

# NPR-A (G-2): sc-137041

## BACKGROUND

The natriuretic peptides are a group of structurally similar peptides that are genetically distinct and play a role in several processes, including cardiovascular, renal and endocrine homeostasis. The atrial natriuretic peptide (ANP) and brain natriuretic peptide (BNP) are derived from myocardial cell origin and are cardiac hormones secreted from the atrium and ventricle of the heart, respectively. The C-type natriuretic peptide (CNP) is derived from endothelial cell origin and acts as an endothelium-derived relaxing factor (EDRF). These peptides mediate their effects through three receptors. NPR-A (also designated GC-A) binds both ANP and BNP, which stimulates 3', 5'-cyclic guanosine monophosphate (cGMP) to mediate natriuresis, vasodilation, renin inhibition, antimitogenesis and lusitropic properties. NPR-B (also designated GC-B) binds CNP and also stimulates cGMP to facilitate vasodilation and growth inhibition. NPR-C, also designated the "clearance" receptor, clears all three peptides, which are subsequently degraded by the ectoenzyme neutral endopeptidase. The natriuretic peptide system plays an important role in hypertension, congestive heart failure, atherosclerosis and renal diseases, and may be a therapeutic target in the treatment of these diseases.

## REFERENCES

1. Itoh, H., et al. 1993. Molecular biology and pharmacology of natriuretic peptide system. *Nippon Rinsho* 51: 1548-1556.
2. Itoh, H., et al. 1997. Natriuretic peptide system. *Nippon Rinsho* 55: 1923-1936.

## CHROMOSOMAL LOCATION

Genetic locus: NPR1 (human) mapping to 1q21.3; Npr1 (mouse) mapping to 3 F1.

## SOURCE

NPR-A (G-2) is a mouse monoclonal antibody raised against amino acids 141-265 of NPR-A of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NPR-A (G-2) is available conjugated to agarose (sc-137041 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137041 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137041 PE), fluorescein (sc-137041 FITC), Alexa Fluor<sup>®</sup> 488 (sc-137041 AF488), Alexa Fluor<sup>®</sup> 546 (sc-137041 AF546), Alexa Fluor<sup>®</sup> 594 (sc-137041 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-137041 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-137041 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-137041 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

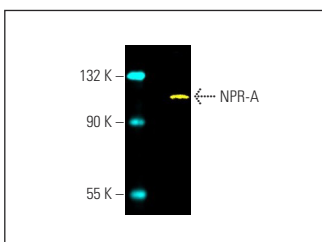
NPR-A (G-2) is recommended for detection of NPR-A of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NPR-A siRNA (h): sc-40125, NPR-A siRNA (m): sc-40126, NPR-A shRNA Plasmid (h): sc-40125-SH, NPR-A shRNA Plasmid (m): sc-40126-SH, NPR-A shRNA (h) Lentiviral Particles: sc-40125-V and NPR-A shRNA (m) Lentiviral Particles: sc-40126-V.

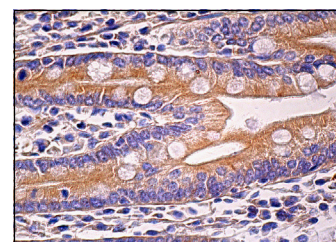
Molecular Weight of NPR-A: 120 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or KNRK whole cell lysate: sc-2214.

## DATA



NPR-A (G-2) Alexa Fluor<sup>®</sup> 488: sc-137041 AF488. Direct fluorescent western blot analysis of NPR-A expression in HeLa whole cell lysate. Blocked with UltraCruz<sup>®</sup> Blocking Reagent: sc-516214. Cruz Marker<sup>™</sup> Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor<sup>®</sup> 647: sc-516791.



NPR-A (G-2): sc-137041. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic staining of glandular cells.

## SELECT PRODUCT CITATIONS

1. Yu, L., et al. 2012. A novel bioassay for the activity determination of therapeutic human brain natriuretic peptide (BNP). *PLoS ONE* 7: e49934.
2. Gu, Y., et al. 2018. Aberrant pro-atrial natriuretic peptide/corin/natriuretic peptide receptor signaling is present in maternal vascular endothelium in preeclampsia. *Pregnancy Hypertens.* 11: 1-6.
3. Li, Z., et al. 2021. Natriuretic peptide receptor promotes gastric malignancy through angiogenesis process. *Cell Death Dis.* 12: 968.
4. Cao, T., et al. 2023. NPR-A promotes fatty acid metabolism and proliferation of gastric cancer cells by binding to PPARα. *Transl. Oncol.* 35: 101734.
5. Huang, Y.M., et al. 2023. Glucocorticoids ameliorate cardiorenal syndrome through the NPR1/SGK1 pathway in natriuretic peptide receptor A-heterozygous mice. *Exp. Ther. Med.* 26: 374.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.