

UFD1 (E-4): sc-271221

BACKGROUND

Ubiquitin-mediated proteolysis requires the transfer of ubiquitin (Ub) to lysine groups on selected cellular proteins, which then potentiates the proteolytic degradation of these protein conjugates by the 26S Proteasome. Ub-fusions are cleaved by Ub-specific processing proteases (UBPs) or alternatively by the Ub-fusion degradation (UFD) pathway. The UBP pathway targets the C-terminal glycine residue on Ub that is involved in the formation of Ub-conjugates, while UFD proteins preferentially cleave Ub-conjugated proteins that contain an amino acid substitution at this glycine residue. The UFD1 protein was originally characterized in the yeast *S. cerevisiae* and subsequently, the human homolog UFD1 or UFD1L was identified. *In vitro*, UFD1 attenuates the degradation of Ub-fusions, which have a proline or valine residue substituted at the Gly76 moiety, by the selective multiubiquitination of the Ub chain of the Ub-conjugate. Mutations within the UFD1 gene are implicated in the development of CATCH22 syndrome, which is characterized by cardiac defects, cleft palate and hypocalcemia, suggesting that this proteolytic pathway may be involved in the progression of these developmental defects.

REFERENCES

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- Johnson, E.S., et al. 1995. A proteolytic pathway that recognizes ubiquitin as a degradation signal. *J. Biol. Chem.* 270: 17442-17456.
- Hochstrasser, M. 1995. Ubiquitin, proteasomes, and the regulation of intracellular protein degradation. *Curr. Opin. Cell Biol.* 7: 215-223.
- Haas, A.L., et al. 1997. Pathways of ubiquitin conjugation. *FASEB J.* 11: 1257-1268.
- Pizzuti, A., et al. 1997. UFD1L, a developmentally expressed ubiquitination gene, is deleted in CATCH 22 syndrome. *Hum. Mol. Genet.* 6: 259-265.
- Novelli, G., et al. 1998. Structure and expression of the human ubiquitin fusion-degradation gene (UFD1L). *Biochim. Biophys. Acta* 1396: 158-162.

CHROMOSOMAL LOCATION

Genetic locus: UFD1L (human) mapping to 22q11.21; Ufd1l (mouse) mapping to 16 A3.

SOURCE

UFD1 (E-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 294-337 at the C-terminus of UFD1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-271221 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

UFD1 (E-4) is recommended for detection of UFD1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

UFD1 (E-4) is also recommended for detection of UFD1 in additional species, including equine and porcine.

Suitable for use as control antibody for UFD1 siRNA (h): sc-41689, UFD1 siRNA (m): sc-41690, UFD1 shRNA Plasmid (h): sc-41689-SH, UFD1 shRNA Plasmid (m): sc-41690-SH, UFD1 shRNA (h) Lentiviral Particles: sc-41689-V and UFD1 shRNA (m) Lentiviral Particles: sc-41690-V.

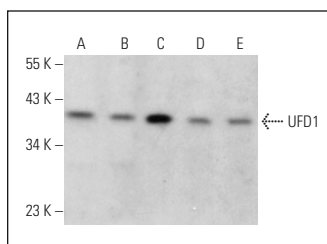
Molecular Weight of UFD1: 40 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SJRH30 cell lysate: sc-2287 or Sol8 cell lysate: sc-2249.

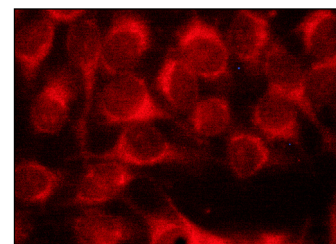
RECOMMENDED SUPPORT REAGENTS

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



UFD1 (E-4): sc-271221. Western blot analysis of UFD1 expression in HeLa (A), SJRH30 (B), Sol8 (C), BC₃H1 (D) and J774.A1 (E) whole cell lysates.



UFD1 (E-4): sc-271221. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

STORAGE

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

PROTOCOLS

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