SANTA CRUZ BIOTECHNOLOGY, INC.

KDEL ER Marker (10C3): sc-58774

BACKGROUND

Misfolded proteins in the endoplasmic reticulum (ER) evoke the ER stress response. ER chaperones and misfolded proteins exit to the secretory pathway and are retrieved to the ER, during which process the KDEL ER tag plays an important role. KDEL represents an ER C-terminal tetrapeptide retention signal (Lys-Asp-Glu-Leu). This specific tag blocks the secretion of proteins. The ER retention of these proteins is accomplished via a pathway involving the binding of escaped proteins through KDEL tags to a KDEL receptor in a post-ER compartment. The protein-receptor complex is then transported back to the ER. KDELR2 is one of the receptors that cycle between the Golgi apparatus and the ER, returning proteins containing the KDEL signal to the ER. This can be useful in a research setting, since a target protein containing the KDEL ER retention signal can be coexpressed with KDELR2 and it will be redistributed to the ER.

REFERENCES

1. Hsu, V.W., et al. 1992. A brefeldin A-like phenotype is induced by the overexpression of a human ERD-2-like protein, ELP-1. Cell 69: 625-635.
2. Lewis, M.J., et al. 1992. Sequence of a second human KDEL receptor. J. Mol. Biol. 226: 913-916.
3. Schweizer, A., et al. 1993. A luminal calcium-binding protein with a KDEL endoplasmic reticulum retention motif in the ER-Golgi intermediate compartment. Eur. J. Cell Biol. 60: 366-370.
4. Monnat, J., et al. 1998. Dictyostelium discoideum protein disulfide isomerase, an endoplasmic reticulum resident enzyme lacking a KDEL-type retrieval signal. FEBS Lett. 418: 357-362.

SOURCE

KDEL ER Marker (10C3) is a mouse monoclonal antibody raised against amino acids 649-654 of GRP 78 of rat origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

KDEL ER Marker (10C3) is recommended for detection of proteins containing the SEKDEL sequence in mammals, birds, insects and plants; recognises GPR78 and GPR94 with particular prominence by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Positive Controls: HeLa whole cell lysate: sc-2200, rat liver extract: sc-2395 or Hep G2 cell lysate: sc-2227.

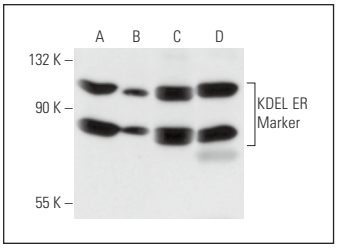
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

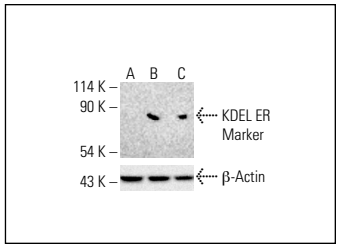
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



KDEL ER Marker (10C3): sc-58774. Western blot analysis of KDEL ER Marker expression in HeLa (**A**), HEK 294 (**B**) and Hep G2 (**C**) whole cell lysates and rat liver tissue extract (**D**).



KDEL ER Marker (10C3): sc-58774. Western blot analysis of KDEL ER Marker expression in untreated (**A**) and chemically-treated (**B**, **C**) HCT-116 whole cell lysates. Detection reagent used: m-IgG_{2a} BP-HRP: sc-542731. β-Actin (C4): sc-47778 used as loading control. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

SELECT PRODUCT CITATIONS

1. Croxatto, A. and Greub, G. 2010. Early intracellular trafficking of *Waddlia chondrophila* in human macrophages. Microbiology 156: 340-355.
2. Omi, T., et al. 2014. Fluvoxamine alleviates ER stress via induction of σ-1 receptor. Cell Death Dis. 5: e1332.
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4. Fukushima, M., et al. 2018. StAR-related lipid transfer domain 11 (STARD11)-mediated ceramide transport mediates extracellular vesicle biogenesis. J. Biol. Chem. 293: 15277-15289.
5. Ghaly, A., et al. 2019. Maternal nutrient restriction in guinea pigs leads to fetal growth restriction with increased brain apoptosis. Pediatr. Res. 85: 105-112.
6. Wang, Y., et al. 2020. Cloning of the XPD gene and its function in malignant melanoma cells. Oncol. Lett. 20: 1803-1809.
7. Zheng, Z., et al. 2021. The lysosomal rag-ragulator complex licenses RIPK1 and caspase-8-mediated pyroptosis by *Yersinia*. Science 372: eabg0269.
8. Fujiwara, A., et al. 2022. Subcellular niche segregation of co-obligate symbionts in whiteflies. Microbiol. Spectr. 11: e0468422.
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10. Wang, J., et al. 2024. Loss of TRIM29 mitigates viral myocarditis by attenuating PERK-driven ER stress response in male mice. Nat. Commun. 15: 3481.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.