

# Barttin (A-1): sc-271867

## BACKGROUND

The BSND gene encodes Barttin, a protein comprised of two putative transmembrane helices. Barttin expression is detected in the thin limb and thick ascending limb of the loop of Henle in the kidney, and in the dark cells of the inner ear. The BSND gene is mutated in Bartter syndrome, a genetic disease characterized by hypokalemia, metabolic alkalosis and normal to low blood pressure, which occurs with sensorineural deafness, irreversible hearing loss due to cochlear sensorineural or cochlear nerve damage. Barttin acts as an essential  $\beta$  subunit for CLCKNA and CLCKNB chloride channels, with which it co-localizes in basolateral membranes of renal tubules and of potassium-secreting epithelia of the inner ear. Mutations in either CLCKNB or Barttin compromise currents through heteromeric channels that can be stimulated further by mutating a proline-tyrosine (PY) motif on Barttin. Heteromers formed by chloride channels and Barttin are essential for renal salt reabsorption and potassium recycling in the inner ear.

## REFERENCES

- Estevez, R., et al. 2001. Barttin is a Cl<sup>-</sup> channel  $\beta$  subunit crucial for renal Cl<sup>-</sup> reabsorption and inner ear K<sup>+</sup> secretion. *Nature* 414: 558-561.
- Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606412. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Miyamura, N., et al. 2003. Atypical Bartter syndrome with sensorineural deafness with G47R mutation of the  $\beta$  subunit for ClC-Ka and ClC-Kb chloride channels, Barttin. *J. Clin. Endocrinol. Metab.* 88: 781-786.
- Wolf, K., et al. 2003. Parallel downregulation of chloride channel CLC-K1 and Barttin mRNA in the thin ascending limb of the rat nephron by furosemide. *Pflugers Arch.* 446: 665-671.
- Embark, H.M., et al. 2004. Regulation of ClC-Ka/Barttin by the ubiquitin ligase Nedd4-2 and the serum- and glucocorticoid-dependent kinases. *Kidney Int.* 66: 1918-1925.

## CHROMOSOMAL LOCATION

Genetic locus: BSND (human) mapping to 1p32.3; Bsnd (mouse) mapping to 4 C7.

## SOURCE

Barttin (A-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 89-117 near the N-terminus of Barttin of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>3</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-271867 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## RESEARCH USE

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

## APPLICATIONS

Barttin (A-1) is recommended for detection of Barttin isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 Barttin siRNA (h): sc-60245, Barttin siRNA (m): sc-60246, Barttin shRNA Plasmid (h): sc-60245-SH, Barttin shRNA Plasmid (m): sc-60246-SH, Barttin shRNA (h) Lentiviral Particles: sc-60245-V and Barttin shRNA (m) Lentiviral Particles: sc-60246-V.

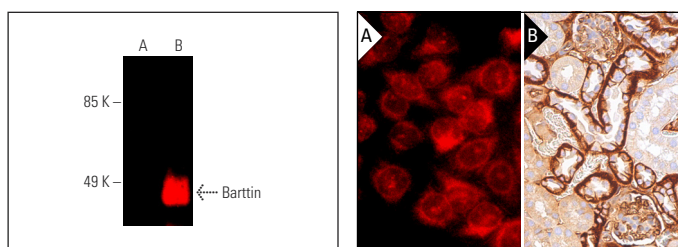
Molecular Weight of Barttin: 35 kDa.

Positive Controls: rat kidney extract: sc-2394 or Barttin (m): 293T Lysate: sc-125028.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



Barttin (A-1): sc-271867. Near-infrared western blot analysis of Barttin expression in non-transfected: sc-117752 (A) and mouse Barttin transfected: sc-125028 (B) 293T whole cell lysates. Blocked with UltraCruz<sup>®</sup> Blocking Reagent: sc-516214. Detection reagent used: m-IgG $\kappa$  BP-CFL 790: sc-516181.

Barttin (A-1): sc-271867. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse kidney tissue showing cytoplasmic staining of cells in glomeruli and membrane and cytoplasmic staining of cells in tubules (B).

## STORAGE

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