Product Datasheet

TRF-2 Antibody - BSA Free
NB100-56694

Unit Size: 0.1 mg

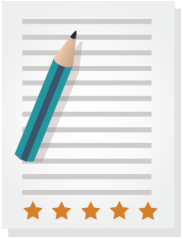
Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

www.novusbio.com technical@novusbio.com

Publications: 13

Protocols, Publications, Related Products, Reviews, Research Tools and Images at:
www.novusbio.com/NB100-56694

Updated 9/9/2025 v.20.1



NB100-56694

TRF-2 Antibody - BSA Free

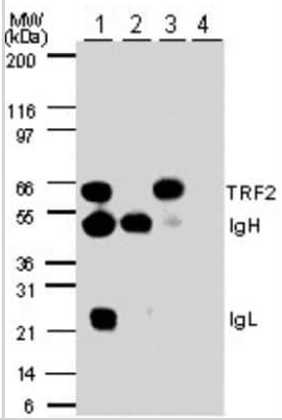
Product Information	
Unit Size	0.1 mg
Concentration	1.0 mg/ml
Storage	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
Clonality	Polyclonal
Preservative	0.05% Sodium Azide
Isotype	IgG
Purity	Protein G purified
Buffer	PBS
Target Molecular Weight	59.6 kDa

Product Description	
Description	Novus Biologicals Goat TRF-2 Antibody - BSA Free (NB100-56694) is a polyclonal antibody validated for use in IHC, WB, Flow, ICC/IF, IP and ChIP. Anti-TRF-2 Antibody: Cited in 13 publications. All Novus Biologicals antibodies are covered by our 100% guarantee.
Host	Goat
Gene ID	7014
Gene Symbol	TERF2
Species	Human
Reactivity Notes	Immunogen displays the following percentage of sequence identity for non-tested species: rat (86%)
Marker	Telomeres marker
Immunogen	This TRF-2 Antibody was developed against Baculovirus expressed His-tagged whole length TRF-2 protein used for immunizing goat (NP_005643).

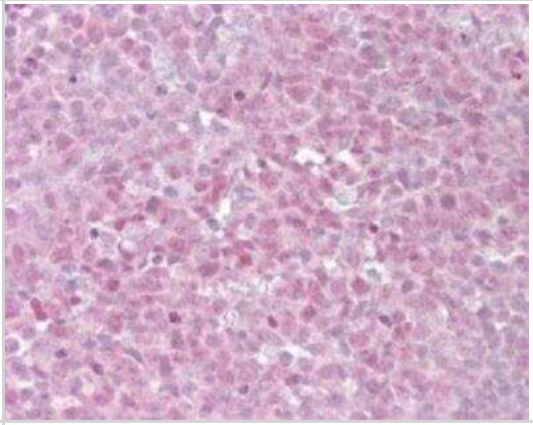
Product Application Details	
Applications	Western Blot, Immunohistochemistry-Paraffin, Flow Cytometry, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunoprecipitation, Chromatin Immunoprecipitation (ChIP), Knockdown Validated
Recommended Dilutions	Western Blot 2 ug/ml, Flow Cytometry reported in scientific literature (Gilbert-Girard S et al), Immunohistochemistry 1:10-1:500, Immunocytochemistry/ Immunofluorescence 1:10-1:500, Immunoprecipitation 2 ug/ 10^6 cells, Immunohistochemistry-Paraffin 15 ug/ml, Chromatin Immunoprecipitation (ChIP) 1:20-1:1000, Knockdown Validated

Images

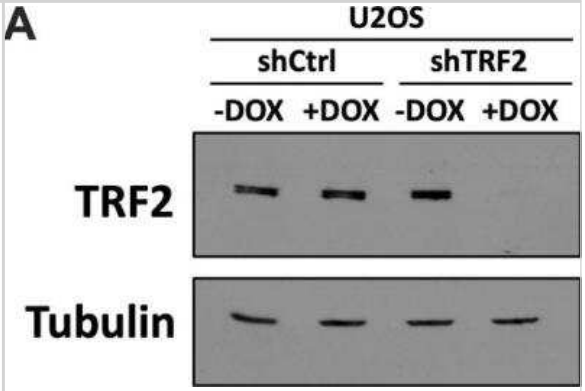
Immunoprecipitation: TRF-2 Antibody [NB100-56694] - Analysis of TRF-2 in HL60 cells. Lane 1. IP (mouse anti-TRF2). Lane 2. IP with control mouse IgG. Lane 3 IP with goat anti-TRF2. Lane 4. IP with pre-immune goat Ig. Lanes 1-4. WB. TRF2 is detected as a ~ 66 kD protein.



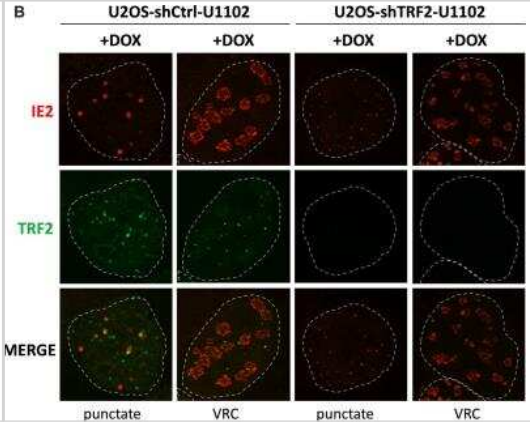
Immunohistochemistry-Paraffin: TRF-2 Antibody [NB100-56694] - Analysis of Human Tonsil using TRF-2 antibody.



Western Blot: TRF-2 Antibody [NB100-56694] - U2OS cells were transduced with a lentiviral vector coding for a Dox inducible control shRNA (shCtrl) or a shRNA against TRF-2 (shTRF2) and selected with puromycin +/- Dox for a week. A) Western blot analysis of TRF-2 expression one week post selection. Membranes were also probed with anti-tubulin antibodies to show the input material loaded. Image collected and cropped by CiteAb from the following publication (//pubmed.ncbi.nlm.nih.gov/32320442/) licensed under a CC-BY license.

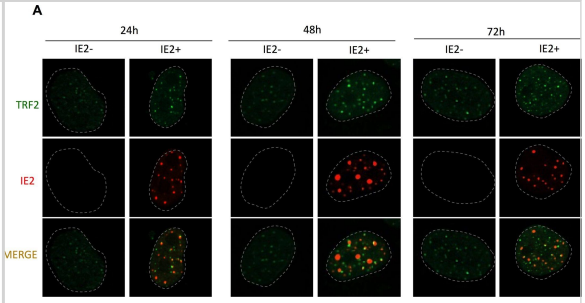


Immunocytochemistry/ Immunofluorescence: TRF-2 Antibody [NB100-56694] - U2OS cells were transduced with a lentiviral vector coding for a Dox inducible control shRNA (shCtrl) or a shRNA against TRF-2 (shTRF2) and selected with puromycin +/- Dox for a week. One week post selection, +Dox cells were infected with HHV-6A for 48h and processed for IFA using anti-TRF-2 (green) and anti-IE2 (red). Cells with IE2 in punctate form and cells with large patchy IE2, likely to represent VRC, are shown. Nuclei are outlined by dashed lines. Image collected and cropped by CiteAb from the following publication (//pubmed.ncbi.nlm.nih.gov/32320442/) licensed under a CC-BY license.

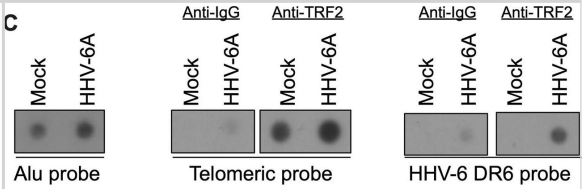


Western Blot: TRF-2 Antibody [NB100-56694] - TRF2 knockdown affect HHV-6A/B chromosomal integration.A) U2OS cells were transduced with lentiviral vectors expressing a scrambles shRNA (shCtrl) or a shTRF2. After a week of selection, cells were monitored for TRF2 expression by western blot. B) After a week of selection, shCtrl & shTRF2 treated cells were infected with HHV-6A or HHV-6B. After 30 days, DNA was isolated & the relative frequency of integration, relative to shCtrl set at 100%, estimated by ddPCR. *p<0.05. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32320442), licensed under a CC-BY license. Not internally tested by Novus Biologicals.

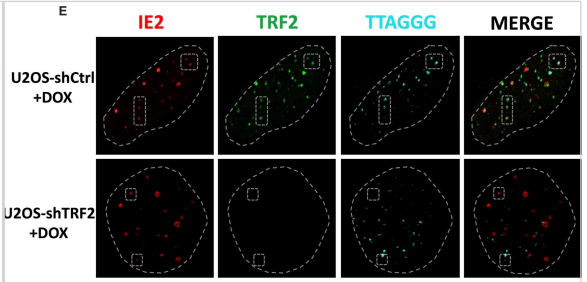
Immunocytochemistry/ Immunofluorescence: TRF-2 Antibody [NB100-56694] - TRF2 expression in HHV-6A-infected U2OS cells.U2OS cells were infected with HHV-6A & analyzed for TRF2 & IE2 expression at 24h, 48h & 72h post-infection by dual color immunofluorescence. A) Representative immunofluorescence of TRF2 & IE2 expression in bystander & IE2 expressing cells at 24, 48h & 72h post infection. B) Mean relative TRF2 expression ± SD in uninfected (blue), IE2- (green-uninfected bystander) or IE2+ (red-infected) cells at 24h, 48h & 72h post infection. Each symbol represents the relative TRF2 expression from a single nucleus. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32320442), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



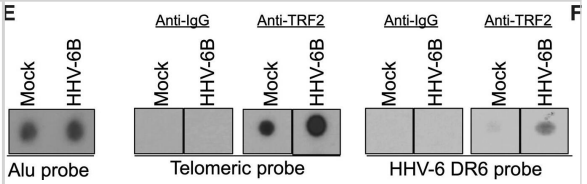
Immunocytochemistry/ Immunofluorescence: TRF-2 Antibody [NB100-56694] - Binding of TRF2 to viral DNA during HHV-6A/B infection.A) Schematic representation of the HHV-6A/B genome. The DR6 probe used for hybridization is shown in red. Uninfected & HHV-6A-infected HSB-2 cells (B-D) or uninfected & HHV-6B-infectd Molt-3 cells (E-F) were analyzed for TRF2 binding to viral DNA using ChIP. The input was hybridized with Alu probe to assess quantity of starting material. Anti-IgG (negative control), anti-PolII (positive control) or TRF2 antibodies were used for immunoprecipitation. B) QPCR detection of GAPDH DNA following ChIP. Results are expressed as fold increase over control IgG. C & E) Eluted DNA was hybridized with 32P-labeled Alu, telomeric (TTAGGG)3 or HHV-6A (DR6) probes. After hybridization the membranes were washed & exposed to X-ray films. D & F) Densitometric analysis of relative binding of TRF2 to telomeric & viral DNA. Results of one experiment representative of three are presented & are expressed as signal after normalization to input. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32320442), licensed under a CC-BY license. Not internally tested by Novus Biologicals.

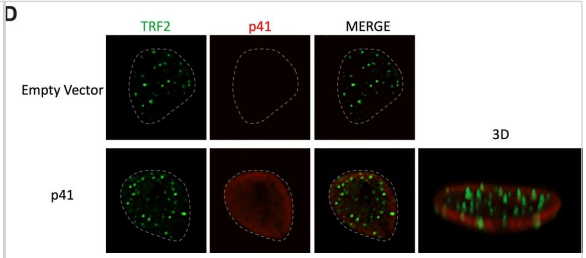
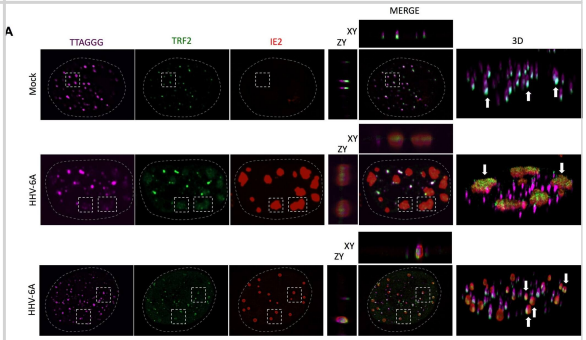


Immunocytochemistry/ Immunofluorescence: TRF-2 Antibody [NB100-56694] - TRF2 is required for IE2 localization with telomeres.U2OS cells were transduced with a lentiviral vector coding for a Dox inducible control shRNA (shCtrl) or a shRNA against TRF2 (shTRF2) & selected with puromycin +/- Dox for a week. A) Western blot analysis of TRF2 expression one week post selection. Membranes were also probed with anti-tubulin antibodies to show the input material loaded. B) One week post selection, +Dox cells were infected with HHV-6A for 48h & processed for IFA using anti-TRF2 (green) & anti-IE2 (red). Cells with IE2 in punctate form & cells with large patchy IE2, likely to represent VRC, are shown. Nuclei are outlined by dashed lines. C) The percentage of HHV-6A infected cells (from B) was estimated after counting a minimum of 700 cells & scoring the IE2+ ones. Results are expressed as mean %IE2+ cells ± SD. D) Mean percentage ± SD of IE2 localizing with telomeres in the presence (shCtrl +Dox) & absence (shTRF2 +Dox) of TRF2. Each dot represents the % of IE2 foci localizing with telomeres in one nucleus. ****p<0.0001. E) IF-FISH confocal images of shCtrl (+Dox) & shTRF2 (+Dox) cells analyzed for TRF2 (green), IE2 (red) & telomeres (cyan). Nuclei are outlined by dashed circles. Examples of IE2 localizing with telomeres (top row) or not found with telomeres (bottom row) are highlighted by the dashed polygons. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32320442), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Immunocytochemistry/ Immunofluorescence: TRF-2 Antibody [NB100-56694] - Binding of TRF2 to viral DNA during HHV-6A/B infection.A) Schematic representation of the HHV-6A/B genome. The DR6 probe used for hybridization is shown in red. Uninfected & HHV-6A-infected HSB-2 cells (B-D) or uninfected & HHV-6B-infectd Molt-3 cells (E-F) were analyzed for TRF2 binding to viral DNA using ChIP. The input was hybridized with Alu probe to assess quantity of starting material. Anti-IgG (negative control), anti-PolII (positive control) or TRF2 antibodies were used for immunoprecipitation. B) QPCR detection of GAPDH DNA following ChIP. Results are expressed as fold increase over control IgG. C & E) Eluted DNA was hybridized with 32P-labeled Alu, telomeric (TTAGGG)3 or HHV-6A (DR6) probes. After hybridization the membranes were washed & exposed to X-ray films. D & F) Densitometric analysis of relative binding of TRF2 to telomeric & viral DNA. Results of one experiment representative of three are presented & are expressed as signal after normalization to input. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32320442), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Immunocytochemistry/ Immunofluorescence: TRF-2 Antibody [NB100-56694] - A) A stick diagram of the IE2 protein with various domains identified is presented. B) Colocalization of HHV-6A IE2 protein with telomeres in the absence of viral DNA. U2OS cells were transfected with an empty vector, with IE2 expression vector or with IE2 Δ1290–1500 expression vector. Forty-eight hours later cells were processed for dual color immunofluorescence. Telomeres were labeled in cyan & IE2 in red. Nuclei are outlined by dashed lines. Examples of IE2 colocalizing with telomeres are presented in a 3D view (white arrows). C) The graph represents the mean ± SD % of WT IE2 & Δ1290–1500 IE2 localizing with telomeres. D) Lack of colocalization between HHV-6A p41 & telomeres in uninfected cells. U2OS cells were transfected with an empty vector or with a p41 expression vector. Forty-eight hours later cells were processed for dual color immunofluorescence. TRF2 was labeled green, p41 in red & nuclei outlined by a dashed line. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32320442), licensed under a CC-BY license. Not internally tested by Novus Biologicals.	
Immunocytochemistry/ Immunofluorescence: TRF-2 Antibody [NB100-56694] - Colocalization of shelterin complex proteins & HHV-6A IE2 protein at VRC & cellular telomeres.A) U2OS cells were mock-infected or infected with HHV-6A for 48h after which cells were processed for IF-FISH. Telomeres were labeled in magenta, TRF2 in green & IE2 in red. The panels in the middle row show images of cells with IE2 patches overlapping with large, diffuse TRF2 & telomeric staining (rectangles). The panels in the third row represent infected cells with punctate IE2 pattern colocalizing with TRF2 & telomeres (dashed squares). The colocalization of IE2, TRF2 & telomeres are shown in both 2D & 3D images. B) Uninfected & HHV-6A-infected U2OS cells were transfected with an empty vector, a myc-tagged-TRF1 expression vector. Forty-eight hours later cells were processed for IF-FISH. TRF1 was labeled in green & IE2 in red. Nuclei were stained with DAPI. Images on the far right show 2D colocalization of TRF1 with IE2. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32320442), licensed under a CC-BY license. Not internally tested by Novus Biologicals.	

Publications

de Oliveira NS, Ha N, da Cunha L et Al. Fermentation of Soybean Meal with Lactobacillus acidophilus Allows Greater Inclusion of Vegetable Protein in the Diet and Can Reduce Vibrionacea in the Intestine of the South American Catfish (Rhamdia quelen) Animals (Basel) 2022-03-09 [PMID: 35327087]

Grzegorz Sarek, Panagiotis Kotsantis, Phil Ruis, David Van Ly, Pol Margalef, Valerie Borel, Xiao-Feng Zheng, Helen R. Flynn, Ambrosius P. Snijders, Dipanjan Chowdhury, Anthony J. Cesare, Simon J. Boulton CDK phosphorylation of TRF2 controls t-loop dynamics during the cell cycle Nature 2019-10-01 [PMID: 31723267]

Ali S, Lombardi EP, Ghosh D et al. Pt-ttpy, a G-quadruplex binding platinum complex, induces telomere dysfunction and G-rich regions DNA damage Metallomics : integrated biometal science 2021-05-22 [PMID: 34021581]

Gilbert-Girard S, Gravel A et al. Role for the shelterin protein TRF2 in human herpesvirus 6A/B chromosomal integration. PLoS Pathog 2020-01-04 [PMID: 32320442] (ICC/IF, Human)

Saker L, Ali S, Masserot C et al. Platinum Complexes Can Bind to Telomeres by Coordination Int J Mol Sci 2018-07-03 [PMID: 29970863] (Chemotaxis, Human)

Charif R, Granotier-Beckers C, Bertrand HC et al. Association of a Platinum Complex to a G-Quadruplex Ligand Enhances Telomere Disruption Chem. Res. Toxicol. 2017-07-18 [PMID: 28657713] (IP)

Ourliac-Garnier Isabelle, Poulet Anais, Charif Razan et al. Platination of telomeric DNA by cisplatin disrupts recognition by TRF2 and TRF1. J Biol Inorg Chem. 2010-06-01 [PMID: 20191372]

Maida Y, Yasukawa M, Okamoto N et al. Involvement of TERT in heterochromatin maintenance. Mol. Cell. Biol. 2014-02-18 [PMID: 24550003] (ICC/IF, Human)

Details:
HeLa, Fig 1E

Klein O, Rohwer N, de Molina KF et al. Application of two-dimensional gel-based mass spectrometry to functionally dissect resistance to targeted cancer therapy. Proteomics Clin Appl 2013-12-01 [PMID: 24307263] (WB, Human)

Raz V, Vermolen BJ, Garini Y et al. The nuclear lamina promotes telomere aggregation and centromere peripheral localization during senescence of human mesenchymal stem cells. J Cell Sci. 2008-12-15 [PMID: 19056671] (ICC/IF, Human)

Details:
IF (human mesenchymal stem cells), Fig. 5A.

Razak ZR, Varkonyi RJ, Kulp-McEliece M et al. p53 differentially inhibits cell growth depending on the mechanism of telomere maintenance. Mol Cell Biol. 2004-07-01 [PMID: 15199150] (Chemotaxis)

Caslini C, Connelly JA, Serna A et al. MLL associates with telomeres and regulates telomeric repeat-containing RNA transcription. Mol Cell Biol. 2009-08-01 [PMID: 19528237] (WB, IF, Chemotaxis)

More publications at http://www.novusbio.com/NB100-56694

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 NB100-56694

NBP2-33376H	Blue Marker Antibody (6F4-F6) [HRP]
HAF017	Rabbit anti-Goat IgG Secondary Antibody [HRP (Horseradish Peroxidase)]
HAF109	Donkey anti-Goat IgG Secondary Antibody [HRP (Horseradish Peroxidase)]
NB410-28088-1mg	Goat 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.

For more information on our 100% guarantee, please visit www.novusbio.com/guarantee

Earn gift cards/discounts by submitting a review: www.novusbio.com/reviews/submit/NB100-56694

Earn gift cards/discounts by submitting a publication using this product: www.novusbio.com/publications