

Hello Bio, Inc.  
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500  
F. 609-228-4994

customercare-usa@m2stage.hellobio.com



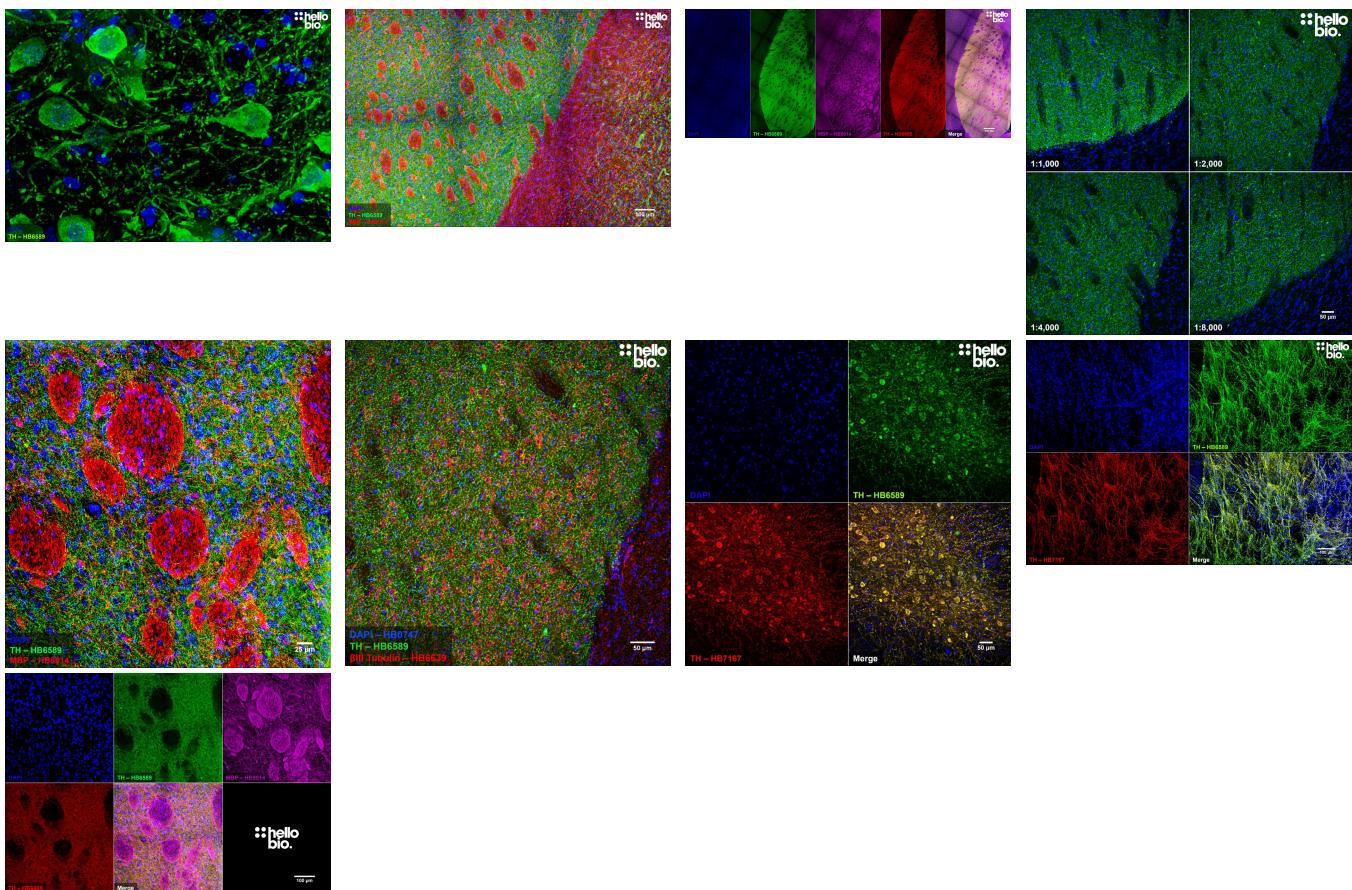
## DATASHEET

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

#### 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 <i>E. coli</i>
Purification	Immunogen affinity purification

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<b>Concentration</b>	1mg/ml
<b>Formulation</b>	50% PBS, 50% glycerol + 5mM sodium azide
<b>Predicted species reactivity</b>	Mouse, Rat, Human
<b>Tested species reactivity</b>	Mouse, Rat

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## Tested applications

<b>Applications</b>	IHC(IF)
<b>IHC(IF) optimal concentration</b>	1:4000 (0.25µg/ml) as tested in paraformaldehyde fixed rat horizontal brain sections
<b>Positive control</b>	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.
<b>Negative control</b>	Areas of the brain with low expression of catecholaminergic neurones (e.g. cortex). Most cell lines do not express TH (e.g. HEK293, HeLa, SH-SY5Y).
<b>Open data link</b>	Please follow this <a href="#">link to the OSF</a>

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## Target information

<b>Other names</b>	Tyrosine 3-monooxygenase, Tyrosine 3-hydroxylase, TH
<b>UniProt ID</b>	P07101
<b>Gene name</b>	TH
<b>NCBI full gene name</b>	tyrosine hydroxylase
<b>Entrez gene ID</b>	<a href="#">7054</a>
<b>Amino acids</b>	528 (58.6kDa)
<b>Isoforms</b>	Tyrosine hydroxylase has 6 isoforms produced by alternative splicing: <ul style="list-style-type: none"><li>Isoform 3 / TH type 4 (canonical) - 528aa, 58.6kDa.</li><li>Isoform 1 / TH type 3 - 524aa, 58.1kDa,</li><li>Isoform 2 / TH type 1/HTH-1 - 497aa, 55.6kDa,</li><li>Isoform 4 / TH type 2/hTH-Delta2 - 501aa, 56.0kDa,</li><li>Isoform 5 / hTH-Delta,2,8,9 - 407aa, 45.3kDa,</li><li>Isoform 6 / hTH-Delta1b,2,8,9 - 403aa 44.9kDa</li></ul>
<b>Expression</b>	Mainly expressed in the dopaminergic, noradrenergic and other catecholergic neurones in the brain and adrenal glands. There is also lower peripheral expression in a variety of tissues.
<b>Subcellular expression</b>	Expression is enriched in axon terminals alongside cytosolic and perinuclear expression.
<b>Target function</b>	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.
<b>Processing</b>	None
<b>Post translational modifications</b>	Subject to phosphorylation on Ser19, Ser62, Ser71 and Ser502.
<b>Homology (compared to human)</b>	Mouse and rat show 82.8% and 83.7% identity to human tyrosine hydroxylase respectively in a BLAST search.

**Other names**

Tyrosine 3-monooxygenase, Tyrosine 3-hydroxylase, TH

**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

**Reconstitution advice**

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.

**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

[13325](#)

### Tyrosine hydroxylase phosphorylation: regulation and consequences.

Dunkley PR et al (2004) Journal of neurochemistry 91

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[15569247](#)

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

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

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[20430833](#)

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

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

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**Tyrosine hydroxylase and regulation of dopamine synthesis.**

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

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21176768

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

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