

Arp2 (E-12): sc-166103

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 of 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.

CHROMOSOMAL LOCATION

Genetic locus: ACTR2 (human) mapping to 2p14; Actr2 (mouse) mapping to 11 A3.1.

SOURCE

Arp2 (E-12) is a mouse monoclonal antibody raised against amino acids 311-394 of Arp2 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Arp2 (E-12) is available conjugated to agarose (sc-166103 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166103 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166103 PE), fluorescein (sc-166103 FITC), Alexa Fluor® 488 (sc-166103 AF488), Alexa Fluor® 546 (sc-166103 AF546), Alexa Fluor® 594 (sc-166103 AF594) or Alexa Fluor® 647 (sc-166103 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166103 AF680) or Alexa Fluor® 790 (sc-166103 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

Arp2 (E-12) is recommended for detection of Arp2 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

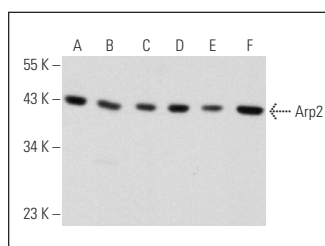
Arp2 (E-12) is also recommended for detection of Arp2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Arp2 siRNA (h): sc-29737, Arp2 siRNA (m): sc-29738, Arp2 shRNA Plasmid (h): sc-29737-SH, Arp2 shRNA Plasmid (m): sc-29738-SH, Arp2 shRNA (h) Lentiviral Particles: sc-29737-V and Arp2 shRNA (m) Lentiviral Particles: sc-29738-V.

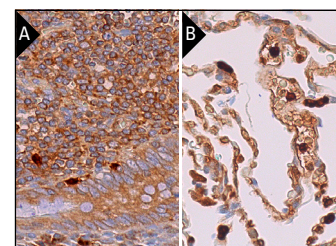
Molecular Weight of Arp2: 43 kDa.

Positive Controls: A-673 cell lysate: sc-2414, C2C12 whole cell lysate: sc-364188 or Sol8 cell lysate: sc-2249.

DATA



Arp2 (E-12): sc-166103. Western blot analysis of Arp2 expression in A-673 (A), Hs 732.Sk/Mu (B), C2C12 (C), Sol8 (D), L8 (E) and A-10 (F) whole cell lysates.



Arp2 (E-12): sc-166103. Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic staining of glandular cells and cytoplasmic and membrane staining of lymphoid cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing cytoplasmic staining of pneumocytes and macrophages (B).

SELECT PRODUCT CITATIONS

- Zhang, Y., et al. 2019. Loss of PKC μ function induces cytoskeletal defects in mouse oocyte meiosis. *J. Cell. Physiol.* 234: 18513-18523.
- Zhang, Q., et al. 2021. PTEN ϵ suppresses tumor metastasis through regulation of filopodia formation. *EMBO J.* 40: e105806.
- Mergault, C., et al. 2022. Inhibition of the Arp2/3 complex represses human lung myofibroblast differentiation and attenuates bleomycin-induced pulmonary fibrosis. *Br. J. Pharmacol.* 179: 125-140.
- Iwano, T., et al. 2023. The Rab GTPase-binding protein EHP1L1 and its interactors CD2AP/CIN85 negatively regulate the length of primary cilia via actin remodeling. *J. Biol. Chem.* 299: 102985.

RESEARCH USE

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