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DATASHEET

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

Product overview

Name Anti-Tyrosine hydroxylase antibody ValidAbTM

Cat NoHB7167HostMouseClonalityMonoclonal

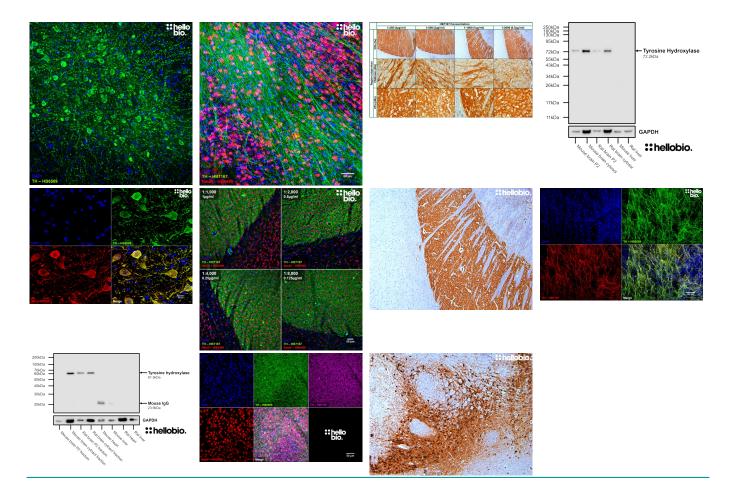
Target Tyrosine hydroxylase

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



Product information

Immunogen PC12 cell derived tyrosine hydroxylase

Clone number LNC1 lsotype lgG1

Purification Protein G affinity chromatography

Concentration 1 mg/ml

Formulation Lyophilised. When reconstituted contains 10 mM Tris (pH7.4), 50 mM NaCl, 1% recombinant BSA and

0.065% Sodium Azide

Predicted species reactivity

Mouse, Rat, Human, Zebrafish, Chicken

Tested species reactivity Mouse, Rat

Tested applications

Applications IHC-P, WB, IHC(IF)

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

concentration

IHC(IF) optimal concentration 1:2000 (0.5μg/ml) as tested in paraformal dehyde fixed free-floating rat striatal brain sections 1:1000 (1µg/ml) as tested in paraffin embedded rat horizontal brain sections using streptavidin-HRP **IHC-P** optimal concentration

detection system.

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 the 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.

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.

Processing

Post translational

modifications

Homology (compared to

human)

Similar proteins

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

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

None

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 then use reconstitution advice Upon receipt store at either -20°C or -80°C.

For 100µg packs either:

- Reconstitute with 100µl dH2O and store at 4°C
- Reconstitute with 50µl dH₂O and 50µl glycerol then store at -20°C
- Reconstitute with 100µl dH₂O, aliquot then snap freeze and store at -80°C

For 25µg packs either:

- Reconstitute with 25µl dH₂O and store at 4°C
- Reconstitute with 12.5µl dH₂O and 12.5µl glycerol then store at -20°C
- Reconstitute with 25µl dH₂O, 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. This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not

for human or veterinary use

Important

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

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 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** 13325