SANTA CRUZ BIOTECHNOLOGY, INC.

Prestin (N-20): sc-22692

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.

CHROMOSOMAL LOCATION

Genetic locus: SLC26A5 (human) mapping to 7q22.1; Slc26a5 (mouse) mapping to 5 A3.

SOURCE

Prestin (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-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.

Blocking peptide available for competition studies, sc-22692 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Prestin (N-20) is recommended for detection of Prestin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 (N-20) is also recommended for detection of Prestin in additional species, including canine, bovine and porcine.

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 donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Nagy, I., et al. 2005. Promyelocytic leukemia zinc finger protein localizes to the cochlear outer hair cells and interacts with Prestin, the outer hair cell motor protein. Hear. Res. 204: 216-222.
2. Abrashkin, K.A., et al. 2006. The fate of outer hair cells after acoustic or ototoxic insults. Hear. Res. 218: 20-29.
3. Gao, J., et al. 2007. Prestin-based outer hair cell electromotility in knockin mice does not appear to adjust the operating point of a cilia-based amplifier. Proc. Natl. Acad. Sci. USA 104: 12542-12547.
4. Wu, X., et al. 2007. Prestin-prestin and prestin-GLUT5 interactions in HEK293T cells. Dev. Neurobiol. 67: 483-497.
5. McLean, W.J., et al. 2009. Distribution of the Na, K-ATPase α subunit in the rat spiral ganglion and organ of corti. J. Assoc. Res. Otolaryngol. 10: 37-49.
6. Mustapha, M., et al. 2009. Deafness and permanently reduced potassium channel gene expression and function in hypothyroid Pit1dw mutants. J. Neurosci. 29: 1212-1223.
7. McGuire, R.M., et al. 2010. Cysteine mutagenesis reveals transmembrane residues associated with charge translocation in prestin. J. Biol. Chem. 285: 3103-3113.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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