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ProductInformation

Monoclonal Anti-Profilin
Clone 2B8 (MAbPRF45a)
Purified Mouse Immunoglobulin

Product Number **P 8248**

Product Description

Monoclonal Anti-Profilin (Plant) (mouse IgG1 isotype) is derived from the hybridoma 2B8 produced by the fusion of mouse myeloma cells (SP2/0 cells) and splenocytes from BALB/c mice immunized with profilin PRF4 protein.[1] The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Sigma ISO-2).

Monoclonal Anti-Profilin recognizes *Arabidopsis* pollen profilin (PRF4 and PRF5) and cross-reacts with tobacco[1] and maize[1] profilin (~14 kDa) but not with the constitutive specific profilins (PRF1, 2, and 3).[1] The antibody may be used in ELISA,[1] immunoblotting,[1] and immunohistochemistry.[1]

In eukaryotic cells, the actin based cytoskeletal system contains more than seventy distinct families of actin binding proteins. In plants, the actin cytoskeleton is composed of G-actin monomers and a network of F-actin filaments and bundles. Upon external stimuli, actin binding proteins are responsible for the precise organization and rapid rearrangement of actin.[1-4] Profilin, an actin binding protein, is a small, globular, cytoplasmic protein that participate in several cellular functions and has the potential to alter the cyto-architecture of cells and morphogenesis of plants.

Plant profilin was first discovered as an allergen from birch pollen and is quite distant in sequence from vertebrate profilins. The plant profilin family of proteins is encoded by an ancient gene family. These proteins have distinct patterns of organ and tissue-specific expression and developmental regulation. There are two distinct classes of profilins in higher plants:

constitutive (vegetative, profilin 1, 2, and 3) and pollen-specific (reproductive, profilin 4 and 5). These two classes differ by 27 percent in their amino acid sequence.[1-4] In *Arabidopsis,* profilin 1, 2, and 3 are constitutively expressed in almost all organs and tissues of the plant, including ovules at various stages of development and microspores at early stages of microsporogenesis. Profilin 4 and 5 are expressed mainly in mature pollen. In male gametophyte development, there is a developmental switch in the expression of profiling isovariants from completely constitutive vegetative class to predominantly pollen specific class.[1-4]

Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~2 mg/mL

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in “frost-free: freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

By immunoblotting, a working antibody concentration of 1-2 µg/mL is recommended using total extracts of *Arabidopsis* flower.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

1. Kandasamy, M.K., et al., Cell Mot. Cyto., **52**, 22-32 (2002).
2. Huang, S., et al., Plant Physiol., **111**, 115-126 (1996).
3. Mckinney, E.C., et al., Plant Cell, **13**, 1179-1191 (2001).
4. Valenta, R., J. Biol. Chem., **268**, 22777-22781 (1993).

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