

Otoconin 90 (D-7): sc-376744

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

1. Wang, Y., et al. 1998. Otoconin-90, the mammalian otoconial matrix protein, contains two domains of homology to secretory phospholipase A₂. *Proc. Natl. Acad. Sci. USA* 95: 15345-15350.
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.

CHROMOSOMAL LOCATION

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

SOURCE

Otoconin 90 (D-7) 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 IgG_{2b} 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-376744 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

Otoconin 90 (D-7) 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-7) 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.

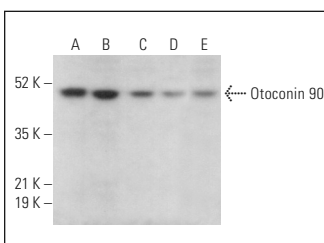
Molecular Weight of glycosylated Otoconin 90: 90 kDa.

Positive Controls: THP-1 cell lysate: sc-2238, HeLa whole cell lysate: sc-2200 or SH-SY5Y cell lysate: sc-3812.

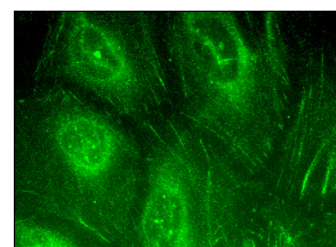
RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Otoconin 90 (D-7): sc-376744. Western blot analysis of Otoconin 90 expression in THP-1 (A), HeLa (B), SH-SY5Y (C), J774.A1 (D) and NIH/3T3 (E) whole cell lysates.



Otoconin 90 (D-7): sc-376744. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and membrane localization.

SELECT PRODUCT CITATIONS

1. Pearlman, A., et al. 2019. Ectopic Otoconin 90 expression in triple negative breast cancer cell lines is associated with metastasis functions. *PLoS ONE* 14: e0211737.

RESEARCH USE

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