# **Product Datasheet**

## Sodium Potassium ATPase Alpha 1 Antibody (464.6) - BSA Free NB300-146

Unit Size: 0.05 ml

Aliquot and store at -20C or -80C. Avoid freeze-thaw cycles.

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Updated 2/21/2025 v.20.1

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## NB300-146

Sodium Potassium ATPase Alpha 1 Antibody (464.6) - BSA Free

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Product Information	
0.05 ml	
1.0 mg/ml	
Aliquot and store at -20C or -80C. Avoid freeze-thaw cycles.	
Monoclonal	
464.6	
0.02% Sodium Azide	
IgG1 Kappa	
Protein G purified	
PBS	
112 kDa	
Product Description	
Mouse	
476	
ATP1A1	
Human, Mouse, Rat, Porcine, Bovine, Canine, Drosophila, Guinea Pig, Primate, Rabbit, Sheep, Xenopus, Yeast	
Sheep reactivity reported in scientific literature (PMID: 18424241).	
Plasma Membrane Marker	
This is specific for Na,K-ATPase alpha 1 subunit.	
Purified Sodium Potassium ATPase Alpha 1 from rabbit renal outer medulla. [UniProt# Q9N0Z6]	
Product Application Details	
Western Blot, Flow Cytometry, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Frozen, Immunohistochemistry- Paraffin, Immunoprecipitation	
Western Blot 1:1000-1:10000, Flow Cytometry 1:50-1:200, Immunohistochemistry 1:200, Immunocytochemistry/ Immunofluorescence 1:50- 1:1000, Immunoprecipitation reported in scientific literature (PMID 27748972), Immunohistochemistry-Paraffin 1:200, Immunohistochemistry-Frozen reported in scientific literature (PMID 26941236)	
In Western Blot, a distinct band at ~ 112 kDa is seen. Do not boil the sample prior to loading on the gel for Western Blot (60 degrees Celsius appears to work fine).	

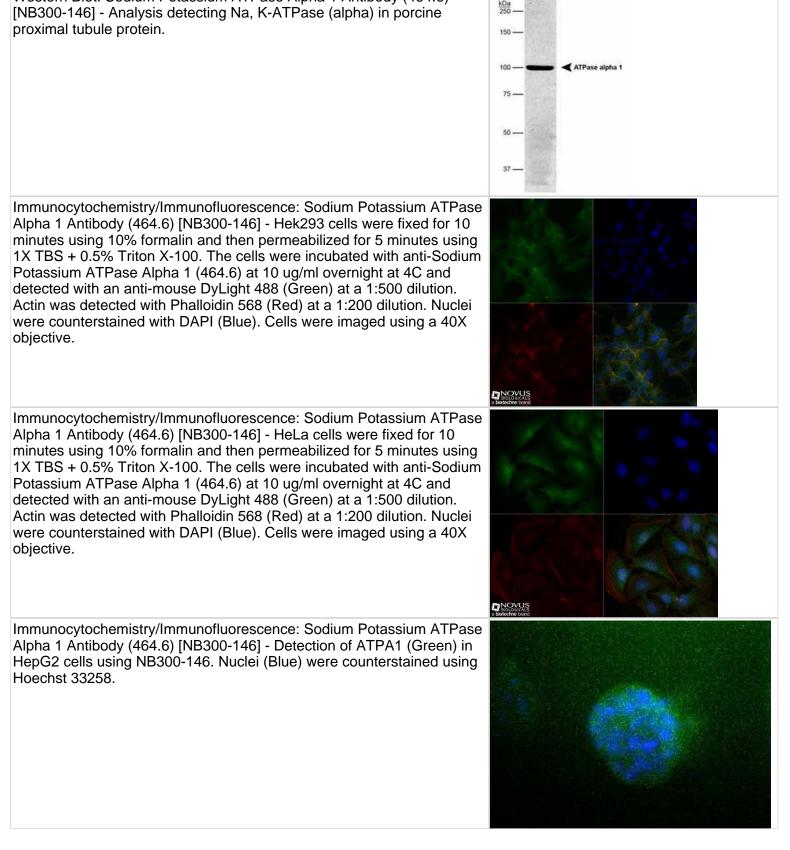
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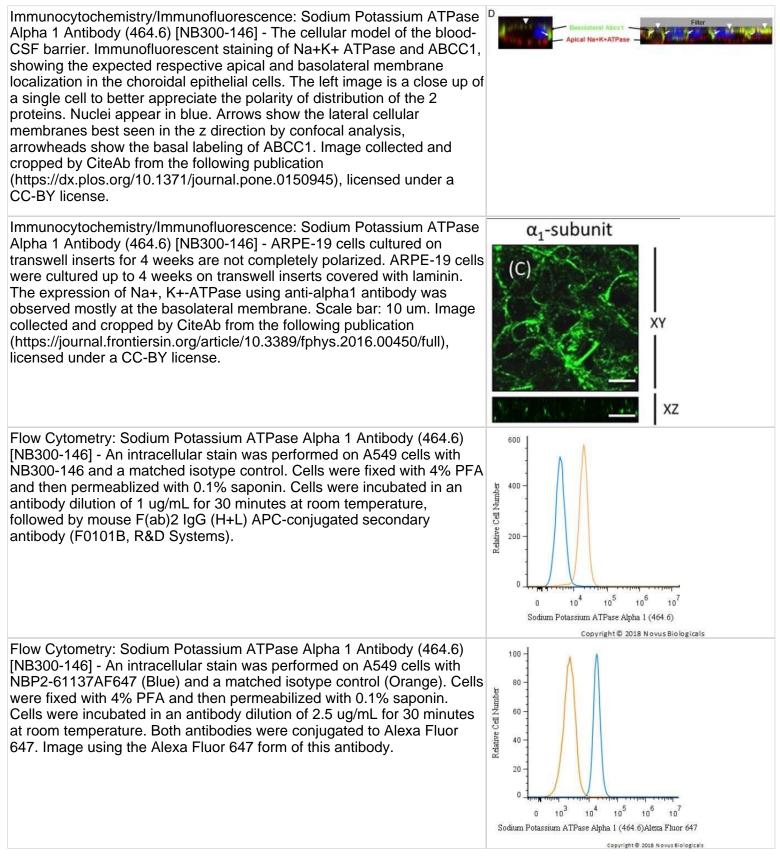
#### Images

F Western Blot: Sodium Potassium ATPase Alpha 1 Antibody (464.6) [NB300-146] - Transfected SK-N-AS cells express ICAM-2 transcripts and proteins. ICAM-2 WT and variants localized to cell membranes. Experimental details are included in Methods. Image collected and membrane-enriched cell fraction cropped by CiteAb from the following publication (https://bmccancer.biomedcentral.com/articles/10.1186/1471-2407-13-261), licensed under a CC-BY license. CAM-2 D Immunocytochemistry/Immunofluorescence: Sodium Potassium ATPase Alpha 1 Antibody (464.6) [NB300-146] - The cellular model of the blood-CSF barrier. Immunofluorescent staining of Na+K+ ATPase and ABCC1, showing the expected respective apical and basolateral membrane localization in the choroidal epithelial cells. The left image is a close up of a single cell to better appreciate the polarity of distribution of the 2 proteins. Nuclei appear in blue. Arrows show the lateral cellular membranes best seen in the z direction by confocal analysis, arrowheads show the basal labeling of ABCC1. Image collected and cropped by CiteAb from the following publication (https://dx.plos.org/10.1371/journal.pone.0150945), licensed under a CC-BY license. Immunohistochemistry: Sodium Potassium ATPase Alpha 1 Antibody (464.6) [NB300-146] - Staining of human enodmetrial glands within the uterus using NB300-146. Note the absence of staining in the surrounding myometrial smooth muscle. Flow Cytometry: Sodium Potassium ATPase Alpha 1 Antibody (464.6) [NB300-146] - An intracellular stain was performed on NIH3T3 cells with Sodium Potassium ATPase Alpha 1 Antibody (464.6) NB300-146 (blue) and a matched isotype control MAB002 (orange). Cells were fixed with Relative Cell Number 4% PFA and then permeabilized with 0.1% saponin. Cells were incubated in an antibody dilution of 1 ug/mL for 30 minutes at room temperature, followed by Mouse IgG (H+L) Cross-Adsorbed Secondary Antibody, Dylight 550 (84540, Thermo Fisher). Sodium Potassium ATPase Alpha 1 (464.6) Copyright @ 2022 Novus Biological

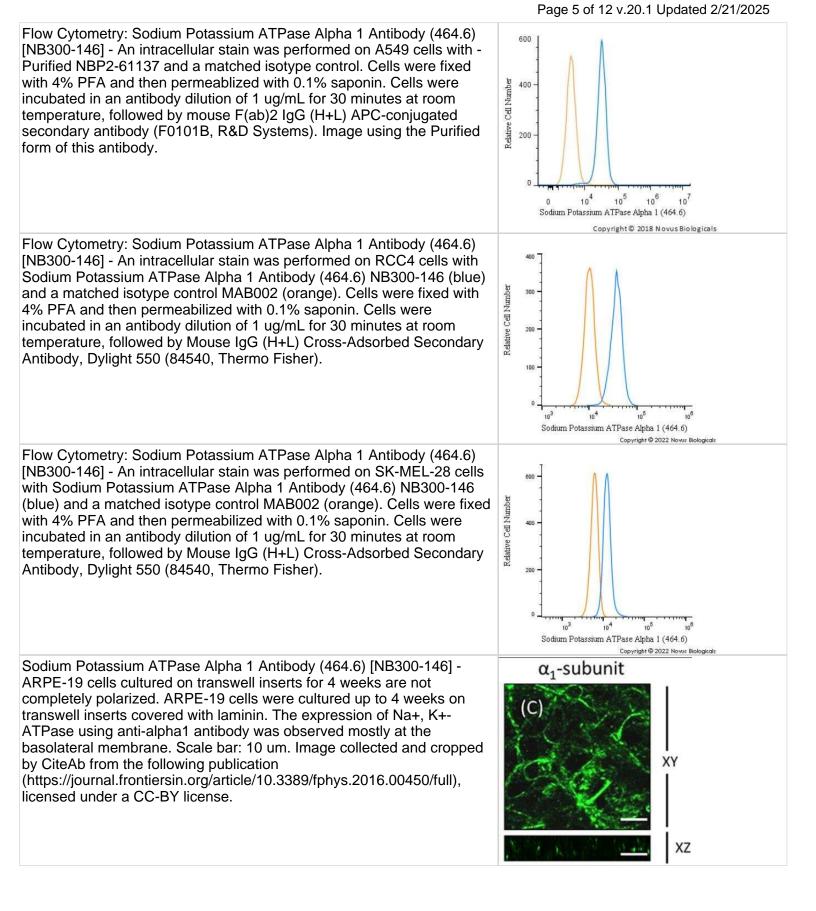








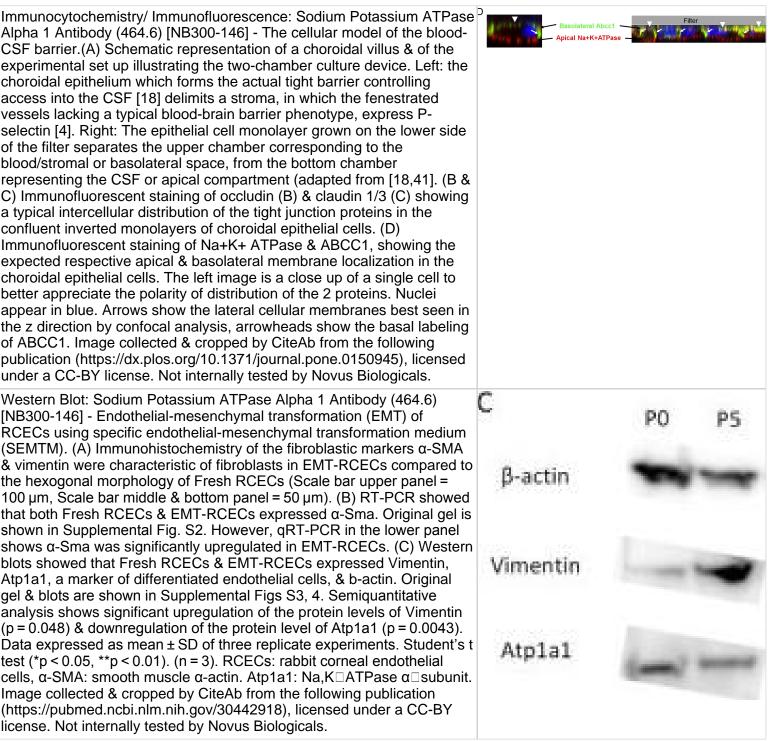




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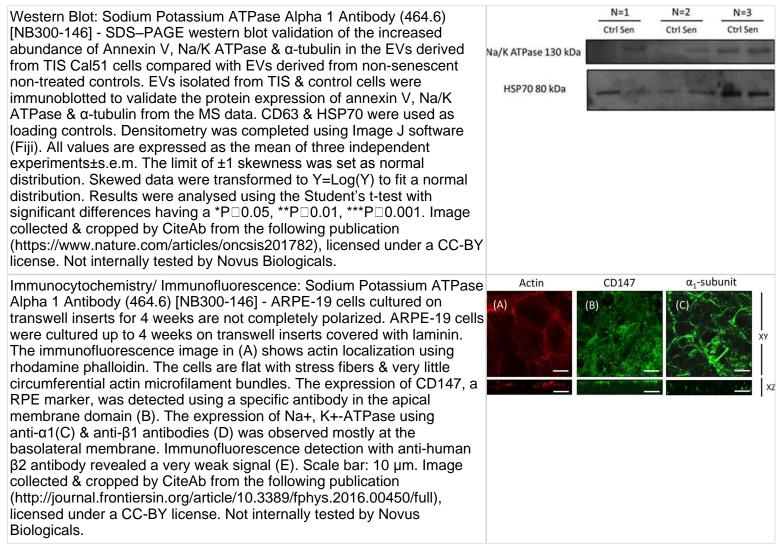


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### **Publications**

Wright SS, Kumari P, Fraile-Ágreda V, Wang C et Al. Transplantation of gasdermin pores by extracellular vesicles propagates pyroptosis to bystander cells Cell 2025-01-01 [PMID: 39742811]

Kuintzle R, Santat LA, Elowitz MB. et Al. Diversity in Notch ligand-receptor signaling interactions Elife 2025-01-03 [PMID: 39751380]

Hou P, Zielonka M, Serneels L et al. The ?-secretase substrate proteome and its role in cell signaling regulation Molecular cell 2023-11-16 [PMID: 37977120] (WB, Human)

Details:

1:1000 dilution

Paparelli L, Corthout N, Pavie B et al. Analyzing Protein Clusters on the Plasma Membrane: Application of Spatial Statistical Analysis Methods on Super-Resolution Microscopy Images Focus on Bio-Image Informatics 2016-05-22 [PMID: 27207364] (Immunohistochemistry, Immunocytochemistry/ Immunofluorescence)

Yoon S, Myczek K, Penzes P. cAMP Signaling-Mediated Phosphorylation of Diacylglycerol Lipase ? Regulates Interaction With Ankyrin-G and Dendritic Spine Morphology Biological Psychiatry 2021-08-01 [PMID: 34099188] (Immunohistochemistry, Immunocytochemistry/ Immunofluorescence)

Liu W, Luque M, Li H et al. Spike Generators and Cell Signaling in the Human Auditory Nerve: An Ultrastructural, Super-Resolution, and Gene Hybridization Study Frontiers in Cellular Neuroscience 2021-03-16 [PMID: 33796009]

Wang X, Shi J, Li Z et al. An 8-Hydroxy-Quinoline Derivative Protects Against Lipopolysaccharide-Induced Lethality in Endotoxemia by Inhibiting HMGB1-Mediated Caspase-11 Signaling Frontiers in Pharmacology 2021-05-21 [PMID: 34093202] (Block/Neutralize)

Harich, OO;Gavriliuc, OI;Ordodi, VL;Tirziu, A;Paunescu, V;Panaitescu, C;Bojin, MF; In Vitro Study of the Multimodal Effect of Na+/K+ ATPase Blocker Ouabain on the Tumor Microenvironment and Malignant Cells Biomedicines 2023-08-05 [PMID: 37626702] (Immunocytochemistry/ Immunofluorescence)

Cheng YS, Zhang T, Ma X et al. A proteome-wide map of 20(S)-hydroxycholesterol interactors in cell membranes Nature Chemical Biology 2021-12-01 [PMID: 34799735]

Paul D, Stern O, Vallis Y et al. Cell surface protein aggregation triggers endocytosis to maintain plasma membrane proteostasis Nature communications 2023-02-28 [PMID: 36854675] (Immunocytochemistry/ Immunofluorescence, Human)

Rah SY, Joe Y, Park J et al. CD38/ADP-ribose/TRPM2-mediated nuclear Ca2+ signaling is essential for hepatic gluconeogenesis in fasting and diabetes Experimental & molecular medicine 2023-07-01 [PMID: 37394593] (WB, Mouse)

van der Valk WH, van Beelen ESA, Steinhart MR et al. A single-cell level comparison of human inner ear organoids with the human cochlea and vestibular organs Cell reports 2023-06-06 [PMID: 37289589]

More publications at <a href="http://www.novusbio.com/NB300-146">http://www.novusbio.com/NB300-146</a>



### **Procedures**

Immunohistochemistry-Paraffin Protocol for Sodium Potassium ATPase Alpha 1 Antibody (NB300-146) 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 at all times).

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.



### Flow (Intracellular) Protocol for Sodium Potassium ATPase Alpha 1 Antibody (NB300-146)

Protocol for Flow Cytometry Intracellular Staining

Sample Preparation.

1. Grow cells to 60-85% confluency. Flow cytometry requires between 2 x 105 and 1 x 106 cells for optimal performance.

2. If cells are adherent, harvest gently by washing once with staining buffer and then scraping. Avoid using trypsin as this can disrupt certain epitopes of interest. If enzymatic harvest is required, use Accutase, Collagenase, or TrypLE Express for a less damaging option.

3. Reserve 100 uL for counting, then transfer cell volume into a 50 mL conical tube and centrifuge for 8 minutes at 400 RCF.

a. Count cells using a hemocytometer and a 1:1 trypan blue exclusion stain to determine cell viability before starting the flow protocol. If cells appear blue, do not proceed.

4. Re-suspend cells to a concentration of 1 x 106 cells/mL in staining buffer (NBP2-26247).

5. Aliquot out 100 uL samples in accordance with your experimental samples.

Tip: When cell surface and intracellular staining are required in the same sample, it is advisable that the cell surface staining be performed first since the fixation and permeabilization steps might reduce the availability of surface antigens.

Intracellular Staining.

Tip: When performing intracellular staining, it is important to use appropriate fixation and permeabilization reagents based upon the target and its subcellular location. Generally, our Intracellular Flow Assay Kit (NBP2-29450) is a good place to start as it contains an optimized combination of reagents for intracellular staining as well as an inhibitor of intracellular protein transport (necessary if staining secreted proteins). Certain targets may require more gentle or transient permeabilization protocols such as the commonly employed methanol or saponin-based methods. Protocol for Cytoplasmic Targets:

1. Fix the cells by adding 100 uL fixation solution (such as 4% PFA) to each sample for 10-15 minutes.

2. Permeabilize cells by adding 100 uL of a permeabilization buffer to every 1 x 106 cells present in the sample. Mix well and incubate at room temperature for 15 minutes.

a. For cytoplasmic targets, use a gentle permeabilization solution such as 1X PBS + 0.5% Saponin or 1X PBS + 0.5% Tween-20.

b. To maintain the permeabilized state throughout your experiment, use staining buffer + 0.1% of the permeabilization reagent (i.e. 0.1% Tween-20 or 0.1% Saponin).

3. Following the 15 minute incubation, add 2 mL of the staining buffer + 0.1% permeabilizer to each sample.

4. Centrifuge for 1 minute at 400 RCF.

5. Discard supernatant and re-suspend in 100 uL of staining buffer + 0.1% permeabilizer.

6. Add appropriate amount of each antibody (eg. 1 test or 1 ug per sample, as experimentally determined).

7. Mix well and incubate at room temperature for 30 minutes- 1 hour. Gently mix samples every 10-15 minutes.

8. Following the primary/conjugate incubation, add 1-2 mL/sample of staining buffer +0.1% permeabilizer and centrifuge for 1 minute at 400 RCF.

9. Wash twice by re-suspending cells in staining buffer (2 mL for tubes or 200 uL for wells) and centrifuging at 400 RCF for 5 minutes. Discard supernatant.

10. Add appropriate amount of secondary antibody (as experimentally determined) to each sample.

11. Incubate at room temperature in dark for 20 minutes.

12. Add 1-2 mL of staining buffer and centrifuge at 400 RCF for 1 minute and discard supernatant.

13. Wash twice by re-suspending cells in staining buffer (2 mL for tubes or 200 uL for wells) and centrifuging at 400 RCF for 5 minutes. Discard supernatant.

14. Resuspend in an appropriate volume of staining buffer (usually 500 uL per sample) and proceed with analysis on your flow cytometer.



## Immunocytochemistry/Immunofluorescence Protocol for Sodium Potassium ATPase Alpha 1 Antibody (NB300-146)

Immunocytochemistry Protocol

Culture cells to appropriate density in 35 mm culture dishes or 6-well plates.

1. Remove culture medium and wash the cells briefly in PBS. Add 10% formalin to the dish and fix at room temperature for 10 minutes.

2. Remove the formalin and wash the cells in PBS.

3. Permeablize the cells with 0.1% Triton X100 or other suitable detergent for 10 min.

4. Remove the permeablization buffer and wash three times for 10 minutes each in PBS. Be sure to not let the specimen dry out.

5. To block nonspecific antibody binding, incubate in 10% normal goat serum from 1 hour to overnight at room temperature.

6. Add primary antibody at appropriate dilution and incubate overnight at 4C.

7. Remove primary antibody and replace with PBS. Wash three times for 10 minutes each.

8. Add secondary antibody at appropriate dilution. Incubate for 1 hour at room temperature.

9. Remove secondary antibody and replace with PBS. Wash three times for 10 minutes each.

10. Counter stain DNA with DAPi if required.







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## Products Related to NB300-146

NBL1-07807	Sodium Potassium ATPase Alpha 1 Overexpression Lysate
HAF007	Goat anti-Mouse IgG Secondary Antibody [HRP]
NB720-B	Rabbit anti-Mouse IgG (H+L) Secondary Antibody [Biotin]
NBP1-43319-0.5mg	Mouse IgG1 Kappa Isotype Control (P3.6.2.8.1)

### 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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