

# Product Datasheet

## CEP164 Antibody - BSA Free NBP1-81445

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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**NBP1-81445**

CEP164 Antibody - BSA Free

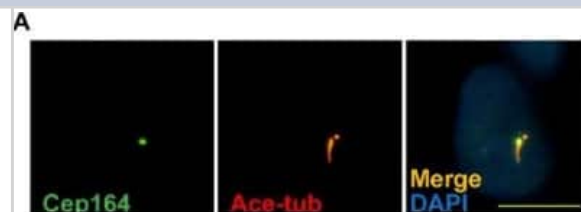
Product Information	
<b>Unit Size</b>	0.1 ml
<b>Concentration</b>	Concentrations vary lot to lot. See vial label for concentration. If unlisted please contact technical services.
<b>Storage</b>	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
<b>Clonality</b>	Polyclonal
<b>Preservative</b>	0.02% Sodium Azide
<b>Isotype</b>	IgG
<b>Purity</b>	Immunogen affinity purified
<b>Buffer</b>	PBS (pH 7.2) and 40% Glycerol

Product Description	
<b>Host</b>	Rabbit
<b>Gene ID</b>	22897
<b>Gene Symbol</b>	CEP164
<b>Species</b>	Human, Mouse, Zebrafish
<b>Reactivity Notes</b>	Use in Mouse reported in scientific literature (PMID:34208028). Zebrafish reactivity reported in scientific literature (PMID: 31042116).
<b>Marker</b>	Centriole Appendage Marker
<b>Immunogen</b>	This antibody was developed against Recombinant Protein corresponding to amino acids: DASQELEISEHMKEPQLSDSIASDPKSFHGLDFGFRSRRISEHLLDVDVLSPLVG GACRQAQQPLGIEDKDDSQSSQDELQSKQSKGLEERLSPPLPHE

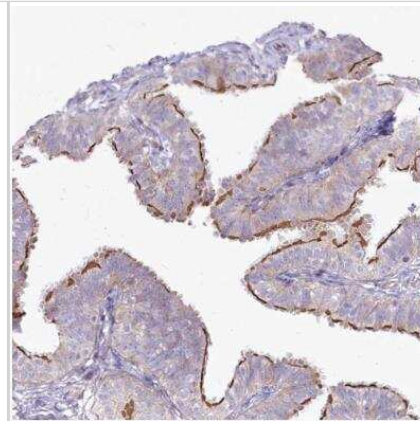
Product Application Details	
<b>Applications</b>	Western Blot, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Paraffin
<b>Recommended Dilutions</b>	Western Blot Reported in scientific literature (PMID:31042116), Immunohistochemistry 1:200 - 1:500, Immunocytochemistry/ Immunofluorescence 0.25-2 ug/ml, Immunohistochemistry-Paraffin 1:200-1:500
<b>Application Notes</b>	For IHC-Paraffin, HIER pH 6 retrieval is recommended. ICC/IF Fixation Permeabilization: Use PFA/Triton X-100.

**Images**

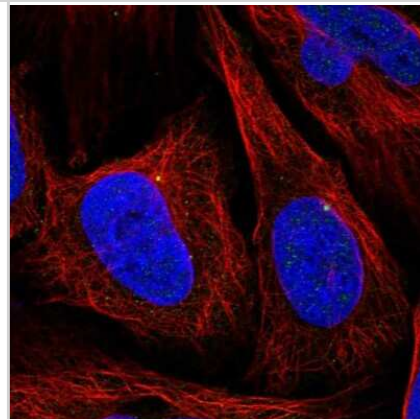
Immunocytochemistry/Immunofluorescence: CEP164 Antibody [NBP1-81445] - Fetuin-A inhibits ciliogenesis. Primary cilia were examined in the absence (CTL) or presence of fetuin-A (FA) by immunostaining with antibodies against acetylated tubulin (Ace-tub), Cep164, IFT88, or Arl13b. Image collected and cropped by CiteAb from the following publication (<https://www.mdpi.com/1422-0067/20/20/5207>), licensed under a CC-BY license.



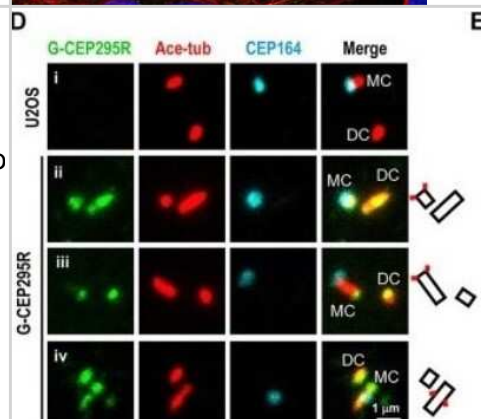
Immunohistochemistry-Paraffin: CEP164 Antibody [NBP1-81445] - Staining of human fallopian tube shows strong positivity in cilia in glandular cells.



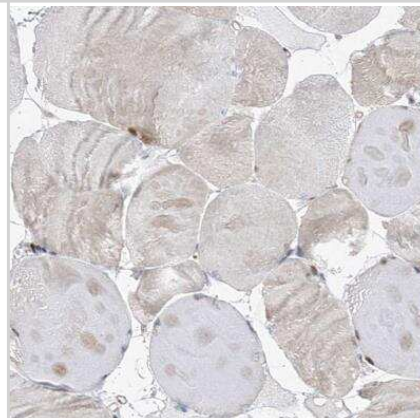
Immunocytochemistry/Immunofluorescence: CEP164 Antibody [NBP1-81445] - Staining of human cell line U-2 OS shows localization to centrosome. Antibody staining is shown in green.



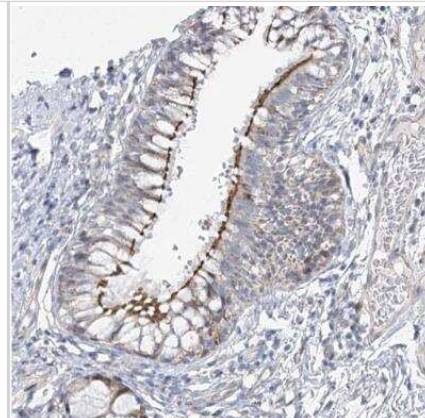
Immunocytochemistry/Immunofluorescence: CEP164 Antibody [NBP1-81445] - CEP295 overexpression induces extra-long microtubule-based filaments with low efficiency. Schematics on right of D indicate centrioles (black rectangles) and positions of CEP164 (red squares). MC, mother centriole; DC, daughter centriole. Image collected and cropped by CiteAb from the following publication (<https://jcs.biologists.org/lookup/doi/10.1242/jcs.186338>), licensed under a CC-BY license.



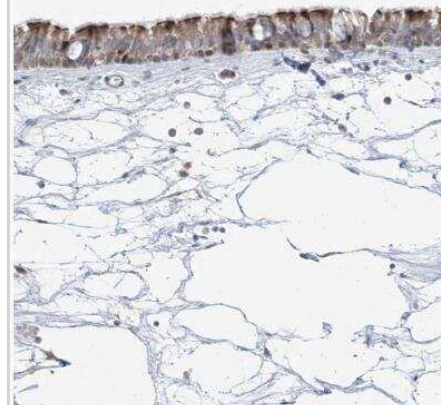
Immunohistochemistry-Paraffin: CEP164 Antibody [NBP1-81445] - Staining of human skeletal muscle shows no positivity in myocytes as expected.



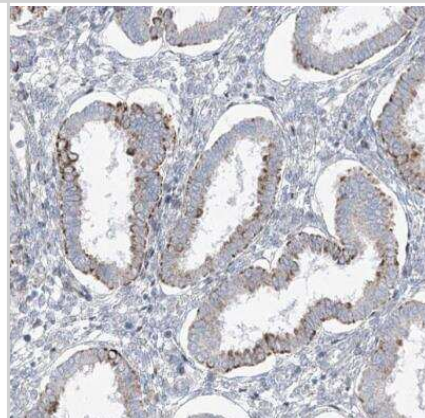
Immunohistochemistry-Paraffin: CEP164 Antibody [NBP1-81445] - Staining of human bronchus shows moderate to strong positivity in cilia in respiratory epithelial cells.



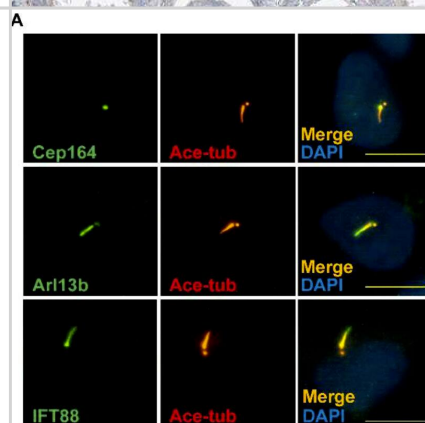
Immunohistochemistry-Paraffin: CEP164 Antibody [NBP1-81445] - Staining of human nasopharynx shows strong positivity in cilia in respiratory epithelial cells.



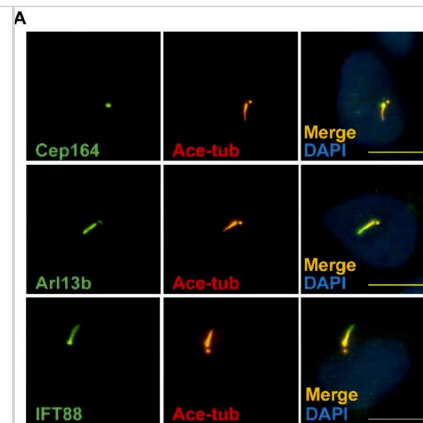
Immunohistochemistry-Paraffin: CEP164 Antibody [NBP1-81445] - Staining of human endometrium shows strong positivity in cilia in glandular cells.



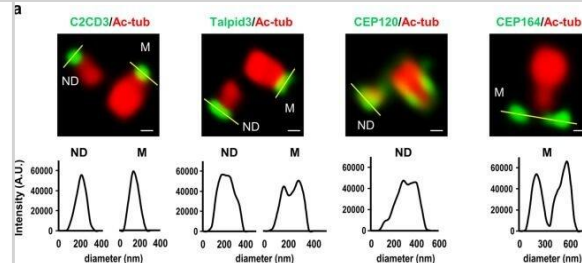
Fetuin-A inhibits ciliogenesis. (A–D) Primary cilia were examined in the absence (CTL) or presence of fetuin-A (FA) by immunostaining with antibodies against acetylated tubulin (Ace-tub), Cep164, IFT88, or Arl13b. (E) Quantification results of the frequency of ciliated HTR8 cells. \*\*  $p < 0.01$ , results are the mean  $\pm$  SD from three independent experiments, more than 100 cells were counted in each individual group. DNA was stained with DAPI. Scale bar 10  $\mu$ M.



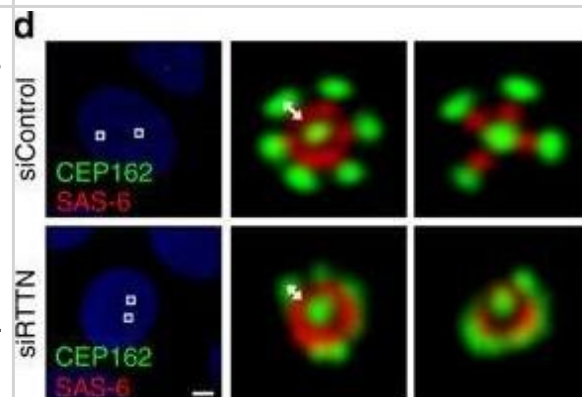
Immunocytochemistry/ Immunofluorescence: CEP164 Antibody [NBP1-81445] - Fetuin-A inhibits ciliogenesis. (A–D) Primary cilia were examined in the absence (CTL) or presence of fetuin-A (FA) by immunostaining with antibodies against acetylated tubulin (Ace-tub), Cep164, IFT88, or Arl13b. (E) Quantification results of the frequency of ciliated HTR8 cells. \*\*  $p < 0.01$ , results are the mean  $\pm$  SD from three independent experiments, more than 100 cells were counted in each individual group. DNA was stained with DAPI. Scale bar 10  $\mu$ m. Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/31640125>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



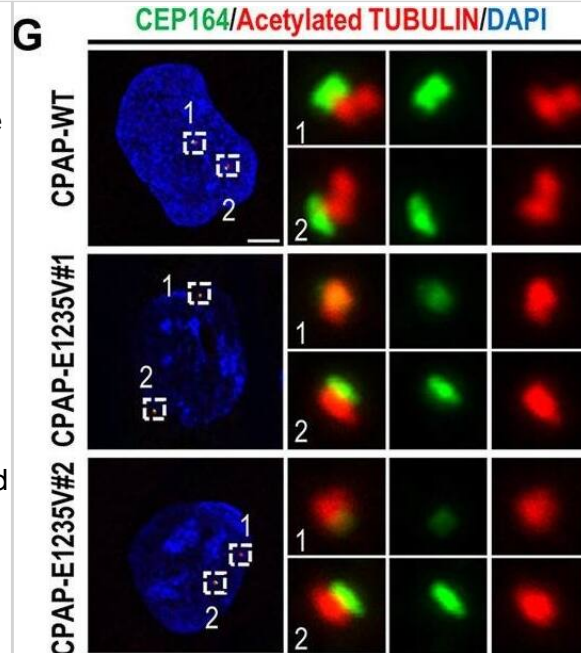
Immunocytochemistry/ Immunofluorescence: CEP164 Antibody [NBP1-81445] - Super-resolution (3D-SIM) microscopic analysis of centriolar distal-end proteins. (a) RPE1 cells were synchronized at G2 phase & immunostained with the indicated antibodies. Lower panels show fluorescence profile plots. Representative images of more than ten cells are presented in (a). ND: nascent daughter centriole, M: mother centriole. (b) The diameters of C2CD3, Talpid3, CEP120, & CEP164 protein spots ( $n = 30$ /each). Cumulative data from three independent experiments are shown. \*\*\* $P < 0.001$ . (c,d) 3D-SIM analysis of the spatial localizations of C2CD3 (c), Talpid3 (d) & CEP120 (c,d) at the distal ends of centrioles. RPE1 cells were synchronized at G2 phase & immunostained with the indicated antibodies. Scale bar, 100 nm in (a,c,d). (e) Schematic illustration of the spatial localizations of C2CD3, Talpid3, CEP120, & CP110 at the distal ends of centrioles. Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/30988386>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



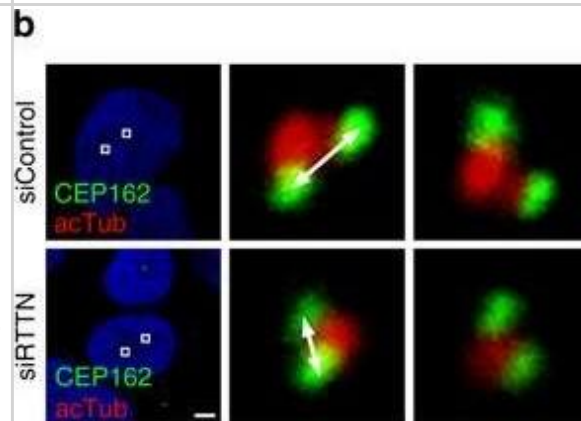
Immunocytochemistry/ Immunofluorescence: CEP164 Antibody [NBP1-81445] - Depletion of RTTN produces shorter centrioles. a, b U2OS cells were treated with siControl or siRTTN as shown in a, & analyzed by confocal fluorescence microscopy using the indicated antibodies. c Histogram illustrating the distance between the CEP162-positive dots associated with a given pair of orthogonally oriented centrioles. Error bars represent the mean  $\pm$  s.d.; \*\*\* $P < 0.001$  (two-tailed t-test). d, f PLK4-myc doxycycline (Dox) inducible cells were treated with siControl or siRTTN as shown in a, & then analyzed by confocal fluorescence microscopy using the indicated antibodies d, or by electron microscopy f. e, g Histogram illustrating the length of procentrioles in PLK4-myc-inducible cells, as analyzed by confocal microscopy e or electron microscopy g. Error bars represent the mean  $\pm$  s.d.; \*\*\* $P < 0.001$  (two-tailed t-test). The procentriole length in b/c was measured as the distance between two CEP162 dots as described by Azimzadeh et al.17 The procentriole length in d/e was measured as the distance between the fluorescent peak intensity of SAS-6 (red) & CEP162 (green) in siControl & siRTTN-treated cells. Scale bar, 5  $\mu$ m in b & d; Scale bar, 200 nm in f Image collected & cropped by CiteAb from the following publication (<https://www.nature.com/articles/s41467-017-00305-0>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Immunocytochemistry/ Immunofluorescence: CEP164 Antibody [NBP1-81445] - CPAP-E1235V mutation impaired the recruitment of centriole elongation proteins onto the centrioles. Cells were synchronized in the early S phase by treatment with aphidicolin (2  $\mu$ g/ml) for 24 h. They were then fixed immediately with methanol (S phase centrioles) or released into fresh culture medium without aphidicolin for another 16 h (G2 phase centrioles). CPAP-WT or mutant cells in the S phase or G2 phase were immunostained with antibodies against the following centriolar proteins. (A) STIL, n = 42 for CPAP-WT; n = 25 for CPAP-E1235V#1; n = 34 for CPAP-E1235V#2. (B) CEP120, n = 50 for CPAP-WT; n = 42 for CPAP-E1235V#1; n = 48 for CPAP-E1235V#2. (C) CENTROBIN, n = 40 for all groups. (D) CEP295, n = 40 for all groups. (E) POC5, n = 42 for CPAP-WT; n = 40 for CPAP-E1235V#1; n = 40 for CPAP-E1235V#2. (F) POC1B, n = 40 for all groups. (G) CEP164, n = 88 for CPAP-WT; n = 74 for CPAP-E1235V#1; n = 38 for CPAP-E1235V#2. All data are presented as mean  $\pm$  SEM from a pool of n cells from three independent experiments. n.s: not significant; \*\*p < 0.01; \*\*\*p < 0.001. Scale bar: 5  $\mu$ m. Image collected & cropped by CiteAb from the following publication (<https://pubmed.ncbi.nlm.nih.gov/35309908>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Immunocytochemistry/ Immunofluorescence: CEP164 Antibody [NBP1-81445] - Depletion of RTTN produces shorter centrioles. a, b U2OS cells were treated with siControl or siRTTN as shown in a, & analyzed by confocal fluorescence microscopy using the indicated antibodies. c Histogram illustrating the distance between the CEP162-positive dots associated with a given pair of orthogonally oriented centrioles. Error bars represent the mean  $\pm$  s.d.; \*\*\*P < 0.001 (two-tailed t-test). d, f PLK4-myc doxycycline (Dox) inducible cells were treated with siControl or siRTTN as shown in a, & then analyzed by confocal fluorescence microscopy using the indicated antibodies d, or by electron microscopy f. e, g Histogram illustrating the length of procentrioles in PLK4-myc-inducible cells, as analyzed by confocal microscopy e or electron microscopy g. Error bars represent the mean  $\pm$  s.d.; \*\*\*P < 0.001 (two-tailed t-test). The procentriole length in b/c was measured as the distance between two CEP162 dots as described by Azimzadeh et al.<sup>17</sup> The procentriole length in d/e was measured as the distance between the fluorescent peak intensity of SAS-6 (red) & CEP162 (green) in siControl & siRTTN-treated cells. Scale bar, 5  $\mu$ m in b & d; Scale bar, 200 nm in f Image collected & cropped by CiteAb from the following publication (<https://www.nature.com/articles/s41467-017-00305-0>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



## Publications

Yung-Chieh Tsai, Tian-Ni Kuo, Ruei-Ci Lin, Hui-Ling Tsai, Yu-Ying Chao, Pei-Rong Lee, Ping-Jui Su, Chia-Yih Wang  
MicroRNA-155-5p inhibits trophoblast cell proliferation and invasion by disrupting centrosomal function *Molecular Medicine Reports* 2024-05-01 [PMID: 38551159]

Lin RC, Chao YY, Su MT et al. Upregulation of miR-20b-5p inhibits trophoblast invasion by blocking autophagy in recurrent miscarriage *Cellular signalling* 2023-10-21 [PMID: 37871665] (Immunocytochemistry/ Immunofluorescence)

Conduit SE, Davies EM, Fulcher AJ et al. Superresolution Microscopy Reveals Distinct Phosphoinositide Subdomains Within the Cilia Transition Zone *Frontiers in Cell and Developmental Biology* 2021-04-30 [PMID: 33996795]

Tsai YC, Kuo TN, Chao YY et al. PDGF-AA activates AKT and ERK signaling for testicular interstitial Leydig cell growth via primary cilia *Journal of cellular biochemistry* 2022-10-28 [PMID: 36306470]

An HL, Kuo HC, Tang TK Modeling Human Primary Microcephaly With hiPSC-Derived Brain Organoids Carrying CPAP-E1235V Disease-Associated Mutant Protein *Frontiers in cell and developmental biology* 2022-03-02 [PMID: 35309908]

Chao Y, Huang B, Peng I et al. ATM- and ATR-Induced Primary Ciliogenesis Promotes Cisplatin Resistance in Pancreatic Ductal Adenocarcinoma *Research Square* 2021-12-02 [PMID: 36251015]

Teng Yn, Chang Hc, Chao Yy Et Al. Etoposide Triggers Cellular Senescence by Inducing Multiple Centrosomes and Primary Cilia in Adrenocortical Tumor Cells *Cells* 2021-06-11 [PMID: 34208028] (ICC/IF)

Chen TY, Huang BM, Tang TK, et al. Genotoxic stress-activated DNA-PK-p53 cascade and autophagy cooperatively induce ciliogenesis to maintain the DNA damage response *Cell death and differentiation* 2021-01-18 [PMID: 33462409] (WB, ICC/IF, Human)

Chen TY, Lin TC, Kuo PL et al. Septin 7 is a centrosomal protein that ensures S phase entry and microtubule nucleation by maintaining the abundance of p150glued *J. Cell. Physiol.* 2020-09-01 [PMID: 32869310]

Wang CY, Su MT, Cheng HL et al. Fetuin-A Inhibits Placental Cell Growth and Ciliogenesis in Gestational Diabetes Mellitus *Int J Mol Sci* 2019-10-21 [PMID: 31640125] (ICC/IF, Human)

Colicino EG, Stevens K, Curtis E et al. Chromosome misalignment is associated with PLK1 activity at cenexin-positive mitotic centrosomes *Mol. Biol. Cell* [PMID: 31042116] (WB, ICC/IF, Zebrafish)

Tsai, JJ;Hsu, WB;Liu, JH;Chang, CW;Tang, TK; CEP120 interacts with C2CD3 and Talpid3 and is required for centriole appendage assembly and ciliogenesis *Sci Rep* 2019-04-15 [PMID: 30988386] (ICC/IF, Human)

More publications at <http://www.novusbio.com/NBP1-81445>



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General: novus@novusbio.com

### **Products Related to NBP1-81445**

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NBP1-81445PEP	CEP164 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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