3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Monoclonal Anti-Tyrosine Hydroxylase
Clone TH-16
produced in mouse, ascites fluid

Catalog Number **T2928**

Product Description

Monoclonal Anti-Tyrosine Hydroxylase (mouse IgG1 isotype) is derived from the TH-16 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from immunized BALB/c mice. Purified rat tyrosine hydroxylase was used as the immunogen. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-Tyrosine Hydroxylase recognizes an epitope present in the N-terminal region (between amino acids 40-152) of both rodent (~60 kDa) and human (62-68 kDa) tyrosine hydroxylase (TH). It detects intact subunits as well as several of the lower MW TH species that may arise via endogenous proteolysis during sample processing. The antibody is reactive in immunohistology, immunoblotting, and immuno-precipitation protocols and cross-reacts with TH from numerous mammalian species including human, monkey, bovine, sheep, rabbit, guinea pig, and rat). Using perfusion-fixed rat brain (4% paraformaldehyde, 0.2% glutaraldehyde), very intense immunohisto-chemical staining of perikarya and fibers is obtained. The use of Triton® X-100 seems to be critical to staining of fibers which are otherwise poorly stained with the antibody. The immunohistochemical sensitivity of the antibody is sufficient to visualize TH-positive fibers in paraformaldehyde-fixed monkey cerebral cortex. In immunoblotting, this antibody produces selective labeling of TH with extremely low background, in several protocols including chemiluminescence, protein A/G-biotin/ ^{125}I-streptavidin, and rabbit anti-mouse immunoglobulin antibody/^{125}I-protein A. The antibody can also be used to immunoprecipitate natural or SDS-denatured TH from solution.

Monoclonal Anti-Tyrosine Hydroxylase may be used for the localization of tyrosine hydroxylase using various immunochemical assays including ELISA, immunoblot, dot blot, immunoprecipitation, and immunocyto-chemistry.

Tyrosine hydroxylase[1] (TH, Tyrosine 3-monooxy-genase, EC 1.14.16.2) is a tetrameric enzyme composed of four 60-68 kDa subunits. TH catalyzes the hydroxylation of L-tyrosine to L-3,4-dihydroxy-phenylalanine (L-dopa) in brain and adrenal medulla. This is the initial and rate limiting step in the biosynthesis of catecholamines[1] (dopamine, norepinephrine, and epinephrine), which serve important biological functions as neurotransmitters and hormones. TH is produced from a single gene and its synthesis is regulated by transcriptional, translational, and post-translational mechanisms.[2] In most species, a single form of TH mRNA is produced and translated, resulting in a single, homotetrameric form of the protein. However, in monkeys, apes, and humans, TH RNA undergoes alternative splicing[3,4] resulting in either two (monkey, ape) or four (human) isoforms of TH subunit protein.[5-7] The four isoforms in humans are TH-1 (M.W. 55,600), TH-2 (4 additional amino acids; M.W. 56,000), TH-3, (27 additional amino acids; M.W. 58,100), and TH-4 (4 plus 27 additional amino acids; 58,500). Only humans express all four isoforms; all other anthropoids express only the TH-1 and TH-2 isoforms.[7] Sensitive immunochemical reagents with known epitopes will facilitate studies of the mechanism, properties, and localization of TH. As such, the specific and sensitive immunoreactivity of this monoclonal antibody makes it a useful tool for identification and mapping of the catecholaminergic cells present in the brain and spinal cord and in sympathetic, chromaffin, and enterochromaffin systems.

Reagent

Supplied as ascites fluid with 0.1% sodium azide as a preservative.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards 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, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile
Indirect immunoblotting: a titer of at least 1:8,000 was determined using an extract of cultured rat adrenal pheochromocytoma (PC12) cells.

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

References

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