SANTA CRUZ BIOTECHNOLOGY, INC.

KDEL receptor (KR-10): sc-57347

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Soluble proteins in the endoplasmic reticulum (ER) contain a specific carboxy terminal sequence KDEL (Lys-Asp-Glu-Leu) and include the coat proteins required for vesicle budding from the ER, proteins that form retrograde vesicles on post-ER compartments and integral membrane proteins that target vesicles to their correct destination. The retention of these soluble proteins in the ER depends on the interaction of the KDEL sequence with the corresponding KDEL receptor, also designated ERD2, in the Golgi apparatus. When KDEL proteins reach the Golgi complex, they are recognized by the KDEL receptor and transported retrograde in COPI-coated vesicles back to the ER. The small GTPase ADP-ribosylation factor 1 (ARF1), a regulator of vesicle transport, interacts with the KDEL receptor. Subsequently, this interaction allows the KDEL receptor to recruit a GTPase-activating protein (GAP) from the cytosol to membranes, which inactivates ARF1.

REFERENCES

1. Pelham, H.R. 1996. The dynamic organisation of the secretory pathway. Cell. Struct. Funct. 21: 413-419.
2. Aoe, T., et al. 1997. The KDEL receptor, ERD2, regulates intracellular traffic by recruiting a GTPase-activating protein for ARF1. EMBO J. 16: 7305-7316.
3. Aoe, T., et al. 1998. Modulation of intracellular transport by transported proteins: insight from regulation of COPI-mediated transport. Proc. Natl. Acad. Sci. USA 95: 1624-1629.
4. Scheel, A.A., et al. 1998. Identification of amino acids in the binding pocket of the human KDEL receptor. J. Biol. Chem. 273: 2467-2472.
5. Aoe, T., et al. 1999. The KDEL receptor regulates a GTPase-activating protein for ADP-ribosylation factor 1 by interacting with its non-catalytic domain. J. Biol. Chem. 274: 20545-20549.
6. Kimata, Y., et al. 2000. Identification of a novel mammalian endoplasmic reticulum-resident KDEL protein using an EST database motif search. Gene 261: 321-327.
7. Majoul, I., et al. 2001. KDEL-cargo regulates interactions between proteins involved in COPI vesicle traffic: measurements in living cells using FRET. Dev. Cell 1: 139-153.

SOURCE

KDEL receptor (KR-10) is a mouse monoclonal antibody raised against amino acids 192-212 of KDEL receptor of bovine origin.

PRODUCT

Each vial contains 1 ml culture supernatant containing IgG_1 kappa light chain with < 0.1% sodium azide.

STORAGE

For immediate and continuous use, store at -20° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

APPLICATIONS

KDEL receptor (KR-10) is recommended for detection of KDEL receptor of mouse, rat, human, *Drosophila* and *Xenopus laevis* origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunoprecipitation [20-40 µl supernatant per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:25-1:500).

KDEL receptor (KR-10) is also recommended for detection of KDEL receptor in additional species, including bovine and porcine.

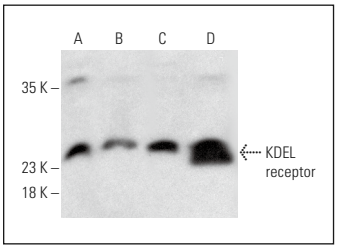
Molecular Weight of KDEL receptor: 25 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, NIH/3T3 whole cell lysate: sc-2210 or Hep G2 cell lysate: sc-2227.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



KDEL receptor (KR-10): sc-57347. Western blot analysis of KDEL receptor expression in HeLa (**A**), NIH/3T3 (**B**), U-251-MG (**C**) and Hep G2 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Sanchez-Ferras, O., et al. 2021. A coordinated progression of progenitor cell states initiates urinary tract development. Nat. Commun. 12: 2627.
2. Mishra, K., et al. 2022. Multifaceted analyses of isolated mitochondria establish the anticancer drug 2-hydroxyoleic acid as an inhibitor of substrate oxidation and an activator of complex IV-dependent state 3 respiration. Cells 11: 578.

RESEARCH USE

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

PROTOCOLS

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