

Product Information

Anti-PAT (N-terminal)

Produced in Rabbit, Affinity Isolated Antibody

Product Number **P 0249**

Product Description

Anti-PAT (N-terminal) is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 1-17 located at the N-terminus of *Streptomyces hygroscopicus* phosphinotricin acetyl transferase (PAT), conjugated to KLH. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-PAT (N-terminal) recognizes bacterial PAT expressed in transgenic tobacco plants. Applications include the detection of PAT by immunoblotting (21 kDa). Staining of the PAT band by immunoblotting is specifically inhibited with the PAT immunizing peptide (*S. hygroscopicus*, amino acids 1-17).

The most commonly used selection markers in plant transformation are the bacterial *bar* gene encoding for the phosphinotricin acetyl transferase (PAT) and the gene encoding for neomycin phosphotransferase II (NPTII).¹ The *bar/pat* gene was isolated from *Streptomyces hygroscopicus*.^{2,3} It encodes a small (21 kDa) protein. The *pat* gene confers resistance to the glufosinate ammonium herbicides bialaphos (BASTA), and phosphinotricin (PPT).³⁻⁵ PAT belongs to the family of acetyltransferases. It acetylates and inactivates the herbicides bialaphos and PPT. PAT can be used to detect relative transfection efficiencies in cells where multiple transfections are performed in parallel with different plasmids. PAT has been used routinely as a resistance gene in the production of genetically engineered crops and for the production of herbicide resistant crops.⁶⁻¹⁰ The PAT gene is an approved food additive for use as a processing aid in the development of new varieties of crops, including wheat, corn, and rice.

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: ~1.5 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 dilutions 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 an extract (cytosolic fraction) of leaves from transgenic *Nicotiana tabacum* expressing the PAT gene for *Streptomyces hygroscopicus*.

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

References

1. Miki, B., and McHugh, S., J. Biotechnol., **107**, 193-232 (2004).
2. White, J., et al., Nucleic Acid Res., **18**, 1062 (1989).
3. D'Halluin, K., et al., Methods Enzymol., **216**, 415-426 (1992).
4. Botterman, J., et al., Gene, **102**, 33-37 (1991).
5. Goodwin, J.L., et al., Methods Mol. Biol., **286**, 191-202 (2005).
6. Rathore, K.S., et al., Plant Mol. Biol., **21**, 871-884 (1993).

7. Weeks, J.T., et al., Plant Physiol., **102**, 1077-1084 (1993).
8. Wehrmann, A., et al., Nature Biotechnol., **14**, 1274-1278 (1996).
9. Melchiorre, M.N., et al., Biocell., **26**, 217-223 (2002).
10. Oberdoerfer, R.B., et al., J. Agric. Food Chem., **53**, 1457-1465 (2005).

KA/ER 10/05

Sigma brand products are sold through Sigma-Aldrich, Inc.
Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications.
Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please
see reverse side of the invoice or packing slip.