

Anti-Plant Actin pan (8-isoforms of actin)

Cat. # ACTB21-M

Monoclonal Anti-Plant Actin pan IgG,

SIZE: 100 ug

Actin and myosin are the two major cytoskeleton proteins implicated in cellular movement, secretion, phagocytosis, and kinesis. Actin is one of the most conserved cellular protein. In plants, exogenous application of hormones initiates a variety of processes directed by the cytoskeleton, such as the initiation of rapid cell proliferation, cell expansion, and differentiation. Higher plants contain actins encoded by a relatively ancient and highly divergent multigene family. Arabidopsis has eight functional actin genes. On the basis of their sequence and expression, they have been grouped into two major phylogenetic classes, **reproductive** and **vegetative**, and to five subclasses (two for vegetative and three for reproductive). The **reproductive actin genes ACT1, 3, and 11** are expressed strongly in mature pollen, growing pollen tubes, ovules, and to a certain extent in embryos and young meristematic tissue. The **vegetative actin (ACT2, 4, 7, 8, and 12)** differ from the reproductive actins by 4- 7% at the amino acid level and show distinct expression patterns. The pairs ACT1 and ACT3, and ACT2 and ACT8, differ only in one amino acid. Misexpression of ACT1 but not ACT2 induced dwarfism in plants in addition to delayed flowering, significantly reduced organ size and altered branching pattern of the leaf trichomes and inflorescence stem. During cell differentiation and maturation in plants, there is a developmental switch in the regulation of actin isovariants. For example, during Arabidopsis and tobacco pollen development, there is a switch from completely vegetative to predominantly reproductive actin isovariants. Furthermore, different cell types may differ in their preference for actin isovariants to fulfill their distinct cellular functions. In Arabidopsis ACT7 isovariant is essential for normal phytohormone response to hormones in different organs.

Source of Antigen and Antibodies

Antigen	Purified plant actin protein (ACT8)
Ab Host/type	Mouse, monoclonal unpurified ascites # ACTB21-M (isotype IgG2b) supplied in PBS, pH & .4, 0.05% azide
2-Ab	Goat Anti-mouse IgG-HRP conjugate Cat # 40320 (AP, biotin, FITC conjugates also available)
-ve	Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as -ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG

100 ug/100ul solution lyophilized powder
Supplied in **Buffer:** PBS+0.05 azie1% BSA
reconstitute powder in PBS at 1mg/ml

Storage

Short-term: unopened, undiluted liquid vials at -200C and powder at 4oC or -20oC..

Long-term: at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20oC or below.

Shipping: 4oC for solutions and room temp for powder.

Recommended Usage

Western Blotting: monoclonal antibodies at 1:1500-1:2K using Chemiluminescence technique)..

ELISA (1:10-50K; using 50-200 ng control antigen/well).

IHC/IF: Immunohistochemistry (refs 1)

Specificity & Cross-reactivity

Monoclonal Anti-Actin (plant) recognizes actin in many plant species and in *Dictyostelium* (~43-45 kDa). In *Arabidopsis*, the antibody recognizes all eight actins isoforms (ACT1, 2, 3, 4, 7, 8, 11, and 12).

References: (1). Meagher RB (1999) Plant cell 11, 995-1005; Kandaswamy MK (1999) Plant J. 18, 681-691; ; Kandaswamy MK (2002) Mol. Biol. Cell. 13, 251-261; Kandaswamy MK (2001) Plant Cell 13, 1541-1554

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