

Arp3 (B-1): sc-374200

BACKGROUND

Actin polymerization is required for a variety of cell functions, including chemotaxis, cell migration, cell adhesion, and platelet activation. Cells trigger Actin polymerization through either the *de novo* nucleation of filaments from monomeric Actin, the severing of existing filaments to create uncapped barbed ends, or the uncapping existing barbed ends. The nucleation of Actin is a rate-limiting and unfavorable reaction in Actin polymerization and therefore requires the involvement of the Arp2/3 complex, which helps create new filaments and promotes the end-to-side cross-linking of Actin filaments into the branching meshwork. The Arp2/3 complex consists of the Actin-related proteins Arp2 and Arp3, and various other accessory proteins. The Arp2/3 complex promotes Actin nucleation by binding the pointed end of Actin filaments, or by associating with the side of an existing filament, and nucleates growth in the barbed direction. In addition, the Arp2/3 complex also mediates Actin cytoskeletal outgrowths that are regulated by the Rho family of small GTPases. In response to GTP-binding Cdc42, the Arp2/3 complex binds the Cdc42 substrates, namely the WASP proteins, and initiates the formation of lamellipodia and filopodia.

REFERENCES

- Mullins, R.D., et al. 1998. The interaction of Arp2/3 complex with Actin: nucleation, high affinity pointed end capping, and formation of branching networks of filaments. *Proc. Natl. Acad. Sci. USA* 95: 6181-6186.
- Higgs, H.N., et al. 1999. Regulation of Actin polymerization by Arp2/3 complex and WASp/Scar proteins. *J. Biol. Chem.* 274: 32531-32534.
- Bailly, M., et al. 1999. Relationship between Arp2/3 complex and the barbed ends of Actin filaments at the leading edge of carcinoma cells after epidermal growth factor stimulation. *J. Cell Biol.* 145: 331-345.
- Svitkina, T.M., et al. 1999. Arp2/3 complex and Actin depolymerizing factor/cofilin in dendritic organization and treadmilling of Actin filament array in lamellipodia. *J. Cell Biol.* 145: 1009-1026.

CHROMOSOMAL LOCATION

Genetic locus: ACTR3 (human) mapping to 2q14.1; Actr3 (mouse) mapping to 1 E3.

SOURCE

Arp3 (B-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 5-37 near the N-terminus of Arp3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} 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-374200 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

Arp3 (B-1) is recommended for detection of Arp3 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).

Arp3 (B-1) is also recommended for detection of Arp3 in additional species, including bovine, porcine and avian.

Suitable for use as control antibody for Arp3 siRNA (h): sc-29739, Arp3 siRNA (m): sc-29740, Arp3 shRNA Plasmid (h): sc-29739-SH, Arp3 shRNA Plasmid (m): sc-29740-SH, Arp3 shRNA (h) Lentiviral Particles: sc-29739-V and Arp3 shRNA (m) Lentiviral Particles: sc-29740-V.

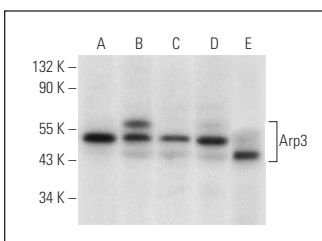
Molecular Weight of Arp3: 53 kDa.

Positive Controls: A549 cell lysate: sc-2413, KNRK whole cell lysate: sc-2214 or A-431 whole cell lysate: sc-2201.

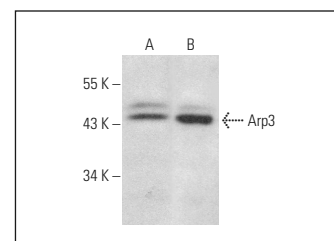
RECOMMENDED SUPPORT REAGENTS

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



Arp3 (B-1): sc-374200. Western blot analysis of Arp3 expression in KNRK (A), HeLa (B), A-431 (C) and A549 (D) whole cell lysates and human ovary tissue extract (E).



Arp3 (B-1): sc-374200. Western blot analysis of Arp3 expression in HeLa (A) and DU 145 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

- Noh, J., et al. 2022. Granger-causal inference of the lamellipodial Actin regulator hierarchy by live cell imaging without perturbation. *Cell Syst.* 13: 471-487.e8.

RESEARCH USE

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