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Tyrosine Hydroxylase Polyclonal Antibody

Catalog Number OPA1-04050

Product data sheet

Details	
Size	100 µL
Host/Isotope	Rabbit / IgG
Class	Polyclonal
Type	Antibody
Immunogen	SDS-denatured, native rat tyrosine hydroxylase purified from pheochromocytoma
Conjugate	Unconjugated
Form	Liquid
Purification	Affinity chromatography
Storage buffer	0.01M HEPES, pH 7.5, with 0.15M NaCl, 0.1mg/ml BSA, 50% glycerol
Contains	no preservative
Storage Conditions	-20° C, Avoid Freeze/Thaw Cycles

Species Reactivity	
Tested species reactivity	Many
Published species reactivity	Rat, Mouse, Human

Tested Applications	Dilution *
Immunofluorescence (IF)	1:1,000
Immunohistochemistry (Frozen) (IHC (F))	1:1,000
Western Blot (WB)	1:1,000

Published Applications	
Immunohistochemistry - Free Floating (IHC (Free))	See 1 publications below
Immunohistochemistry (IHC)	See 6 publications below

* Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.

Product specific information

In Western blot, this antibody detects a single ~60 kDa protein representing tyrosine hydroxylase from rat brain lysates of PC-12 cells stimulated by okadaic acid. Immunohistochemical staining of TH in human brain with OPA1-04050 results in intense labeling of the dopaminergic neurons in the substantia nigra.

Store at -20°C short term, 80°C long term.

Background/Target Information

Tyrosine hydroxylase (TH) is the rate-limiting enzyme in the synthesis of the catecholamine neurotransmitters (dopamine, epinephrine, and norepinephrine). It is responsible for the conversion of L-tyrosine to L-dopa in the catecholamine synthesis pathway. In all species, catecholamine synthesis is regulated by the interaction of TH with a cofactor, tetrahydrobiopterin (BH4). BH4 binds to the TH catalytic domain, resulting in enzymatic activity. Unlike TH in non-primate species, four human TH mRNA splice variants (hTH1-hTH4) have been isolated. These variants are identical in their catalytic domain, but differ in their N-terminal, regulatory domains. Little information has been uncovered regarding the regulatory role of these isoforms in vivo.

The role of TH in the synthesis of catecholamine neurotransmitters suggests a correlation between the enzyme and a number of neuropathogenic diseases characterized by irregular catecholamine levels. Catecholamine level irregularities have been uncovered in Parkinson's disease, schizophrenia, and dystonia, as well as a variety of cardiovascular diseases.

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PubMed References For Tyrosine Hydroxylase Polyclonal Antibody

1 Immunohistochemistry - Free Floating References

Species / Dilution	Summary
Mouse / 1:500	OPA1-04050 was used in immunohistochemistry - free floating to assess the effects of peripherally administered Nrg1beta1 in a toxin-based mouse model of Parkinson's disease Journal of neurochemistry (May 2015; 133: 590) **"Systemically administered neuregulin-1ß1 rescues nigral dopaminergic neurons via the ErbB4 receptor tyrosine kinase in MPTP mouse models of Parkinson's disease."** Author(s):Depboylu C,Rösler TW,de Andrade A,Oertel WH,Höglinger GU PubMed Article URL:http://dx.doi.org/10.1111/jnc.13026

6 Immunohistochemistry References

Species / Dilution	Summary
Mouse / 1:400	OPA1-04050 was used in immunohistochemistry to use transgenic mice to investigate the regulation of tyrosine hydroxylase positive cells following prolonged dopaminergic denervation Journal of chemical neuroanatomy (Nov 2014; 61-62: 169) **"Transcriptional and structural plasticity of tyrosine hydroxylase expressing neurons in both striatum and nucleus accumbens following dopaminergic denervation."** Author(s):Depboylu C,Klietz M,Maurer L,Oertel WH,Kobayashi K,Weihe E,Höglinger GU,Schäfer MK PubMed Article URL:http://dx.doi.org/10.1016/j.jchemneu.2014.10.003
Mouse / 1:500	OPA1-04050 was used in immunohistochemistry to study the roles of brain-resident microglial cells and infiltrating myeloid cells in a murine model of Parkinson's disease Experimental neurology (Dec 2012; 238: 183) **"Brain-resident microglia predominate over infiltrating myeloid cells in activation, phagocytosis and interaction with T-lymphocytes in the MPTP mouse model of Parkinson disease."** Author(s):Depboylu C,Stricker S,Ghobril JP,Oertel WH,Priller J,Höglinger GU PubMed Article URL:http://dx.doi.org/10.1016/j.expneurol.2012.08.020
Mouse / 1:1000	OPA1-04050 was used in immunohistochemistry to investigate the therapeutic effect of L-type channel antagonist isradipine in mouse Parkinson disease model Neurobiology of disease (Aug 2011; 43: 364) **"The L-type channel antagonist isradipine is neuroprotective in a mouse model of Parkinson's disease."** Author(s):Ilijic E,Guzman JN,Surmeier DJ PubMed Article URL:http://dx.doi.org/10.1016/j.nbd.2011.04.007
Rat / 1:6000	OPA1-04050 was used in immunohistochemistry to investigate the effect of IGF1 on painful diabetic neuropathy Neurobiology of disease (Jul 2011; 43: 275) **"Changes in serotoninergic and noradrenergic descending pain pathways during painful diabetic neuropathy: the preventive action of IGF1."** Author(s):Morgado C,Silva L,Pereira-Terra P,Tavares I PubMed Article URL:http://dx.doi.org/10.1016/j.nbd.2011.04.001
Human / 1:600	OPA1-04050 was used in immunohistochemistry to investigate the distribution of choline acetyltransferase and tyrosine hydroxylase in cholinergic and catecholaminergic neurons Acta neuropathologica (Nov 2010; 120: 633) **"Cell type specific sequestration of choline acetyltransferase and tyrosine hydroxylase within Lewy bodies."** Author(s):Dugger BN,Dickson DW PubMed Article URL:http://dx.doi.org/10.1007/s00401-010-0739-1
Human / 1:600	OPA1-04050 was used in immunohistochemistry to determine whether incidental Lewy body disease (iLBD) is associated with preclinical Parkinson disease Archives of neurology (Aug 2008; 65: 1074) **"Incidental Lewy body disease and preclinical Parkinson disease."** Author(s):DelleDonne A,Klos KJ,Fujishiro H,Ahmed Z,Parisi JE,Josephs KA,Frigerio R,Burnett M,Wszolek ZK,Uitti RJ,Ahlskog JE,Dickson DW PubMed Article URL:http://dx.doi.org/10.1001/archneur.65.8.1074

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