# Actin (polyclonal)

## Background
Actin is a highly conserved protein and an essential component of cell cytoskeleton and plays an important role in cytoplasmic streaming, cell shape determination, cell division, organelle movement and extension growth. Preferentially expressed in young and expanding tissues, floral organ primordia, developing seeds and emerging inflorescence.

## Immunogen
Ca. 100 amino acids of recombinant actin conserved more than 80% in Arabidopsis thaliana: actin-1 P0CJ46 AT3G37620, actin-2 Q96292 AT3G18780, actin-3 P0CJ47 AT3G32750, actin-4 P53494 AT5G59370, actin-5 Q8RYC2 At2g42100, actin-7 P53492 At5g09810, actin-8 Q96293 AT1G49240, actin-11 P53496 AT3G12110, actin-12 P53497 AT3G46520

## Host
Rabbit

## Clonality
Polyclonal

## Purity
Serum

## Format
Lyophilized

## Quantity
50 µl

## Reconstitution
For reconstitution add 50 µl of sterile water.

## Storage
Store lyophilized/reconstituted at -20°C; once reconstituted make aliquots to avoid repeated freeze-thaw cycles. Please, remember to spin tubes briefly prior to opening them to avoid any losses that might occur from lyophilized material adhering to the cap or sides of the tubes.

## Tested applications
Immunofluorescence (IF), Western blot (WB)

## Related products
- AS10 702 | Anti-Actin-11, monclonal mouse antibody
- AS10 681 | Anti-tubulin beta chain, rabbit antibody
- AS10 680 | Anti-tubulin alpha chain, rabbit antibody
- AS16 3140 | Actin-2, mouse monoclonal antibody
- AS16 3141 | Actin-8, mouse monoclonal antibody
- AS16 3139 | Actin-1, monoclonal antibody
- Plant protein extraction buffer
- Secondary antibodies

## Additional information
Antibody available in 3 various pack sizes: 50, 100 and 150 µl - Please inquire.

This product can be sold containing ProClin if requested.

## Application information
**Recommended dilution**
- IF: 1 : 250
- WB: 1 : 3000 - 1 : 5000

**Expected | apparent MW**
41.6 | 45 kDa

**Confirmed reactivity**
- Agrostis stolonifera cv. 'Penncross', Arabidopsis thaliana, Cucumis sativus, Cynara cardunculus, Glycine max, Hordeum vulgare, Nicotiana tabacum, Setaria italica, Solanum tuberosum, Triticum aestivum, Zea mays

**Predicted reactivity**
- Agropyron cristatum, Beta vulgaris, Betula luminifera, Brassica napus, Brassica rapa subsp. pekinensis, Capsella rubella, Castanea sativa, Chorispora bungeana, Cyanidioschyzon merolae strain 10D, Glycine soja, Halogeton glomeratus, Medicago truncatula, Malus domestica, Oryza sativa, Pisum sativum, Solanum lycopersicum, Solanum tuberosum, Phaseolus vulgaris, Poa elongata, Poa sitchensis, Prunus communis, Rubus plicatus, Theobroma cacao, Vicia faba

**Not reactive in**
- Chlamydomonas reinhardii (too high background for this species)
Scherer et al. (2019). Pulsed electric field (PEF)-assisted protein recovery from Chlorella vulgaris is mediated by an enzymatic process after cell death. Algal Research, Volume 41, August 2019, 101536.


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**Application example**

15 µg of total protein extracted with PEB (AS08 300) from leaf tissue of (1) Arabidopsis thaliana, (2) Hordeum vulgare, (3) Zea mays were separated on 4-12% NuPage (Invitrogen) LDS-PAGE and blotted 1h to PVDF. Filters were blocked 1h with 2% low-fat milk powder in TBS-T (0.1% TWEEN 20) and probed with anti-actin (AS13 2640, 1:2500, 1h) and secondary anti-rabbit (1:10 000, 1 h) antibody (HRP conjugated, recommended secondary antibody AS09 602) in TBS-T containing 2% low fat milk powder. Antibody incubations were followed by washings in TBS-T (15, +5, +5, +5 min). All steps were performed at RT with agitation. Signal was detected with chemiluminescent detection reagent using a Fuji LAS-3000 CCD (300s, standard sensitivity). Exposure time was 2 min.
Actin cytoskeleton in 5 days old Arabidopsis thaliana seedlings. Actin signal shown in green, PIN1 in red and DAPI in blue. The material has been fixed in 2\% formaldehyde for 45 minutes. Tissue cleaning has been performed before immunolocalization. Rabbit anti-actin primary antibody was diluted in 1:250 and anti-rabbit Alexa 488 and Alexa 555 were both diluted in 1: 500 (Invitrogen). Scale bar - 20 µm.

Courtesy: Dr. Taras Pasternak, Freiburg University, Germany

Proteins were extracted from tuber flesh of Russet Burbank potato (Solanum tuberosum) with 0.1 M Tris HCl (pH=8.0), 5\% sucrose (m/v), 2\% (m/v) SDS, protease inhibitors (PMSF 1mM). Samples were heated 95\°C 5 min, and 10 µg of total protein was resolved in 12\% SDS PAGE and blotted to PVDF membrane for 1h-1.5h using tank transfer. Blots were blocked with a skimmed milk 4\% (m/v) in T-TBS (1.5h) at RT with agitation. Primary antibodies (AS13 2640) were applied overnight +4\°C in dilution 1:5000 with agitation. After washing with T-TBS 2-3 times, membrane was incubated with secondary antibodies (Goat Anti-Rabbit HRP conjugate, Transgen biotech HS101) 1:10000 for 1 hour at RT. Blot was washed as above and developed with ECL (Clarity Western ECL Substrate, BioRad, 170-5060) for 5 – 10 minutes. Exposure time – 20.395 seconds.

Courtesy of Iauhenia Isayenka, University of Sherbrooke, Canada