

Product Datasheet

Tryptophan hydroxylase 2 Antibody - BSA Free NB100-74555

Unit Size: 100 ul

Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

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NB100-74555**Tryptophan hydroxylase 2 Antibody - BSA Free**

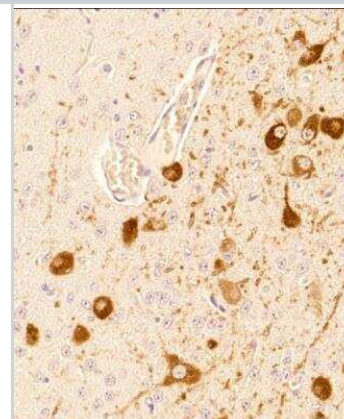
Product Information	
Unit Size	100 ul
Concentration	1.0 mg/ml
Storage	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
Clonality	Polyclonal
Preservative	0.02% Sodium Azide
Isotype	IgG
Purity	Immunogen affinity purified
Buffer	PBS

Product Description	
Description	Novus Biologicals Rabbit Tryptophan hydroxylase 2 Antibody - BSA Free (NB100-74555) is a polyclonal antibody validated for use in IHC, WB, Flow, ICC/IF and IP. Anti-Tryptophan hydroxylase 2 Antibody: Cited in 57 publications. All Novus Biologicals antibodies are covered by our 100% guarantee.
Host	Rabbit
Gene ID	121278
Gene Symbol	TPH2
Species	Human, Mouse, Rat, Primate, Rabbit
Reactivity Notes	Human reactivity is weak. Mouse reactivity reported in scientific literature (PMID: 16581041). Rat reactivity reported in scientific literature (PMID: 24066056).
Immunogen	Synthetic peptide make to an internal portion of the mouse Tryptophan hydroxylase 2 protein (between amino acids 10-75) [UniProt Q8CGV2]

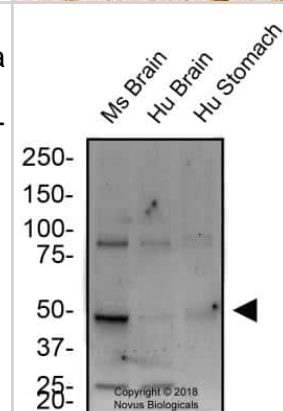
Product Application Details	
Applications	Western Blot, Immunohistochemistry-Paraffin, Flow Cytometry, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Frozen, Immunoprecipitation, Immunohistochemistry Free-Floating
Recommended Dilutions	Western Blot 1:1000, Flow Cytometry reported in scientific literature (PMID 30581079), Immunohistochemistry 1:10-1:500, Immunocytochemistry/ Immunofluorescence 1:500, Immunoprecipitation 1:1000, Immunohistochemistry-Paraffin 1:100, Immunohistochemistry-Frozen reported in scientific literature (PMID 30350781), Immunohistochemistry Free-Floating reported in scientific literature (PMID 26428905)
Application Notes	IF usage was reported in scientific literature (see Soiza-Reilly M et al, 2011).

Images

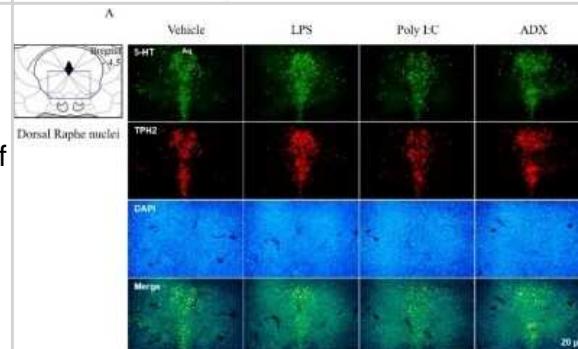
Immunohistochemistry-Paraffin: Tryptophan hydroxylase 2 Antibody [NB100-74555] - IHC analysis of a formalin fixed paraffin embedded tissue section of mouse brain using Tryptophan hydroxylase 2 antibody at 1:25 dilution. The staining was developed using HRP-DAB detection method and the nuclei were counterstained with hematoxylin. The antibody generated staining of the neurons.



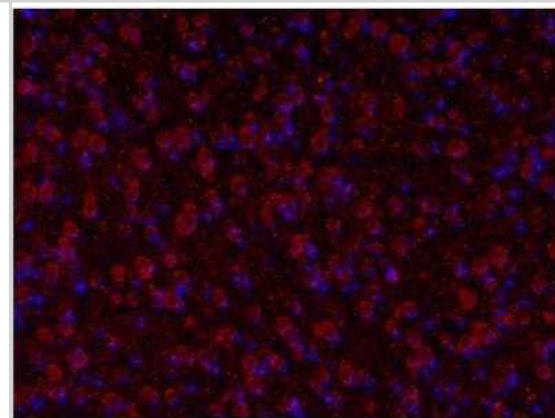
Western Blot: Tryptophan hydroxylase 2 Antibody [NB100-74555] - Total protein from mouse brain, stomach and human brain was separated on a 7.5% gel by SDS-PAGE, transferred to PVDF membrane and blocked in 5% non-fat milk in TBST. The membrane was probed with 2.0 ug/ml anti-Tryptophan Hydroxylase 2 in 1% non-fat milk in TBST and detected with an anti-rabbit HRP secondary antibody using chemiluminescence.



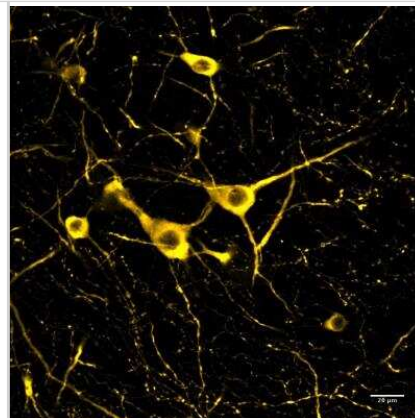
Immunocytochemistry/Immunofluorescence: Tryptophan hydroxylase 2 Antibody [NB100-74555] - The 5-HT and Tryptophan hydroxylase 2 in the raphe nuclei of the brain. The 5-HT- and Tryptophan hydroxylase 2-positive double stained cells in the dorsal raphe nuclei. Representative photomicrographs were taken at magnifications of 100x. Quantification of 5-HT and Tryptophan hydroxylase 2. Image collected and cropped by CiteAb from the following publication (<https://www.mdpi.com/2218-273X/10/1/71>), licensed under a CC-BY license.



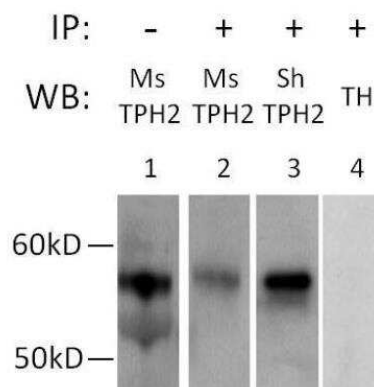
Immunocytochemistry/Immunofluorescence: Tryptophan hydroxylase 2 Antibody [NB100-74555] - Analysis in mouse brain cells. Image courtesy of product review by Assaf Vestin.



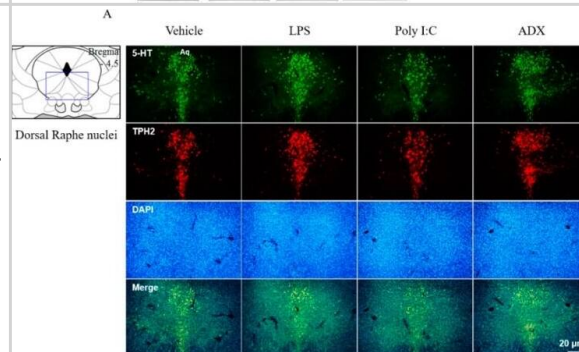
Immunohistochemistry Free-Floating: Tryptophan hydroxylase 2 Antibody [NB100-74555] - PFA-perfused mouse midbrain serotonergic neurons. AlexaFluor488 used as secondary antibody. Neurons pseudocolored in yellow hot LUT. Image from verified customer review.



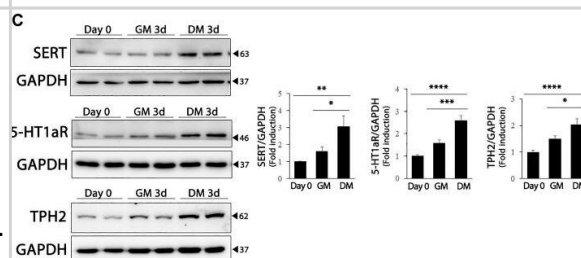
Immunoprecipitation: Tryptophan hydroxylase 2 Antibody [NB100-74555] - Analysis of raphe nuclei isolated from Sprague-Dawley rat brains using TPH2 Polyclonal Antibody. PA1-778 was coupled to magnetic beads and added to raphe nuclei whole cell extracts for 15 minutes at RT. Immunoprecipitated proteins were assessed by Western blotting (WB), using either mouse anti-TPH2 (Ms TPH2, Lane 2) or sheep anti-TPH2 antibodies (Sh TPH2, Lane 3). As a positive control for the Western blot, non-immunoprecipitated brain lysates were probed with the mouse anti-TPH2 antibody (Lane 1). As a specificity control, a blot containing immunoprecipitated proteins was probed with an antibody specific for Tyrosine Hydroxylase (TH, Lane 4). Data courtesy of the Innovators Program.



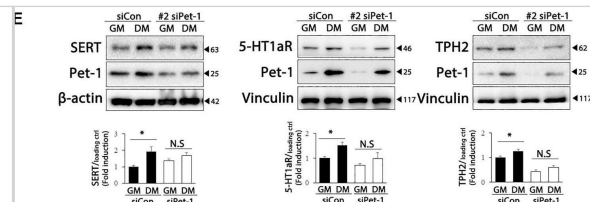
The 5-HT and TPH2 in the raphe nuclei of the brain. The 5-HT- and TPH2-positive double stained cells in the dorsal raphe nuclei (A). Representative photomicrographs were taken at magnifications of 100 \times . Quantification of 5-HT and TPH2 (B). Data are expressed as the means \pm SD (n = 3). *, p < 0.05; **, p < 0.01 compared with the vehicle group. 5-HT; 5-hydroxytryptamine, TPH2; tryptophan hydroxylase, DAPI; 4',6-diamidino-2-phenylindole dihydrochloride.



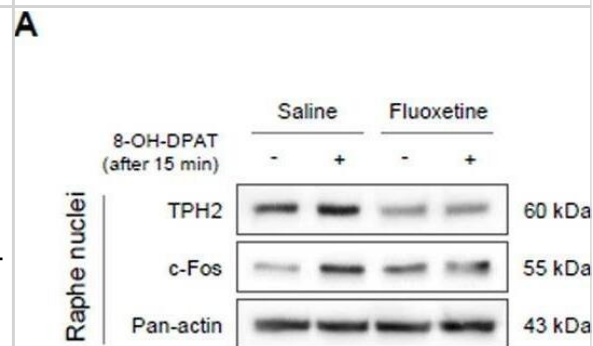
Enhanced serotonergic phenotypes of differentiated HT22 cells. (A) Immunofluorescence staining of SERT (green), 5-HT_{1a}R (orange) and TPH2 (magenta) in hippocampal primary culture. DAPI staining (blue) indicates the nucleus. Scale bar = 50 μ m. (B,C) SERT (green), 5-HT_{1a}R (orange) and TPH2 (magenta) immunofluorescence staining (B) and western blotting (C) of HT22 cells grown in normal growth medium and differentiation medium for 3 d. DAPI staining (blue) indicates the nucleus. Scale bar = 25 μ m. GAPDH was used as loading control. Data are representative of at least three independent experiments and are quantified using densitometric analysis. Statistical significance: *p < 0.05, **p < 0.01, ***p < 0.001 and ****p < 0.0001. Image collected and cropped by CiteAb from the following open publication (<https://pubmed.ncbi.nlm.nih.gov/36703746>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



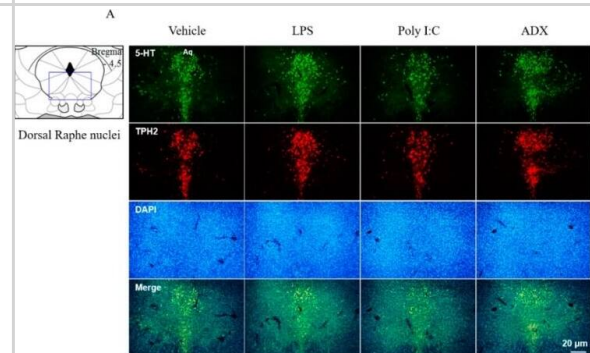
Pet-1 enhances the serotonergic phenotype in differentiated HT22 cells. (A) Immunofluorescence staining of Pet-1 (red) in hippocampal primary culture. DAPI staining (blue) indicates the nucleus. Scale bar = 50 μ m. (B,C) Pet-1 (red) immunofluorescence staining (B) and western blotting (C) of HT22 cells grown in normal growth medium and differentiation medium for 3 d. DAPI staining (blue) indicates the nucleus. Scale bar = 25 μ m. GAPDH is used as loading control. (D,E) Control siRNA and Pet-1 siRNA were transiently transfected in HT22 cells, changed with normal growth medium and differentiation medium for 3 d. Western blotting for analyzing Pet-1 (D) and SERT, 5-HT_{1A}R, and TPH2 (E) expression. GAPDH, vinculin, and β -actin were used as loading controls. Data are representative of at least three independent experiments and are quantified using densitometric analysis. Statistical significance: * $p < .05$, and *** $p < .001$. Image collected and cropped by CiteAb from the following open publication (<https://pubmed.ncbi.nlm.nih.gov/36703746>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Functional loss of 5-HT_{1A} receptor on the corticosterone and thermoregulatory responses. After fluoxetine injection for 4 weeks, the protein expression of TPH2 and c-Fos following 15 min of 8-OH-DPAT challenge was determined by western blot analysis in RN (A and B). Plasma corticosterone levels (C) or rectal temperature measurement (D) following 0, 15, 30, or 45 min of challenge with 8-OH-DPAT were analyzed. In addition, the plasma corticosterone levels were determined both pre- and post-exercise (E). The data are expressed as the mean \pm SD ($n = 4$ or 8/group). * $p < 0.05$ and ** $p < 0.01$ compared to the saline group, # $p < 0.05$ and ## $p < 0.01$ compared to the saline-injected group without 8-OH-DPAT challenge or exercise. Serum cortisol levels of patients with ME/CFS were determined by EIA (F). The data are expressed as the mean \pm SD ($n = 10$ and 17, respectively). * $p < 0.05$ compared to the healthy controls. Image collected and cropped by CiteAb from the following open publication (<https://pubmed.ncbi.nlm.nih.gov/38191373>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



The 5-HT and TPH2 in the raphe nuclei of the brain. The 5-HT- and TPH2-positive double stained cells in the dorsal raphe nuclei (A). Representative photomicrographs were taken at magnifications of 100 \times . Quantification of 5-HT and TPH2 (B). Data are expressed as the means \pm SD ($n = 3$). *, $p < 0.05$; **, $p < 0.01$ compared with the vehicle group. 5-HT; 5-hydroxytryptamine, TPH2; tryptophan hydroxylase, DAPI; 4',6'-diamidino-2-phenylindole dihydrochloride. Image collected and cropped by CiteAb from the following open publication (<https://pubmed.ncbi.nlm.nih.gov/31906307>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Publications

Zhong H, Jiang M, Yuan K et al. Alterations in gut microbiota and metabolites contribute to postoperative sleep disturbances. *Animal models and experimental medicine* 2025-02-09 [PMID: 39924929]

Kang JY, Kim DY, Lee JS et al. Korean Red Ginseng Ameliorates Fatigue via Modulation of 5-HT and Corticosterone in a Sleep-Deprived Mouse Model *Nutrients* 2021-09-06 [PMID: 34578998] (Immunohistochemistry, Immunocytochemistry/ Immunofluorescence, Primate)

Beier K. Modified viral-genetic mapping reveals local and global connectivity relationships of ventral tegmental area dopamine cells *eLife* 2022-05-23 [PMID: 35604019] (Immunohistochemistry, Immunocytochemistry/ Immunofluorescence, Primate)

Lim J, Bang Y, Kim KM, Choi HJ. Differentiated HT22 cells as a novel model for in vitro screening of serotonin reuptake inhibitors *Frontiers in Pharmacology* 2023-01-10 [PMID: 36703746] (Immunohistochemistry, Immunocytochemistry/ Immunofluorescence, Primate)

Bell BJ, Wang AA, Kim DW et al. Characterization of mWake expression in the murine brain *Journal of Comparative Neurology* 2021-06-01 [PMID: 33140455] (Immunohistochemistry, Immunocytochemistry/ Immunofluorescence, Primate)

Marcinkiewicz C, Wang R, Khan K et al. Alcohol inhibits sociability via serotonin inputs to the nucleus accumbens *Research Square* 2023-08-18 [PMID: 37461716] (Immunohistochemistry, Immunocytochemistry/ Immunofluorescence, Primate)

Custodio RJP, Ortiz DM, Lee HJ et al. Serotonin 2C receptors are also important in head-twitch responses in male mice *Psychopharmacology* 2023-10-26 [PMID: 37882810]

Araki R, Kita A, Ago Y, Yabe T. et Al. Chronic social defeat stress induces anxiety-like behaviors via downregulation of serotonin transporter in the prefrontal serotonergic system in mice *Neurochem Int* 2024-02-01 [PMID: 38301899]

Kojima L, Seiriki K, Rokujo H, Nakazawa T et Al. Optimization of AAV vectors for transactivator-regulated enhanced gene expression within targeted neuronal populations *iScience* 2024-05-27 [PMID: 38799556]

Chen M, Wang C, Lin Y et Al. Dorsal raphe nucleus-hippocampus serotonergic circuit underlies the depressive and cognitive impairments in 5xFAD male mice *Transl Neurodegener* 2024-07-24 [PMID: 39044270]

Lee, JS;Kang, JY;Park, SY;Hwang, SJ;Bae, SJ;Son, CG; Central 5-HTergic hyperactivity induces myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS)-like pathophysiology *Journal of translational medicine* 2024-01-08 [PMID: 38191373]

Pan YD, Zhang Y, Zheng WY et al. Intermittent Hypobaric Hypoxia Ameliorates Autistic-Like Phenotypes in Mice. *The Journal of neuroscience : the official journal of the Society for Neuroscience* 2024-02-16 [PMID: 38124211]

More publications at <http://www.novusbio.com/NB100-74555>

Procedures

Western Blot Protocol for Tryptophan hydroxylase 2 Antibody (NB100-74555)

Western Blot Protocol

1. Perform SDS-PAGE on samples to be analyzed, loading 10-25 ug of total protein per lane.
2. Transfer proteins to PVDF membrane according to the instructions provided by the manufacturer of the membrane and transfer apparatus.
3. Stain the membrane with Ponceau S (or similar product) to assess transfer success, and mark molecular weight standards where appropriate.
4. Rinse the blot TBS -0.05% Tween 20 (TBST).
5. Block the membrane in 5% Non-fat milk in TBST (blocking buffer) for at least 1 hour.
6. Wash the membrane in TBST three times for 10 minutes each.
7. Dilute primary antibody in 5% BSA and incubate overnight at 4C with gentle rocking.
8. Wash the membrane in TBST three times for 10 minutes each.
9. Incubate the membrane in diluted HRP conjugated secondary antibody in blocking buffer (as per manufacturer's instructions) for 1 hour at room temperature.
10. Wash the blot in TBST three times for 10 minutes each (this step can be repeated as required to reduce background).
11. Apply the detection reagent of choice in accordance with the manufacturers instructions.

Immunohistochemistry-Paraffin Protocol for Tryptophan hydroxylase 2 Antibody (NB100-74555)

Immunohistochemistry-Paraffin Embedded Sections

Antigen Unmasking:

Bring slides to a boil in 10 mM sodium citrate buffer (pH 6.0) then maintain at a sub-boiling temperature for 10 minutes. Cool slides on bench-top for 30 minutes (keep slides in the sodium citrate buffer all the time).

Staining:

1. Wash sections in deionized water three times for 5 minutes each.
2. Wash sections in PBS for 5 minutes.
3. Block each section with 100-400 ul blocking solution (1% BSA in PBS) for 1 hour at room temperature.
4. Remove blocking solution and add 100-400 ul diluted primary antibody. Incubate overnight at 4 C.
5. Remove antibody solution and wash sections in wash buffer three times for 5 minutes each.
6. Add 100-400 ul HRP polymer conjugated secondary antibody. Incubate 30 minutes at room temperature.
7. Wash sections three times in wash buffer for 5 minutes each.
8. Add 100-400 ul DAB substrate to each section and monitor staining closely.
9. As soon as the sections develop, immerse slides in deionized water.
10. Counterstain sections in hematoxylin.
11. Wash sections in deionized water two times for 5 minutes each.
12. Dehydrate sections.
13. Mount coverslips.





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Products Related to NB100-74555

NBP2-33376H	Blue Marker Antibody (6F4-F6) [HRP]
HAF008	Goat anti-Rabbit IgG Secondary Antibody [HRP]
NB7160	Goat anti-Rabbit IgG (H+L) Secondary Antibody [HRP]
NBP2-24891	Rabbit IgG Isotype Control

Limitations

This product is for research use only and is not approved for use in humans or in clinical diagnosis. Primary Antibodies are guaranteed for 1 year from date of receipt.

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