SANTA CRUZ BIOTECHNOLOGY, INC.

# Arp3 (A-10): sc-376625

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*The Power to Question*

## 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


1. Cooper, J.A., et al. 1983. Kinetic evidence for a monomer activation step in Actin polymerization. Biochemistry 22: 2193-2202.
2. Tobacman, L.S., et al. 1983. The kinetics of Actin nucleation and polymerization. J. Biol. Chem. 258: 3207-3214.
3. Schroer, T.A., et al. 1994. Actin-related protein nomenclature and classification. J. Cell Biol. 127: 1777-1778.
4. McCollum, D., et al. 1996. The *Schizosaccharomyces pombe* Actin-related protein, Arp3, is a component of the cortical Actin cytoskeleton and interacts with profilin. EMBO J. 15: 6438-6446.


## SOURCE

Arp3 (A-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 41-77 near the N-terminus of Arp3 of *Saccharomyces cerevisiae* 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.

Arp3 (A-10) is available conjugated to agarose (sc-376625 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376625 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376625 PE), fluorescein (sc-376625 FITC), Alexa Fluor® 488 (sc-376625 AF488), Alexa Fluor® 546 (sc-376625 AF546), Alexa Fluor® 594 (sc-376625 AF594) or Alexa Fluor® 647 (sc-376625 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376625 AF680) or Alexa Fluor® 790 (sc-376625 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376625 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

Arp3 (A-10) is recommended for detection of Arp3 of *Saccharomyces cerevisiae* 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).

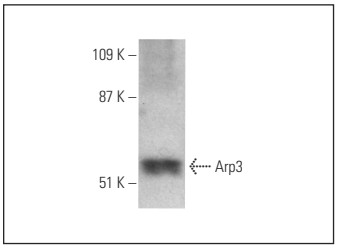
Molecular Weight of Arp3: 53 kDa.

Positive Controls: EGY48 whole cell lysate: sc-364775.

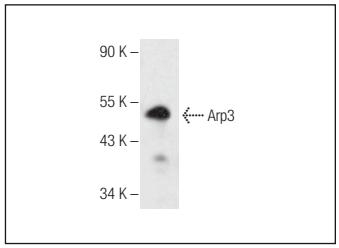
## RECOMMENDED SUPPORT REAGENTS

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 (A-10) HRP: sc-376625 HRP. Direct western blot analysis of Arp3 expression in EGY48 whole cell lysate.




Arp3 (A-10): sc-376625. Western blot analysis of Arp3 expression in yeast extract whole cell lysate.

## SELECT PRODUCT CITATIONS


1. Rodnick-Smith, M., et al. 2016. Identification of an ATP-controlled allosteric switch that controls Actin filament nucleation by Arp2/3 complex. Nat. Commun. 7: 12226.
2. Woogeng, I.N., et al. 2018. The C-terminal extension domain of *Saccharomyces cerevisiae* MrpL32, a homolog of ribosomal protein L32, functions in *trans* to support mitochondrial translation. Genes Genet. Syst. 93: 21-24.


## 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.