PRODUCT INFORMATION

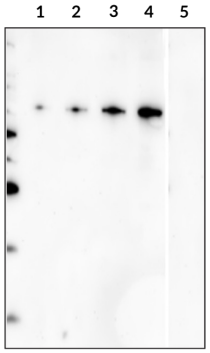
Citrullinated GRP78 (R368) Polyclonal Antibody

Item No. 24287

Overview and Properties

Contents: This vial contains 500 µl of peptide affinity-purified polyclonal antibody.
Synonyms: BiP, Endoplasmic Reticulum Lumenal Ca(2+)-Binding Protein GRP78, Glucose-Regulated Protein 78, Heat Shock Protein 5 (70kDa), Hsp5 (70 kDa), Immunoglobulin Heavy Chain-Binding Protein
Immunogen: Synthetic peptide corresponding to an internal region of human GRP78 with a citrulline at residue 368
Cross Reactivity: (+) Citrullinated GRP78 and citrullinated HSP70; (-) Unmodified GRP78, unmodified HSP70, all other citrullinated proteins
Species Reactivity: (+) Human
Uniprot No.: P11021
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥3 years
Storage Buffer: PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Host: Rabbit
Applications: ELISA and Western blot (WB); the recommended starting dilution is 1:200. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Lane 1: Cit GRP78 (10 ng)
Lane 2: Cit GRP78 (25 ng)
Lane 3: Cit GRP78 (50 ng)
Lane 4: Cit GRP78 (100 ng)
Lane 5: GRP78 (200 ng)

Figure 1. Western blot detection of the Citrullinated GRP78 (R368) polyclonal antibody.

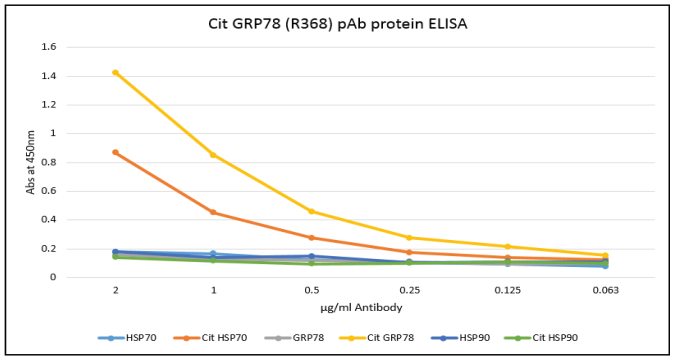


Figure 2. ELISA detection of the Citrullinated GRP (R368) Polyclonal Antibody.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

Glucose-regulated protein 78 kDa (GRP78) is a molecular chaperone that is ubiquitously expressed in the endoplasmic reticulum of mammalian cells.[1-3] GRP78 can be citrullinated at its 27 arginine residues by protein deiminases (PADs).[4] The accumulation of citrullinated proteins *in vivo* leads to the production of anti-citrullinated protein antibodies (ACPAs) which perpetuate the inflammatory process.[5] *In vitro*, ACPAs bind to citrullinated GRP78 expressed on the cell surface of peripheral blood mononuclear cells PMBCs and U937 cells leading to the production of TNF-α.[6,7] In a mouse model of collagen-induced arthritis (CIA), anti-citrullinated GRP78 antibodies are found in the serum.[4] Pre-immunization with citrullinated GRP78 prior to CIA induction shortens the time to joint inflammation and increases arthritis scores compared with non-citrullinated GRP78-immunized and non-immunized control mice. In autoimmune diseases such as rheumatoid arthritis, patient-derived serum contains higher levels of anti-citrullinated GRP78 antibodies than serum derived from patients with systemic lupus erythematosus and healthy controls.[4] The predicted size of GRP78 (R368) is approximately 78 kDa and Cayman's Citrullinated GRP78 (R368) Polyclonal Antibody detects the citrullinated GRP78 protein but not native GRP78 by Western blot. Additionally, due to sequence homology between HSP70 and GRP78, this antibody will also detect Citrullinated HSP70 (R342).

References

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2. Simons, J.F., Ferro-Novick, S., Rose, M.D., *et al.* BiP/Kar2p serves as a molecular chaperone during carboxypeptidase Y folding in yeast. *J. Cell. Biol.* **130(1)**, 41-49 (1995).
3. Mayer, M.P. and Bukau, B. Hsp70 chaperones: Cellular functions and molecular mechanism. *Cell Mol. Life Sci.* **62(6)**, 670-684 (2005).
4. Shoda, H., Fujio, K., Shibuya, M., *et al.* Detection of autoantibodies to citrullinated BiP in rheumatoid arthritis patients and pro-inflammatory role of citrullinated BiP in collagen-induced arthritis. *Arthritis Res. Ther.* **13(6)**, R191 (2011).
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WWW.CAYMANCHEM.COM