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# **DATASHEET**

Anti-Tyrosine hydroxylase antibody ValidAb™

## **Product overview**

Name Anti-Tyrosine hydroxylase antibody ValidAb<sup>TM</sup>

Cat No HB6605

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

HostRabbitClonalityPolyclonal

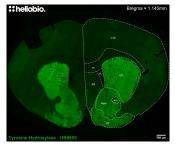
**Target** Tyrosine hydroxylase

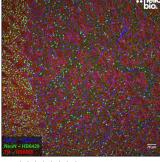
**Description** Antibody to tyrosine hydroxylase (TH) - the rate limiting enzyme in catecholamine synthesis and used

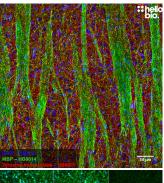
as a marker for catecholaminergic (dopaminergic and noradrenergic) neurones in the CNS. Part of

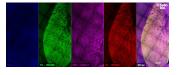
the ValidAb<sup>TM</sup> range of highly validated, data-rich antibodies.

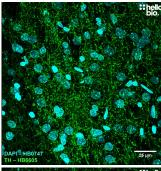
## Validation data

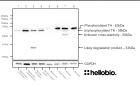


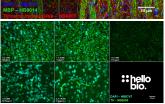


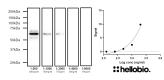


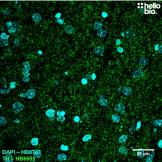












## **Product information**

Isotype

**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 Mouse, Rat Tested species reactivity Mouse, Rat

## **Tested applications**

**Applications** WB, IHC(IF)

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

concentration

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 ΤH

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

Subcellular 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.

Processing

Post translational modifications

Homology (compared to

human)

Similar proteins

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

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

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

**Important** 

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