

Prestin (1F4): sc-293212

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

- Meltzer, J. and Santos-Sacchi, J. 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.
- Weber, T., Zimmermann, U., Winter, H., Mack, A., Kopschall, I., Rohbock, K., Zenner, H.P. and Knipper, M. 2002. Thyroid hormone is a critical determinant for the regulation of the cochlear motor protein Prestin. *Proc. Natl. Acad. Sci. USA* 99: 2901-2906.
- Dallos, P. and Fakler, B. 2002. Prestin, a new type of motor protein. *Nat. Rev. Mol. Cell Biol.* 3: 104-111.
- Zheng, J., Madison, L.D., Oliver, D., Fakler, B. and Dallos, P. 2002. Prestin, the motor protein of outer hair cells. *Audiol. Neurootol.* 7: 9-12.
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CHROMOSOMAL LOCATION

Genetic locus: SLC26A5 (human) mapping to 7q22.1.

SOURCE

Prestin (1F4) is a mouse monoclonal antibody raised against amino acids 645-742 of Prestin of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain 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 for detailed protocols and support products.

APPLICATIONS

Prestin (1F4) is recommended for detection of Prestin of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

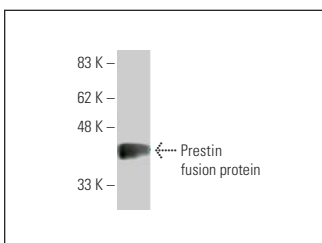
Suitable for use as control antibody for Prestin siRNA (h): sc-40991, Prestin shRNA Plasmid (h): sc-40991-SH and Prestin shRNA (h) Lentiviral Particles: sc-40991-V.

Molecular Weight of Prestin: 81 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® 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).

DATA



Prestin (1F4): sc-293212. Western blot analysis of human recombinant Prestin fusion protein.

SELECT PRODUCT CITATIONS

- Kong, L., Xin, Y., Chi, F., Chen, J. and Yang, J. 2020. Developmental and functional hair cell-like cells induced by Atoh1 overexpression in the adult mammalian cochlea *in vitro*. *Neural Plast.* 2020: 8885813.
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RESEARCH USE

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