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# **DATASHEET**

Anti-Tyrosine hydroxylase antibody  $ValidAb^{TM}$ 

#### **Product overview**

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

Cat No HB6589
Host Chicken
Clonality Polyclonal

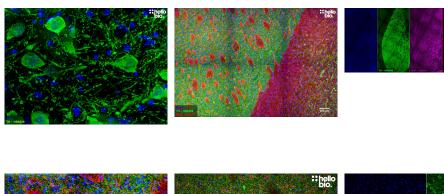
Target Tyrosine hydroxylase

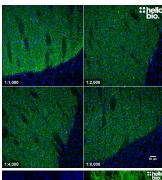
**Description** Antibody to tyrosine hydroxylase (TH) - the rate limiting enzyme in catecholamine synthesis and used

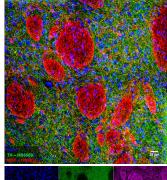
as a marker for catecholaminergic (dopaminergic and noradrenergic) neurones in the CNS. Part of

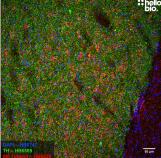
the ValidAb<sup>TM</sup> range of highly validated, data-rich antibodies.

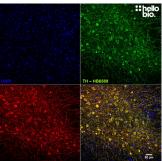
#### Validation data

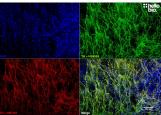












## **Product information**

**Immunogen** Tyrosine hydroxylase (human) expressed in and purified from *E. coli* 

Purification Immunogen affinity purification

Concentration 1mg/ml

**Formulation** 50% PBS, 50% glycerol + 5mM sodium azide

Predicted species reactivity Mouse, Rat, Human

## **Tested applications**

**Applications** 

**Negative control** 

IHC(IF)

IHC(IF) optimal concentration

Positive control

1:4000 (0.25µg/ml) as tested in paraformal dehyde fixed rat horizontal brain sections

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.

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 the OSF

## Target information

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

**UniProt ID** P07101 Gene name TH

NCBI full gene name tyrosine hydroxylase

Entrez gene ID

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

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

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

Subcellular expression **Target function** 

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

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

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.

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 Reconstitution advice -20°C

Upon receipt store at either -20°C or -80°C.

For 100µg packs either:

- Reconstitute with 100µl dH<sub>2</sub>O and store at 4°C
- Reconstitute with 50µl dH<sub>2</sub>O and 50µl glycerol then store at -20°C
- Reconstitute with 100µl dH<sub>2</sub>O, aliquot then snap freeze and store at -80°C

For 25µg packs either:

- Reconstitute with 25µl dH<sub>2</sub>O and store at 4°C
- Reconstitute with 12.5µl dH<sub>2</sub>O and 12.5µl glycerol then store at -20°C
- Reconstitute with 25µl dH<sub>2</sub>O, aliquot then snap freeze and store at -80°C

For more information read our guide on the best care for your product. Take care when opening as the precipitate is extremely light and can easily be lost if disturbed. When reconstituting make sure that the antibody is thoroughly dissolved by pipetting up and down before giving the antibody a brief spin at

10,000g to make sure that all material is recovered and at the bottom of the tube.

**Shipping Conditions Important** 

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

for human or veterinary use

### References

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

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

Tyrosine hydroxylase phosphorylation: regulation and consequences.

Dunkley PR et al (2004) Journal of neurochemistry 91

**PubMedID** 15569247

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 deficiency: a treatable disorder of brain catecholamine biosynthesis.

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

**PubMedID** 20430833

Tyrosine hydroxylase and regulation of dopamine synthesis.

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

**PubMedID** 21176768

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

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