Revision 1

Store at -20C

#8355

Actin Nucleation Antibody Sampler Kit

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
ARP2 (D85D5) Rabbit mAb	5614	40 µl	44 kDa	Rabbit IgG
ARP3 Antibody	4738	40 µl	47 kDa	Rabbit
N-WASP (30D10) Rabbit mAb	4848	40 µl	65 kDa	Rabbit
Diap1 Antibody	5486	40 µl	150 kDa	Rabbit
Diap2 Antibody	5474	40 µl	130 kDa	Rabbit
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The Actin Nucleation Antibody Sampler Kit provides an economical means to evaluate the presence and status of actin nucleation. The kit contains enough primary and secondary antibodies to perform four western blot experiments per primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Background

Actin nucleation, the formation of new actin filaments from existing filaments, affects actin filament structure during cell motility, division, and intracellular trafficking. An important actin nucleation protein complex is the highly conserved ARP2/3 complex, consisting of ARP2, ARP3, and ARPC1-5. The ARP2/3 complex promotes branching of an existing actin filament and formation of a daughter filament following activation by nucleation-promoting factors, such as WASP/WAVE or cortactin (1). The formation of podosomes, small cellular projections that degrade the extracellular matrix, is enhanced by ARP2/3 complex action. ARP2/3 competes with caldesmon, an actin binding protein shown to negatively affect podosome formation (2). Along with N-WASP, the ARP2/3 complex regulates nuclear actin filament nucleation and controls actin polymerization during transcription (3).
Formins are a family of large multidomain actin nucleation/polymerization proteins characterized by their catalytic FH2 domains. The mammalian diaphanous-related formin (mDia/diap) subfamily, including mDia1/diap1, mDia2/diap3 and mDia3/diap2, are effectors of Rho family small GTPases. In response to Rho, mDia/diap proteins are involved in the regulation of multiple cell functions including cytoskeletal dynamics, migration, adhesion, polarity, and cell shape (reviewed in 4,5).
mDia1/diap1 is activated by GTP-bound Rho, leading to Rho-associated kinase (ROCK)-dependent stress fiber formation (6,7). Rho activation of mDia1 has also been shown to regulate serum response factor (SRF)-dependent transcription (8), and has been implicated in human cancer phenotypes such as ras-mediated transformation, metastasis, and invasion (reviewed in 9).
mDia3/diap2, activated by the Rho family small GTPase cdc42, regulates the attachment of microtubules to the kinetochore during mitosis in mammalian cells (10).
Rho-dependent activation of mDia2/diap3 is important in assembly of the contractile ring during cytokinesis (11,12).

Background References

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