

# Product Datasheet

## ATF3 Antibody - BSA Free NBP1-85816

Unit Size: 0.1 ml

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

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Updated 2/21/2025 v.20.1

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**NBP1-85816**

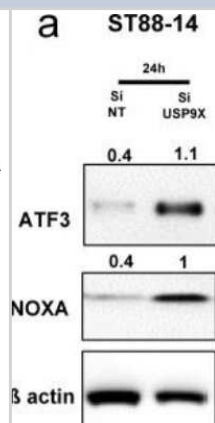
ATF3 Antibody - BSA Free

Product Information	
Unit Size	0.1 ml
Concentration	Concentrations vary lot to lot. See vial label for concentration. If unlisted please contact technical services.
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 (pH 7.2) and 40% Glycerol
Product Description	
Host	Rabbit
Gene ID	467
Gene Symbol	ATF3
Species	Human, Mouse, Rat, Feline
Reactivity Notes	Mouse reactivity reported in scientific literature (PMID: 30993183). Feline reactivity reported from a verified customer review. Rat reactivity reported in (PMID: 30101191), also customer review.
Immunogen	This antibody was developed against Recombinant Protein corresponding to amino acids: MMLQHPPGQVSASEVSASAIVPCLSPPGSLVFEDFANLTPFVKEELRFAIQNKHL CHRMSSALESVTVSDRPLGVSITKAEVAPEEDERKKRRRRERNKIAAAKCRNKK KEKTEC
Product Application Details	
Applications	Western Blot, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Frozen, Immunohistochemistry-Paraffin, Knockout Validated
Recommended Dilutions	Western Blot Reactivity reported in (PMID: 24939851), Immunohistochemistry 1:200 - 1:500, Immunocytochemistry/ Immunofluorescence 0.25-2 ug/ml, Immunohistochemistry-Paraffin 1:200-1:500, Immunohistochemistry-Frozen Validated from a verified customer review., Knockout Validated
Application Notes	For IHC-Paraffin, HIER pH 6 retrieval is recommended. ICC/IF Fixation Permeabilization: Use PFA/Triton X-100.

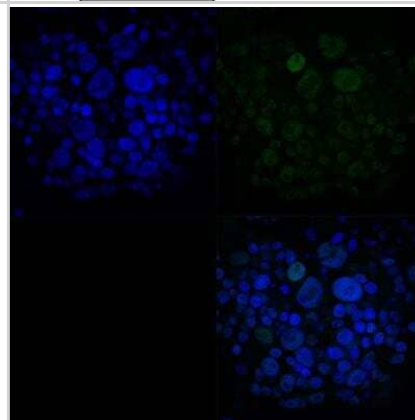


## Images

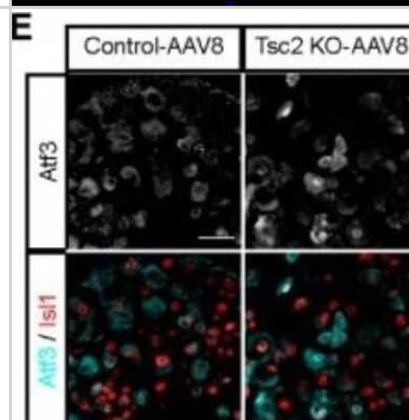
**Western Blot: ATF3 Antibody [NBP1-85816]** - Usp9X inhibition causes Noxa increase and ER stress in MPNST cell lines. Ultrastructural analysis shows features of paraptosis. ST88-14 cells were transfected for 24 h with either non-targeting (NT)-siRNA or Usp9X-siRNA. Whole cell extracts were collected prior to Western blot analysis for ATF3, Noxa and beta-actin. Numbers shows protein quantification analyzed through ImageJ. N = 3. Image collected and cropped by CiteAb from the following publication (<https://www.nature.com/articles/s41598-018-35806-5>), licensed under a CC-BY license.



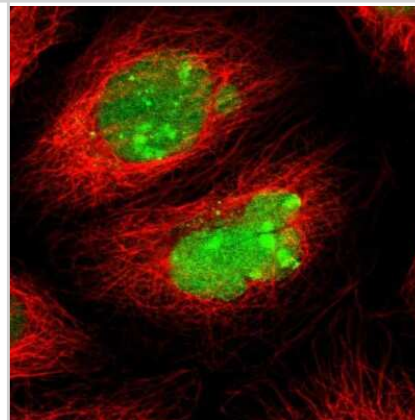
**Immunocytochemistry/Immunofluorescence: ATF3 Antibody [NBP1-85816]** - ATF3 antibody in indirect immunofluorescence staining of human tumor cells using a green-fluorescent secondary antibody showing nuclear localization. Nuclei stained with DAPI (blue). Image from verified customer review.



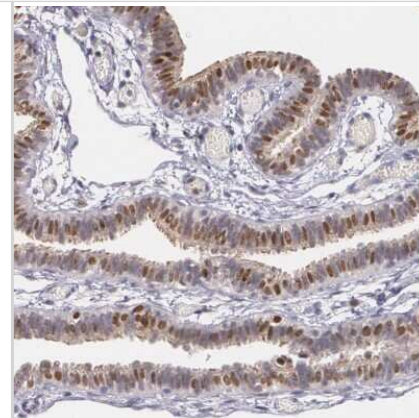
**Immunohistochemistry: ATF3 Antibody [NBP1-85816]** - AAV8-mediated deletion of Tsc2 in adult mice induces a pro-regenerative environment in DRG. Immunohistochemistry of uninjured L4 DRG stained for ATF3 and Isl1. Image collected and cropped by CiteAb from the following publication (<https://eneuro.org/lookup/doi/10.1523/ENEURO.0168-19.2019>), licensed under a CC-BY license.



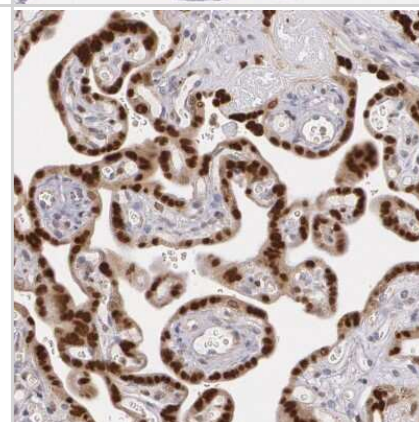
**Immunocytochemistry/Immunofluorescence: ATF3 Antibody [NBP1-85816]** - Staining of human cell line A-431 shows localization to nucleus and nucleoli. Antibody staining is shown in green.



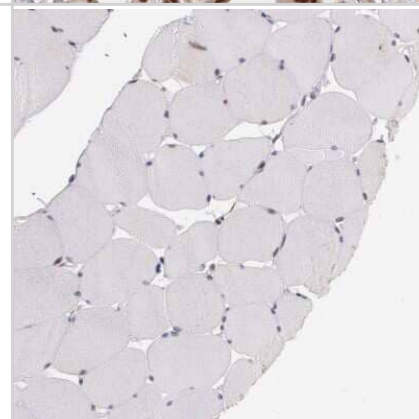
Immunohistochemistry-Paraffin: ATF3 Antibody [NBP1-85816] - Staining of human fallopian tube shows moderate to strong nuclear positivity in a subset of glandular cells.



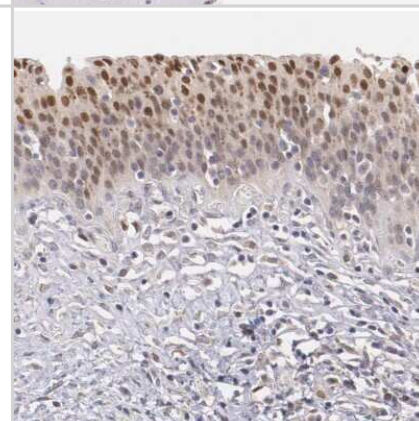
Immunohistochemistry-Paraffin: ATF3 Antibody [NBP1-85816] - Staining of human placenta shows strong nuclear positivity in trophoblastic cells.



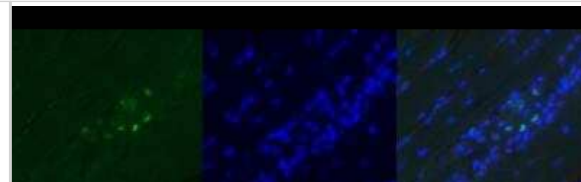
Immunohistochemistry-Paraffin: ATF3 Antibody [NBP1-85816] - Staining of human skeletal muscle shows no nuclear positivity in myelopoietic cells as expected.



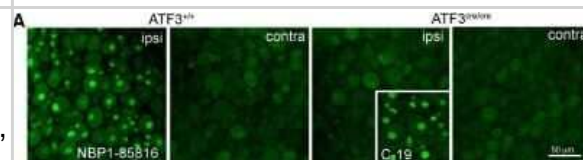
Immunohistochemistry-Paraffin: ATF3 Antibody [NBP1-85816] - Staining of human urinary bladder shows moderate to strong nuclear positivity in epithelial cells.



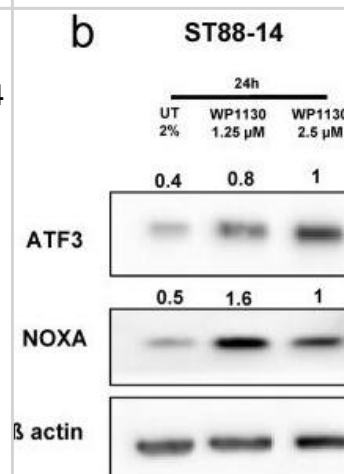
Immunohistochemistry-Frozen: ATF3 Antibody [NBP1-85816] - Image was captured under an epi-fluorescent microscope. Alexa 488 conjugated rabbit antibody was used for the secondary antibody. Immunofluorescent signal was localized in the nucleus. Image submitted by a verified customer review.



Western Blot: ATF3 Antibody [NBP1-85816] - Axotomy-induced recombination in peripherally-projecting neurons. Validation of an ATF3-specific antibody. The Novus antibody (NBP1-85816) produces a positive signal in nuclei of axotomized sensory neurons in ATF3<sup>+/+</sup> mice, but not ATF3<sup>cre/cre</sup> mice. Note that the Santa Cruz antibody (C-19) labels neuronal nuclei in the latter (inset), indicating non-specific staining. Image collected and cropped by CiteAb from the following publication (<https://eneuro.org/lookup/doi/10.1523/ENEURO.0025-19.2019>), licensed under a CC-BY license.

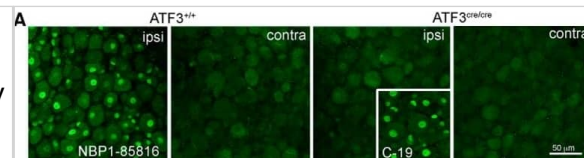


Western Blot: ATF3 Antibody [NBP1-85816] - Usp9X inhibition causes Noxa increase & ER stress in MPNST cell lines. Ultrastructural analysis shows features of paraptosis. (a,b) ST88-14 cells were transfected for 24 h with either non-targeting (NT)-siRNA or Usp9X-siRNA (a) or treated with WP1130 at the concentration of 1.25 & 2.5  $\mu$ M (b). Whole cell extracts were collected prior to Western blot analysis for ATF3, Noxa &  $\beta$ -actin. Numbers shows protein quantification analyzed through ImageJ. N = 3. (c–e) Ultrastructural appearance of untreated control cells using TEM. (f–h) After treatment with WP1130 at the concentration of 2.5  $\mu$ M (f,g,h) T265-2c cells showed extensive cytosolic vacuolization (f, red arrows) & swelling of ER (g, red arrowheads) & mitochondria (h, red arrows). Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/30478285>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.

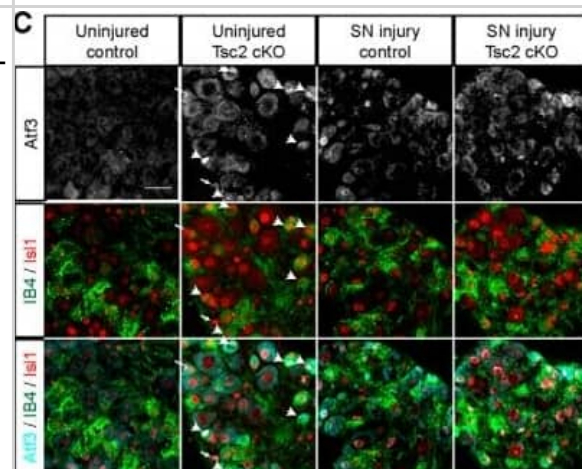




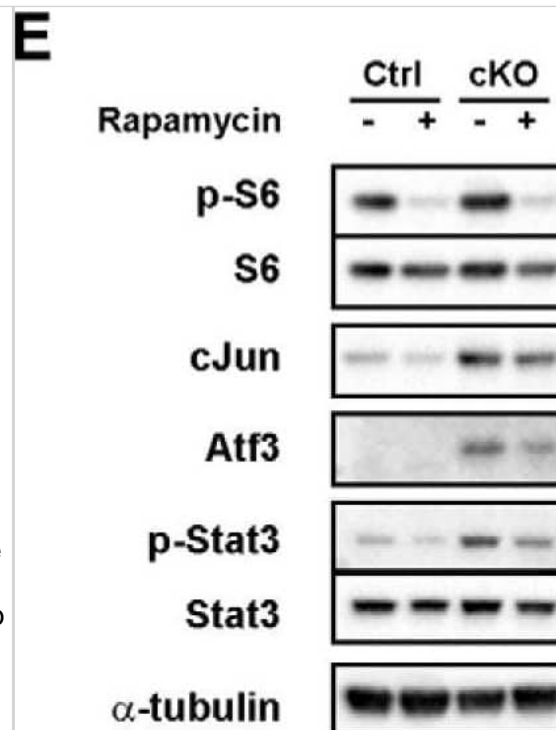
**Immunocytochemistry/ Immunofluorescence: ATF3 Antibody [NBP1-85816]** - Axotomy-induced recombination in peripherally-projecting neurons. A, Validation of an ATF3-specific antibody. The Novus antibody (NBP1-85816) produces a positive signal in nuclei of axotomized sensory neurons in ATF3<sup>+/+</sup> mice, but not ATF3<sup>cre/cre</sup> mice. Note that the Santa Cruz antibody (C-19) labels neuronal nuclei in the latter (inset), indicating non-specific staining. B, C, Axotomy induced reporter expression in sensory (DRG), sympathetic (stellate ganglion, SG), & motoneurons 4 d after injury. D, Reporter expression in sensory axons & motoneurons one week after injury. E, Preventing CreERT2 translocation from cytoplasm to nucleus with ICI 182780 reduces recombination in ATF3<sup>+</sup> cells (by ~50%). F, Recombination efficiency 16 d after injury was calculated by expressing the proportion of tracer-filled somata (labeled at the time of injury) that were also reporter (tdtomato)-positive. G, Recombination efficiencies at 4 & 16 d after injury (n = 3 for each time point) for DRG & motoneurons. Images in panels A, B, E were taken from whole mounts, those in C, D, F from cryosections. Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/30993183>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



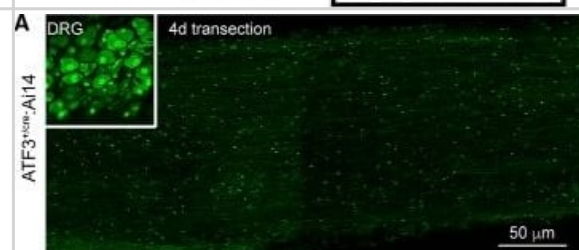
**Immunohistochemistry: ATF3 Antibody [NBP1-85816]** - Nociceptor deletion of Tsc2 preferentially upregulates cJun & Atf3 expression in IB4-positive neurons. A, Immunohistochemistry of L4 DRG contralateral & ipsilateral to a sciatic nerve transection (SN injury) at 3 d post-injury stained for cJun, Isl1 (all neurons), & IB4. Arrows point to cJun-positive, IB4-negative neurons, & arrowheads point to cJun, IB4 double-positive neurons in uninjured Tsc2 cKO DRG. Scale bars: 50 μm. B, Quantification of percentage of cJun-positive neurons from A. C, Immunohistochemistry of L4 DRG for Atf3, Isl1 (all neurons) & IB4. Arrows point to Atf3-positive, IB4-negative neurons & arrowheads point to Atf3, IB4 double-positive neurons in uninjured Tsc2 cKO DRG. Scale bars: 50 μm. D, Quantification of percentage of Atf3-positive neurons from C. E, Western blotting of uninjured control & Tsc2 cKO L4/L5 DRG from mice receiving daily vehicle or rapamycin treatment for 3 d. F, Quantification of protein expression from E. Log2 fold change relative to uninjured control from the same biological replicate. N.S., not significant, \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001, \*\*\*\*p < 0.0001. Extended Data Figure 5-1 shows data values of mean & SEM, number of replicates, statistical tests, & values for all comparisons. Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/31182472>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



**Western Blot: ATF3 Antibody [NBP1-85816] - Nociceptor deletion of Tsc2 preferentially upregulates cJun & Atf3 expression in IB4-positive neurons.** A, Immunohistochemistry of L4 DRG contralateral & ipsilateral to a sciatic nerve transection (SN injury) at 3 d post-injury stained for cJun, Isl1 (all neurons), & IB4. Arrows point to cJun-positive, IB4-negative neurons, & arrowheads point to cJun, IB4 double-positive neurons in uninjured Tsc2 cKO DRG. Scale bars: 50  $\mu$ m. B, Quantification of percentage of cJun-positive neurons from A. C, Immunohistochemistry of L4 DRG for Atf3, Isl1 (all neurons) & IB4. Arrows point to Atf3-positive, IB4-negative neurons & arrowheads point to Atf3, IB4 double-positive neurons in uninjured Tsc2 cKO DRG. Scale bars: 50  $\mu$ m. D, Quantification of percentage of Atf3-positive neurons from C. E, Western blotting of uninjured control & Tsc2 cKO L4/L5 DRG from mice receiving daily vehicle or rapamycin treatment for 3 d. F, Quantification of protein expression from E. Log2 fold change relative to uninjured control from the same biological replicate. N.S., not significant, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , \*\*\*\* $p < 0.0001$ . Extended Data Figure 5-1 shows data values of mean & SEM, number of replicates, statistical tests, & values for all comparisons. Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/31182472>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



**Immunocytochemistry/ Immunofluorescence: ATF3 Antibody [NBP1-85816] - Axotomy does not induce ATF3 in Schwann cells.** A, Cryosections from injured DRG (inset) & distal sciatic nerve from the same mouse processed for ATF3 immunohistochemistry (Novus NBP1-85816). B, Punctate staining in the nerve proved to be non-specific fluorescence of leukocytes (note non-nuclear signal in the absence of primary antibody). C, In intact sciatic nerves, cells morphologically identical to Remak cells had at some point undergone recombination. D, Following injury, their numbers increased. E, This was attributable to their proliferation in the injured nerve (as opposed to ATF3 induction & subsequent recombination). C', D', Magnification of areas outlined in C & D demonstrate the spindle shaped morphology characteristic of Remak cells. Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/30993183>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



## Publications

- Miao ZF, Sun JX, Huang XZ, Bai S et Al. Metaplastic regeneration in the mouse stomach requires a reactive oxygen species pathway Dev Cell 2024-03-23 [PMID: 38521055]
- Carlin D, Halevi AE, Ewan EE et al. Nociceptor Deletion of Tsc2 Enhances Axon Regeneration by Inducing a Conditioning Injury Response in Dorsal Root Ganglia eNeuro 2019-06-25 [PMID: 31182472]
- Cooper AH, Barry AM, Chrysostomidou P et Al. Peripheral nerve injury results in a biased loss of sensory neuron subpopulations Pain 2024-12-01 [PMID: 39158319]
- Contreras-Panta, EW;Lee, SH;Won, Y;Norlander, AE;Simmons, AJ;Peebles, RS;Lau, KS;Choi, E;Goldenring, JR; INTERLEUKIN 13 PROMOTES MATURATION AND PROLIFERATION IN METAPLASTIC GASTROIDS Cellular and molecular gastroenterology and hepatology 2024-05-28 [PMID: 38815928]
- Asghari Adib E, Shadrach JL, Reilly-Jankowiak L et Al. DLK signaling in axotomized neurons triggers complement activation and loss of upstream synapses Cell Rep 2024-03-07 [PMID: 38363678]
- Hu S, Cassim Bawa FN, Zhu Y et al. Loss of adipose ATF3 promotes adipose tissue lipolysis and the development of MASH Communications Biology 2024-10-10 [PMID: 39390075]
- Deininger S, Schumacher J, Blechschmidt A et al. Nerve injury converts Schwann cells in a long-term repair-like state in human neuroma tissue. Experimental neurology 2024-10-01 [PMID: 39362479]
- Perez-Sanchez J, Middleton S, Pattison L et al. Inhibition of sensory neuron driven acute, inflammatory, and neuropathic pain using a humanised chemogenetic system bioRxiv 2023-03-22
- E Serger, L Luengo-Gut, JS Chadwick, G Kong, L Zhou, G Crawford, MC Danzi, A Myridakis, A Brandis, AT Bello, F Müller, A Sanchez-Va, F De Virgili, P Liddell, ME Dumas, J Strid, S Mani, D Dodd, S Di Giovann The gut metabolite indole-3 propionate promotes nerve regeneration and repair Nature, 2022-06-22;0(0):. 2022-06-22 [PMID: 35732737]
- M Balogh, J Zhang, CM Gaffney, N Kalakuntla, NT Nguyen, RT Trinh, C Aguilar, HV Pham, B Milutinovi, JM Nichols, R Mahalingam, AJ Shepherd Sensory neuron dysfunction in orthotopic mouse models of colon cancer Journal of Neuroinflammation, 2022-08-12;19(1):204. 2022-08-12 [PMID: 35962398]
- Ying Wang, Hua Gao, Fudi Wang, Zhongde Ye, Michal Mokry, Adam W Turner, Jianqin Ye, Simon Koplev, Lingfeng Luo, Tom Alsaigh, Shaunak S Adkar, Maria Elishaev, Xiangyu Gao, Lars Maegdefessel, Johan L M Björkegren, Gerard Pasterkamp, Clint L Miller, Elsie G Ross, Nicholas J Leeper Dynamic changes in chromatin accessibility are associated with the atherogenic transitioning of vascular smooth muscle cells. Cardiovascular research 2022-10-25 [PMID: 34849613]
- Jonathan Z. Pan, Zhanqiang Wang, Wei Sun, Peipei Pan, Wei Li, Yongtao Sun, Shoulin Chen, Amity Lin, Wulin Tan, Liangliang He, Jacob Greene, Virginia Yao, Lijun An, Rich Liang, Qifeng Li, Jessica Yu, Lingyi Zhang, Nikolaos Kyritsis, Xuan Duong Fernandez, Sara Moncivais, Esmeralda Mendoza, Pamela Fung, Gongming Wang, Xinhuan Niu, Qihang Du, Zhaoyang Xiao, Yuwen Chang, Peiyuan Lv, J. Russell Huie, Abel Torres-Espin, Adam R. Ferguson, Debra D. Hemmerle, Jason F. Talbott, Philip R. Weinstein, Lisa U. Pascual, Vineeta Singh, Anthony M. DiGiorgio, Rajiv Saigal, William D. Whetstone, Geoffrey T. Manley, Sanjay S. Dhall, Jacqueline C. Bresnahan, Mervyn Maze, Xiangning Jiang, Neel S. Singhal, Michael S. Beattie, Hua Su, Zhonghui Guan ATF3 is a neuron-specific biomarker for spinal cord injury and ischaemic stroke Clinical and Translational Medicine 2024-04-22 [PMID: 38649772]

More publications at <http://www.novusbio.com/NBP1-85816>







### **Novus Biologicals USA**

10730 E. Briarwood Avenue  
Centennial, CO 80112  
USA  
Phone: 303.730.1950  
Toll Free: 1.888.506.6887  
Fax: 303.730.1966  
nb-customerservice@bio-techne.com

### **Bio-Techne Canada**

21 Canmotor Ave  
Toronto, ON M8Z 4E6  
Canada  
Phone: 905.827.6400  
Toll Free: 855.668.8722  
Fax: 905.827.6402  
canada.inquires@bio-techne.com

### **Bio-Techne Ltd**

19 Barton Lane  
Abingdon Science Park  
Abingdon, OX14 3NB, United Kingdom  
Phone: (44) (0) 1235 529449  
Free Phone: 0800 37 34 15  
Fax: (44) (0) 1235 533420  
info.EMEA@bio-techne.com

### **General Contact Information**

www.novusbio.com  
Technical Support: nb-technical@bio-techne.com  
Orders: nb-customerservice@bio-techne.com  
General: novus@novusbio.com

### **Products Related to NBP1-85816**

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NBP1-85816PEP	ATF3 Recombinant Protein Antigen
HAF008	Goat anti-Rabbit IgG Secondary Antibody [HRP]
NB7160	Goat anti-Rabbit IgG (H+L) Secondary Antibody [HRP]
NBP2-24891	Rabbit IgG Isotype Control

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### **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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