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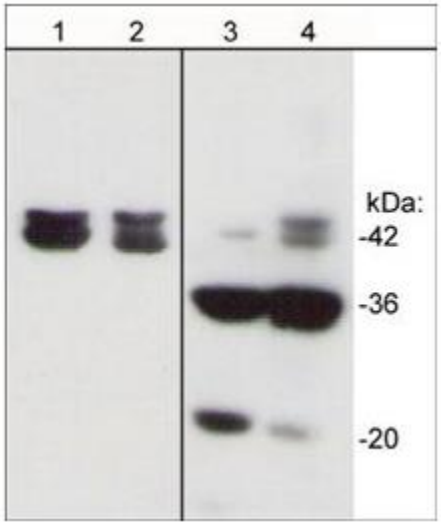
Product Datasheet

Anti-Actin (Tyr-53), Phosphospecific Antibody

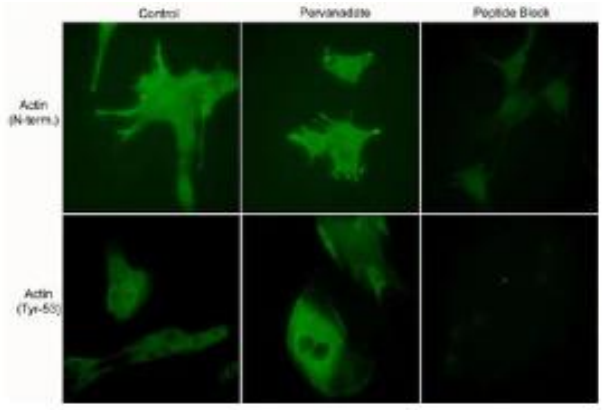
Overview

Catalog #	AP1671
Size	100 µL
Host Species	Rabbit Polyclonal
Format	Antigen Affinity Purified
Applications	WB 1:1000 ICC 1:50
Species Tested	Chicken, Human, Mouse, and Rat
Immunogen	Phospho-Actin (Tyr-53) synthetic peptide (coupled to KLH) corresponding to amino acid residues around tyrosine 53 of human β actin. This sequence is identical to similar regions in all four α actins, as well as in γ actin, and is well conserved in actins from most eukaryotic species.
Molecular Weight	42 kDa
Cite this Antibody	PhosphoSolutions Cat# AP1671, RRID:AB_2305190

Images



Western blot analysis of mouse C2C12 cells untreated (lanes 1 & 3), or treated with pervanadate (1 mM) for 30 min (lanes 2 & 4). The blot was probed with anti-Actin (N-terminal) antibody (lanes 1 & 2) or anti-Actin (Tyr-53) antibody (lanes 3 & 4).



Immunocytochemical labeling using anti-Actin (N-terminal) and anti-Actin (Tyr-53) polyclonal antibodies in C2C12 cells control (left) or treated with pervanadate (1 mM) for 30 min (middle). The cells were fixed in paraformaldehyde and permeabilized in acetone. Both antibodies were used in the presence of blocking peptide: Actin (N-terminal) peptide (AX1655) or phospho-Actin (Tyr-53) peptide (AX1675), respectively (right).

Details

Target Description	Actin is a major cytoskeletal protein involved in diverse cellular functions including cell motility, adhesion, and morphology. Six different actin isoforms have been identified in vertebrates. There are four α isoforms: skeletal, cardiac, and two smooth muscle (enteric and aortic) actins, along with two cytoplasmic actins (β and γ). Actin exists in two principal forms, globular, monomeric (G) actin, and filamentous polymeric (F) actin. The assembly and disassembly of actin filaments, and also their organization into functional networks, is regulated by a variety of actin-binding proteins (ABPs). Phosphorylation may also be important for regulating actin assembly and interaction with ABPs. In Dictyostelium, phosphorylation of Tyr-53 occurs in response to cell stress and this phosphorylation may alter actin polymerization. In B cells, SHP-1 tyrosine dephosphorylation of actin leads to actin filament depolymerization following BCR stimulation.
Specificity	This antibody detects a 42 kDa* protein corresponding to the molecular mass of Actin on SDS-PAGE immunoblots of pervanadate treated human C2C12 and SYF cSrc transformed cells, but not in control cells. In addition, this antibody either detects actin cleavage products at 36 and 20 kDa, or cross-reacts with unidentified proteins at these molecular weights in C2C12 cells.
Quality Control	Western blots performed on each lot.
Buffer	PBS + 1 mg/ml BSA, 0.05% NaN3 and 50% glycerol
Storage	Storage at -20°C is recommended, as aliquots may be taken without freeze/thawing due to presence of 50% glycerol. Stable for at least 1 year at -20°C.
Stability	After date of receipt, stable for at least 1 year at -20°C.

Significant Citations

Pryazhnikov, E., Mugantseva, E., Casarotto, P., Kolikova, J., Fred, S.M., Toptunov, D., Afzalov, R., Hotulainen, P., Voikar, V., Terry-Lorenzo, R., Engel, S., Kirov, S., Castren, E. and Khiroug, L. (2018). Longitudinal two-photon imaging in somatosensory cortex of behaving mice reveals dendritic spine formation enhancement by subchronic administration of low-dose ketamine. *Scientific Reports*, 8(1).

Bertling, E., Englund, J., Rimante Minkeviciene, Koskinen, M., Mikael Segerstråle, Eero Ċastrén, Taira, T. and Pirta Hotulainen (2016). Actin Tyrosine-53-Phosphorylation in Neuronal Maturation and Synaptic Plasticity. *The Journal of Neuroscience*, 36(19), pp.5299–5313.

Vonach, C., Viola, K., Giessrigl, B., Huttary, N., Raab, I., Kalt, R., Krieger, S., Vo, T.P.N., Madlener, S., Bauer, S., Marian, B., Hämmerle, M., Kretschy, N., Teichmann, M., Hantusch, B., Stary, S., Unger, C., Seelinger, M., Eger, A. and Mader, R. (2011). NF-κB mediates the 12(S)-HETE-induced endothelial to mesenchymal transition of lymphendothelial cells during the intravasation of breast carcinoma cells. *British Journal of Cancer*, [online] 105(2), pp.263–271.

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