

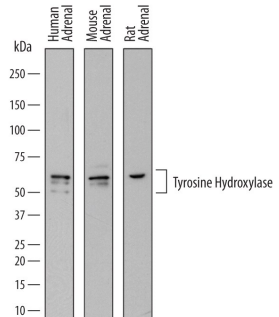
DESCRIPTION	
Species Reactivity	Human/Mouse
Specificity	Detects human Tyrosine Hydroxylase in direct ELISAs and human, mouse and rat Tyrosine Hydroxylase in Western blots. In direct ELISAs, no cross-reactivity with recombinant human Tryptophan Hydroxylase-1 is observed.
Source	Monoclonal Mouse IgG _{2B} Clone # 779427
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant human Tyrosine Hydroxylase Ala278-Tyr401 Accession # P07101
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

APPLICATIONS
Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Western Blot	0.25 µg/mL	See Below
Immunocytochemistry	8-25 µg/mL	See Below
Immunohistochemistry	8-25 µg/mL	See Below
Simple Western	5 µg/mL	See Below

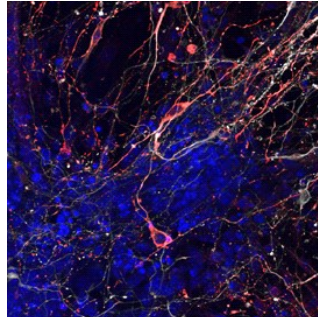
DATA

Western Blot



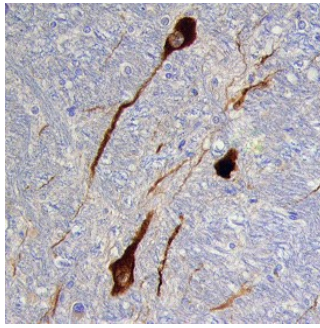
Detection of Human, Mouse, and Rat Tyrosine Hydroxylase by Western Blot. Western blot shows lysates of human adrenal gland tissue, mouse adrenal gland tissue, and rat adrenal gland tissue. PVDF membrane was probed with 0.25 µg/mL of Mouse Anti-Human/Mouse Tyrosine Hydroxylase Monoclonal Antibody (Catalog # MAB7566) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). Specific bands were detected for Tyrosine Hydroxylase at approximately 50-60 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunocytochemistry



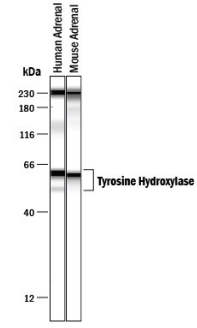
Tyrosine Hydroxylase in Mouse Dopaminergic Neurons. Tyrosine Hydroxylase was detected in immersion fixed mouse embryonic stem cells differentiated into dopaminergic neurons using Mouse Anti-Human/Mouse Tyrosine Hydroxylase Monoclonal Antibody (Catalog # MAB7566) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007). Cells were double stained using the NorthernLights™ 637-conjugated Mouse Anti-Neuron-specific beta-III Tubulin Monoclonal Antibody (white; Catalog # NL1195V). Cells were counterstained with DAPI (blue). Specific staining of Tyrosine Hydroxylase was localized to cytoplasm of dopaminergic neurons. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

Immunohistochemistry




Tyrosine Hydroxylase in Human Brain. Tyrosine Hydroxylase was detected in immersion fixed paraffin-embedded sections of human brain (medulla) using Mouse Anti-Human/Mouse Tyrosine Hydroxylase Monoclonal Antibody (Catalog # MAB7566) at 25 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Mouse HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS002) and counterstained with hematoxylin (blue). Specific staining was localized to neurons. View our protocol for [Chromogenic IHC Staining of Paraffin-embedded Tissue Sections](#).

Simple Western



Detection of Human and Mouse Tyrosine Hydroxylase by Simple Western™. Simple Western lane view shows lysates of human adrenal gland tissue and mouse adrenal gland tissue, loaded at 0.2 mg/mL. Specific bands were detected for Tyrosine Hydroxylase at approximately 52-61 kDa (as indicated) using 5 µg/mL of Mouse Anti-Human/Mouse Tyrosine Hydroxylase Monoclonal Antibody (Catalog # MAB7566). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.

Non-specific interaction with the 230 kDa Simple Western standard may be seen with this antibody.



PREPARATION AND STORAGE

Reconstitution	Sterile PBS to a final concentration of 0.5 mg/mL.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none">● 12 months from date of receipt, -20 to -70 °C as supplied.● 1 month, 2 to 8 °C under sterile conditions after reconstitution.● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

TH (Tyrosine 3-hydroxylase), also known as Tyrosine 3-monooxygenase, is a 60-62 kDa member of the bipterin-dependent aromatic amino acid hydroxylase family of molecules. It is expressed by neurons of the dopamine and autonomic nervous system, plus the neuroendocrine cells of the adrenal medulla. TH is considered the rate limiting enzyme for catecholamine synthesis, and serves to catalyze the hydroxylation of L-tyrosine. It maintains stores of catecholamines following secretion, and its activity is regulated by targeted site phosphorylation. Human TH is 528 amino acids (aa) in length. It contains an N-terminal ACT domain (aa 69-190) that binds small molecules and regulates enzyme activity, and a C-terminal enzymatic region (aa 196-493). There are three significant utilized phosphorylation sites. Two at Ser31 and Ser40 increase enzyme activity, while phosphorylation at Ser19 promotes subsequent Ser40 phosphorylation. TH functions as a 240 kDa noncovalent homotetramer. There are four potential splice variants. One shows a deletion of aa 31-34, a second shows a deletion of aa 31-61, while a third contains a Met substitution for aa 1-34. A fourth isoform variant shows a deletion of aa 35-61. Over aa 278-401, human TH shares 94% aa sequence identity with mouse TH, a molecule that most closely resembles the fourth human isoform variant described above.