

Arp3 (4): sc-136279

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. and Pollard, T.D. 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. and Borisy, G.G. 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 (4) is a mouse monoclonal antibody raised against amino acids 181-291 of Arp3 of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

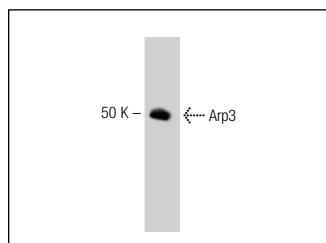
Arp3 (4) is recommended for detection of Arp3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

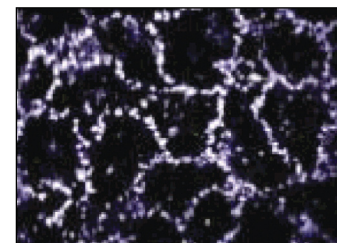
Molecular Weight of Arp3: 53 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or KNRK whole cell lysate: sc-2214.

DATA



Arp3 (4): sc-136279. Western blot analysis of Arp3 expression in Jurkat whole cell lysate.



Arp3 (4): sc-136279. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoskeletal localization.

SELECT PRODUCT CITATIONS

- Chorev, D.S., et al. 2014. Regulation of focal adhesion formation by a vinculin-Arp2/3 hybrid complex. *Nat. Commun.* 5: 3758.

RESEARCH USE

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

PROTOCOLS

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