SANTA CRUZ BIOTECHNOLOGY, INC.

Prestin (H-294): sc-30163

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The most impressive property of outer hair cells (OHCs) is their ability to change their length at high acoustic frequencies, thus providing the exquisite sensitivity and frequency-resolving capacity of the mammalian hearing organ. Prestin, a transmembrane protein found in the outer hair cells of the cochlea, is related to a sulfate/anion transport protein. In contrast to enzymatic-activity-based motors, Prestin is a direct voltage-to-force converter, which uses cytoplasmic anions as extrinsic voltage sensors and can operate at microsecond rates. Intracellular anions such as chloride or bicarbonate are essential for Prestin to function as the OHC motor molecule. As Prestin mediates changes in outer hair cell length in response to membrane potential variations, it may be responsible for sound amplification in the mammalian hearing organ. Additionally, the voltage sensitivity of Prestin is markedly temperature dependent.

REFERENCES

1. Meltzer, J., et al. 2001. Temperature dependence of non-linear capacitance in human embryonic kidney cells transfected with Prestin, the outer hair cell motor protein. Neurosci. Lett. 313: 141-144.
2. Weber, T., et al. 2002. Thyroid hormone is a critical determinant for the regulation of the cochlear motor protein Prestin. Proc. Natl. Acad. Sci. USA 99: 2901-2906.
3. Dallos, P., et al. 2002. Prestin, a new type of motor protein. Nat. Rev. Mol. Cell Biol. 3: 104-111.
4. Zheng, J., et al. 2002. Prestin, the motor protein of outer hair cells. Audiol. Neurootol. 7: 9-12.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604943: World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: PRES (human) mapping to 7q22.1; Pres (mouse) mapping to 5 A3.

SOURCE

Prestin (H-294) is a rabbit polyclonal antibody raised against amino acids 529-744 mapping at the C-terminus of Prestin of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

Prestin (H-294) is recommended for detection of Prestin isoforms 1-3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Prestin (H-294) is also recommended for detection of Prestin isoforms 1-3 in additional species, including canine.

Suitable for use as control antibody for Prestin siRNA (h): sc-40991, Prestin siRNA (m): sc-40992, Prestin shRNA Plasmid (h): sc-40991-SH, Prestin shRNA Plasmid (m): sc-40992-SH, Prestin shRNA (h) Lentiviral Particles: sc-40991-V and Prestin shRNA (m) Lentiviral Particles: sc-40992-V.

Molecular Weight of Prestin: 81 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Yu, L., et al. 2011. A protective mechanism against antibiotic-induced ototoxicity: role of prestin. PLoS ONE 6: e17322.

RESEARCH USE

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