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DATASHEET

Anti-Tyrosine hydroxylase antibody ValidAb™

Product overview

Name Anti-Tyrosine hydroxylase antibody ValidAbTM

Cat No HB6605

Alternative names Tyrosine 3-monooxygenase, Tyrosine 3-hydroxylase, TH

Host Rabbit Clonality Polyclonal

Target Tyrosine hydroxylase

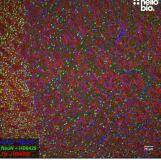
Description Antibody to tyrosine hydroxylase (TH) - the rate limiting enzyme in catecholamine synthesis and used

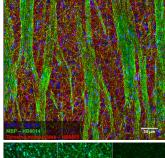
as a marker for catecholaminergic (dopaminergic and noradrenergic) neurones in the CNS. Part of

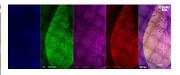
the ValidAbTM range of highly validated, data-rich antibodies.

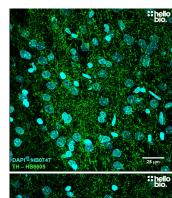
Validation data

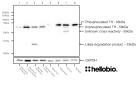


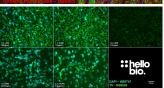


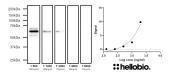














Immunogen

Denatured tyrosine hydroxylase purified from a rat phaeochromocytoma (adrenal medulla tumour)

Isotype IgG

Purification Immunogen affinity chromatography

Concentration 0.15 mg/ml

Formulation 10 mM HEPES (pH 7.5), 150 mM NaCl, 100μg/ml BSA, 0.05% sodium azide and 50% glycerol.

Predicted species reactivity Tested species reactivity Mouse, Rat Mouse, Rat

Tested applications

Applications WB, IHC(IF)

Western blot optimal concentration

1:1000 (150ng/ml) as tested in a rat brain cytosol preparation

IHC(IF) optimal concentration 1:2000 (75ng/ml) as tested in rat striatal brain sections

Positive control Tissue known to have a high expression of catecholaminergic neurones (e.g. striatum or substantia

nigra). PC-3 and SK-BR-3 cell lines also show tyrosine hydroxylase expression.

Negative control Areas of the brain with low expression of catecholaminergic neurones (e.g. cortex). Most cells lines do

not express TH (e.g. HEK293, HeLa, SH-SY5Y).

Open data link Please follow this link to OSF

Target information

Other names Tyrosine 3-monooxygenase, Tyrosine 3-hydroxylase, TH

UniProt ID P07101 Gene name TH

Gene name TH

NCBI full gene name tyrosine hydroxylase

Entrez gene ID 7054

Amino acids 528 (58.6kDa)

Isoforms Tyrosine hydroxylase has 6 isoforms produced by alternative splicing:

• Isoform 3 / TH type 4 (canonical) - 528aa, 58.6kDa.

• Isoform 1 / TH type 3 - 524aa, 58.1kda,

• Isoform 2 / TH type 1/HTH-1 - 497aa, 55,6kDa,

• Isoform 4 / TH type 2/hTH-Delta2 - 501aa, 56.0kda,

• Isoform 5 / hTH-Delta, 2, 8, 9 - 407aa, 45.3kDa,

• Isoform 6 / hTH-Delta1b,2,8,9 - 403aa 44.9kDa

Expression Mainly expressed in the dopaminergic, noradrenergic and other catecholingergic neurones in the brain

and adrenal glands. There is also lower peripheral expression in a variety of tissues.

Subcellular expression Expression is enriched in axon terminals alongside cytosolic and perinuclear expression.

Target function Tyrosine hydroxylase is the main rate limiting enzyme in producing catecholamines. The enzyme

catalyses the conversion of L-tyrosine to L-DOPA which can then be converted by other enzymes into

dopamine and noradrenaline.

Other names Tyrosine 3-monooxygenase, Tyrosine 3-hydroxylase, TH

Processing

Post translational modifications

Subject to phosphorlyation on Ser19, Ser62, Ser71 and Ser502.

Homology (compared to

human)

Mouse and rat show 82.8% and 83.7% identity to human tyrosine hydroxylase respectively in a BLAST

search.

None

Similar proteins

The following proteins were identified as being similar in a BLAST search:

Phenylalanine-4-hydroxylase – 52.8% identity
 Tryptophan-5-hydroxylase 1 – 50.1% identity

• Tryptophan-5-hydroxylase 2 – 52.1% identity

Storage & Handling

Storage instructions -20°C

Shipping Conditions

Important

On ice

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not

for human or veterinary use

References

Tyrosine hydroxylase and regulation of dopamine synthesis.

Daubner SC et al (2011) Archives of biochemistry and biophysics 508

PubMedID 21176768

Tyrosine hydroxylase deficiency: a treatable disorder of brain catecholamine biosynthesis.

Willemsen MA et al (2010) Brain: a journal of neurology 133

PubMedID 20430833

Tyrosine hydroxylase phosphorylation: regulation and consequences.

Dunkley PR et al (2004) Journal of neurochemistry 91

PubMedID 15569247

Drug-induced changes in brain tyrosine hydroxylase activity in vivo.

Leonard BE (1977) Neuropharmacology 16 **PubMedID** 13325