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NPPA Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8534A

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	P01160
Reactivity	Human, Mouse, Rat
Predicted	Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	16396
Antigen Region	30-56

Additional Information

Gene ID	4878
Other Names	Natriuretic peptides A, CDD-ANF, Prepronatriodilatin, Cardiodilatin-related peptide, CDP, Atrial natriuretic factor, ANF, Atrial natriuretic peptide, ANP, NPPA, ANP, PND
Target/Specificity	This NPPA antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 30-56 amino acids from the N-terminal region of human NPPA.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:25 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	NPPA Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NPPA
Synonyms	ANP, PND

Function	[Atrial natriuretic peptide]: Hormone that plays a key role in mediating cardio-renal homeostasis, and is involved in vascular remodeling and regulating energy metabolism (PubMed:15741263, PubMed:16875975, PubMed:18835931, PubMed:21672517, PubMed:22307324, PubMed:2532366, PubMed:2825692, PubMed:7595132, PubMed:7720651, PubMed:8087923, PubMed:8653797). Acts by specifically binding and stimulating NPR1 to produce cGMP, which in turn activates effector proteins, such as PRKG1, that drive various biological responses (PubMed:1660465, PubMed:1672777, PubMed:21098034, PubMed:2162527, PubMed:22307324, PubMed:2825692, PubMed:7720651, PubMed:8384600, PubMed:9893117). Regulates vasodilation, natriuresis, diuresis and aldosterone synthesis and is therefore essential for regulating blood pressure, controlling the extracellular fluid volume and maintaining the fluid-electrolyte balance (PubMed:2532366, PubMed:2825692, PubMed:7595132, PubMed:7720651, PubMed:8087923, PubMed:8653797). Also involved in inhibiting cardiac remodeling and cardiac hypertrophy by inducing cardiomyocyte apoptosis and attenuating the growth of cardiomyocytes and fibroblasts (PubMed:16875975). Plays a role in female pregnancy by promoting trophoblast invasion and spiral artery remodeling in uterus, and thus prevents pregnancy-induced hypertension (By similarity). In adipose tissue, acts in various cGMP- and PKG- dependent pathways to regulate lipid metabolism and energy homeostasis (PubMed:15741263, PubMed:18835931, PubMed:21672517, PubMed:22307324). This includes up-regulating lipid metabolism and mitochondrial oxygen utilization by activating the AMP-activated protein kinase (AMPK), and increasing energy expenditure by acting via MAPK11 to promote the UCP1- dependent thermogenesis of brown adipose tissue (PubMed:15741263, PubMed:18835931, PubMed:21672517, PubMed:22307324). Binds the clearance receptor NPR3 which removes the hormone from circulation (PubMed:1672777).
Cellular Location	[Long-acting natriuretic peptide]: Secreted. Note=Detected in blood. [Kaliuretic peptide]: Secreted. Note=Detected in blood [Atrial natriuretic peptide]: Secreted. Perikaryon. Cell projection. Note=Detected in blood (PubMed:15741263, PubMed:18835931, PubMed:2532366, PubMed:7955907, PubMed:7984506, PubMed:8351194, PubMed:8653797, PubMed:8779891). Detected in urine in one study (PubMed:8351194). However, in another study, was not detected in urine (PubMed:7984506). Detected in cytoplasmic bodies and neuronal processes of pyramidal neurons (layers II-VI) (PubMed:30534047) Increased secretion in response to the vasopressin AVP (By similarity) Likely to be secreted in response to an increase in atrial pressure or atrial stretch (PubMed:2532366). In kidney cells, secretion increases in response to activated guanylyl cyclases and increased intracellular cAMP levels (PubMed:9893117). Plasma levels increase 15 minutes after a high-salt meal, and decrease back to normal plasma levels 1 hr later (PubMed:8779891). {ECO:0000250|UniProtKB:P01161, ECO:0000269|PubMed:15741263, ECO:0000269|PubMed:18835931, ECO:0000269|PubMed:2532366, ECO:0000269|PubMed:30534047, ECO:0000269|PubMed:7955907, ECO:0000269|PubMed:7984506, ECO:0000269|PubMed:8351194, ECO:0000269|PubMed:8653797, ECO:0000269|PubMed:8779891, ECO:0000269|PubMed:9893117}
Tissue Location	[Urodilatin]: Detected in the kidney distal tubular cells (at protein level) (PubMed:8384600, PubMed:9794555). Present in urine (at protein level) (PubMed:2972874, PubMed:8351194, PubMed:8779891, PubMed:9794555).

Background

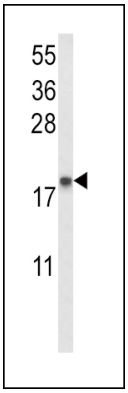
NPPA belongs to the natriuretic peptide family. Natriuretic peptides are implicated in the control of extracellular fluid volume and electrolyte homeostasis. This protein is synthesized as a large

precursor(containing a signal peptide), which is processed to release a peptide from the N-terminus with similarity to vasoactive peptide, cardiodilatin, and another peptide from the C-terminus with natriuretic-diuretic activity.

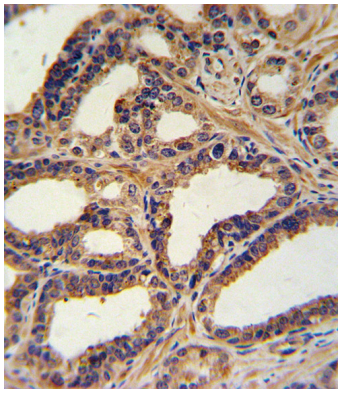
References

Watanabe,Y., et.al., Biochem. Mol. Med. 61 (1), 47-51 (1997)
Suga,S., et.al., Endocrinology 130 (1), 229-239 (1992)

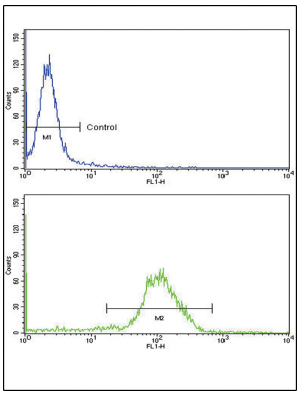
Images



Western blot analysis of NPPA Antibody (N-term) (Cat. #AP8534a) in mouse heart tissue lysates (35ug/lane). NPPA (arrow) was detected using the purified Pab.



Formalin-fixed and paraffin-embedded human prostate carcinoma with NPPA Antibody (N-term), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



Flow cytometric analysis of MDA-231 cells using NPPA Antibody (N-term)(bottom histogram) compared to a negative control cell (top histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

Citations

- Liraglutide ameliorates TAC-induced cardiac hypertrophy and heart failure by upregulating expression level of ANP expression
- Hand2 Selectively Reorganizes Chromatin Accessibility to Induce Pacemaker-like Transcriptional Reprogramming.
- Generation of Nppa-tagBFP reporter knock-in mouse line for studying cardiac chamber specification.
- Induction of diverse cardiac cell types by reprogramming fibroblasts with cardiac transcription factors.

- High content analysis identifies unique morphological features of reprogrammed cardiomyocytes.
- Assessing Cardiomyocyte Subtypes Following Transcription Factor-mediated Reprogramming of Mouse Embryonic Fibroblasts.

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