

ADF (N-16): sc-22544

BACKGROUND

Actin-depolymerizing factor (ADF), also known as destrin, is a member of the ADF/cofilin/destrin superfamily that has the ability to rapidly depolymerize F-actin in a stoichiometric manner. The actin-depolymerizing activity of ADF is reversibly controlled by changes in KCl concentration but is insensitive to calcium concentration. ADF depolymerizes F-actin by interacting directly with F-actin protomers. ADF shares 71% sequence homology with cofilin, however the two proteins differ in their interaction with actin. The difference in the function of ADF and cofilin results from the subtle difference in their amino acid sequence rather than possible differences in posttranslational modifications. As a result of different cleavage sites on ADF and cofilin, the proteins differ in their overall tertiary folds. Sensitivity to polyphosphoinositides may be a common feature *in vitro* among actin-binding proteins such as ADF and cofilin that can bind to G-actin and regulate the state of actin polymerization. ADF and cofilin are actin-depolymerizing proteins whose activities are possibly regulated by their phosphorylation/dephosphorylation.

REFERENCES

1. Nishida, E., Muneyuki, E., Maekawa, S., Ohta, Y. and Sakai, H. 1985. An Actin-depolymerizing protein (destrin) from porcine kidney. Its action on F-actin containing or lacking tropomyosin. *Biochemistry* 24: 6624-6630.
2. Moriyama, K., Nishida, E., Yonezawa, N., Sakai, H., Matsumoto, S., Iida, K. and Yahara, I. 1990. Destrin, a mammalian actin-depolymerizing protein, is closely related to cofilin. Cloning and expression of porcine brain destrin cDNA. *J. Biol. Chem.* 265: 5768-5773.
3. Yonezawa, N., Nishida, E., Iida, K., Yahara, I. and Sakai, H. 1990. Inhibition of the interactions of cofilin, destrin and deoxyribonuclease I with actin by phosphoinositides. *J. Biol. Chem.* 265: 8382-8386.
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5. Arima, K., Imanaka, M., Okuzono, S., Kazuta, Y. and Kotani, S. 1998. Evidence for structural differences between the two highly homologous actin-regulatory proteins, destrin and cofilin. *Biosci. Biotechnol. Biochem.* 62: 215-220.

CHROMOSOMAL LOCATION

Genetic locus: DSTN (human) mapping to 20p12.1; Dstn (mouse) mapping to 2 G1.

SOURCE

ADF (N-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of ADF of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22544 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ADF (N-16) is recommended for detection of ADF of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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); may cross-react with LOC729454.

ADF (N-16) is also recommended for detection of ADF in additional species, including canine, bovine, porcine and avian.

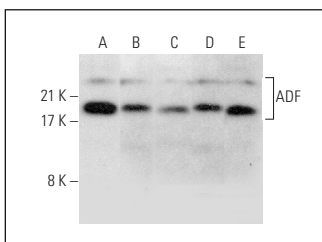
Suitable for use as control antibody for ADF siRNA (h): sc-43200, ADF siRNA (m): sc-43201, ADF shRNA Plasmid (h): sc-43200-SH, ADF shRNA Plasmid (m): sc-43201-SH, ADF shRNA (h) Lentiviral Particles: sc-43200-V and ADF shRNA (m) Lentiviral Particles: sc-43201-V.

Positive Controls: A549 cell lysate: sc-2413, PC-12 cell lysate: sc-2250 or MCF7 whole cell lysate: sc-2206.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



ADF (N-16): sc-22544. Western blot analysis of ADF expression in A549 (A), PC-12 (B), MCF7 (C), NIH/3T3 (D) and HEK293 (E) whole cell lysates.

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.