SANTA CRUZ BIOTECHNOLOGY, INC.

Otoconin 90 (D-2): sc-376855



BACKGROUND

The ability to sense orientation relative to gravity requires dense particles, called otoconia, which are localized in the vestibular macular organs. In mammals, otoconia are composed of proteins (otoconins) and calcium carbonate crystals in a calcite lattice. Otoconin 90, also known as PLA2L (phospholipase A₂ homolog) or OC90, is a 493 amino acid secreted protein belonging to the phospholipase A₂ family. Consisting of three PA2-type domains, Otoconin 90 regulates the growth of otoconia crystals. The inertial mass of otoconia crystals provides a shearing force to stimulate the mechanoreceptors of the utricle and saccule (the gravity receptor organ) under the stimuli of linear motion. Otoconin 90 specifically recruits other matrix components, which are essential for formation of the organic matrix of otoconia. Otoconin 90 is encoded by a gene located on human chromosome 8, which consists of nearly 146 million base pairs, houses more than 800 genes and is associated with a variety of diseases and malignancies.

REFERENCES

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- 2. Kowalski, P.E., et al. 1999. Intergenic splicing between a HERV-H endogenous retrovirus and two adjacent human genes. Genomics 57: 371-379.
- 3. Thalmann, R., et al. 2001. Development and maintenance of otoconia: biochemical considerations. Ann. N.Y. Acad. Sci. 942: 162-178.
- 4. Ignatova, E.G., et al. 2004. Molecular mechanisms underlying ectopic otoconia-like particles in the endolymphatic sac of embryonic mice. Hear. Res. 194: 65-72.
- 5. Kiss, P.J., et al. 2006. Inactivation of NADPH oxidase organizer 1 results in severe imbalance. Curr. Biol. 16: 208-213.
- 6. Zhao, X., et al. 2007. Gene targeting reveals the role of Oc90 as the essential organizer of the otoconial organic matrix. Dev. Biol. 304: 508-524.
- 7. Petko, J.A., et al. 2008. Otoc1: a novel Otoconin 90 ortholog required for otolith mineralization in zebrafish. Dev. Neurobiol. 68: 209-222.

CHROMOSOMAL LOCATION

Genetic locus: OC90 (human) mapping to 8q24.22; Oc90 (mouse) mapping to 15 D1.

SOURCE

Otoconin 90 (D-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 115-147 within an internal region of Otoconin 90 of human origin.

PRODUCT

Each vial contains 200 µg IgM 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-376855 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Otoconin 90 (D-2) is recommended for detection of Otoconin 90 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Otoconin 90 (D-2) is also recommended for detection of Otoconin 90 in additional species, including bovine.

Suitable for use as control antibody for Otoconin 90 siRNA (h): sc-77683, Otoconin 90 siRNA (m): sc-151341, Otoconin 90 shRNA Plasmid (h): sc-77683-SH, Otoconin 90 shRNA Plasmid (m): sc-151341-SH, Otoconin 90 shRNA (h) Lentiviral Particles: sc-77683-V and Otoconin 90 shRNA (m) Lentiviral Particles: sc-151341-V.

Molecular Weight of Otoconin 90: 50 kDa.

Molecular Weight of glycosylated Otoconin 90: 90 kDa.

Positive Controls: mouse brain extract: sc-2253 or HeLa whole cell lysate: sc-2200 or IMR-32 cell lysate: sc-2409.

DATA





Otoconin 90 (D-2): sc-376855. Western blot analysis of Otoconin 90 (D-2): sc-376855. Immunofluorescence Otoconin 90 expression in Neuro-2A (A). HeLa (B) and IMR-32 (C) whole cell lysates and mouse brain (D) and rat brain (E) tissue extracts.

staining of methanol-fixed HeLa cells showing cyto plasmic and membrane localization.

SELECT PRODUCT CITATIONS

1. Yang, H., et al. 2018. Estradiol deficiency is a risk factor for idiopathic benign paroxysmal positional vertigo in postmenopausal female patients. Laryngoscope 128: 948-953.

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 for detailed protocols and support products.