q L V K E F
F N G K E P S R G I	N P D E A V A Y G A	A V Q A G V L S G D	Q D T G D L V L L D
V C P L T L G I E T	V G G V M T K L I P	R N T V V P T K K S	Q I F S T A S D N Q
P T V T I K V Y E G	E R P L T K D N H L	L G T F D L T G I P	P A P R G V P Q I E
V T F E I D V N G I	L R V T A E D K G T	G N K N K I T I T N	D Q N R L T P E E I
E R M V N D A E K F	A E E D K K L K E R	I D T R N E L E S Y	A Y S L K N Q I G D
K E K L G G K L S S	E D K E T M E K A V	E E K I E W L E S H	Q D A D I E D F K A
K K K E L E E I V Q	P I I S K L Y G S G	G P P P T G E E D T	S E K D E L

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 μm sterile filtered 20 mM Tris-HCl, 0.5 M NaCl, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	HSPA5/GRP-78 Protein serves as a crucial endoplasmic reticulum chaperone, playing a pivotal role in protein folding and quality control within the endoplasmic reticulum lumen. It engages in correct protein folding and participates in the degradation of misfolded proteins, collaborating with DNAJC10/ERdj5 to facilitate the release of DNAJC10/ERdj5 from its substrate. Furthermore, HSPA5/GRP-78 acts as a key repressor of the ERN1/IRE1-mediated unfolded protein response (UPR). In the unstressed endoplasmic reticulum, it is recruited by DNAJB9/ERdj4 to the luminal region of ERN1/IRE1, disrupting the dimerization of ERN1/IRE1 and consequently inactivating it. The accumulation of misfolded proteins triggers the release of HSPA5/BiP from ERN1/IRE1, allowing for homodimerization and the subsequent activation of ERN1/IRE1. Additionally, HSPA5/GRP-78 plays an auxiliary role in the post-translational transport of small presecretory proteins across the endoplasmic reticulum and may function as an allosteric modulator for the SEC61 channel-forming translocon complex. It is suggested to cooperate with SEC62 to enable the productive insertion of these precursors into the SEC61 channel. The protein appears to specifically regulate the translocation of precursors with inhibitory residues in their mature region, which weaken channel gating. Beyond its role in protein folding, HSPA5/GRP-78 may also contribute to apoptosis and cell proliferation.

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