

# Myosin IIIa (RR-8): sc-100953

## BACKGROUND

Myosins are highly conserved, ubiquitously expressed proteins that interact with Actin to generate the force for cellular movements. The human genome encodes over 40 different Myosin genes which are divided into distinct classes, the most notable of which are the conventional Myosins (class II) and the unconventional Myosins (classes I and III through XV). Myosin IIIa, also known as MYO3A or DFNB30, is a 1,616 amino acid class III Myosin that contains one protein kinase domain, one Myosin head-like domain and 3 IQ domains. Highly expressed in pancreas, cochlea and retinal pigment cells, Myosin IIIa is thought to function as an Actin-based motor that may play a role in both vision and hearing. Additionally, via its protein kinase domain, Myosin IIIa is able to catalyze the ATP-dependent phosphorylation of a variety of target proteins. Defects in the gene encoding Myosin IIIa are the cause of non-syndromic sensorineural deafness autosomal recessive type 30 (DFNB30), a form of hearing loss that is caused by damage to neural receptors in the brain or inner ear.

## REFERENCES

1. Dose, A.C. and Burnside, B. 2000. Cloning and chromosomal localization of a human class III Myosin. *Genomics* 67: 333-342.
2. Walsh, T., et al. 2002. From flies' eyes to our ears: mutations in a human class III Myosin cause progressive nonsyndromic hearing loss DFNB30. *Proc. Natl. Acad. Sci. USA* 99: 7518-7523.
3. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606808. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Komaba, S., et al. 2003. Determination of human Myosin III as a motor protein having a protein kinase activity. *J. Biol. Chem.* 278: 21352-21360.
5. Les Erickson, F., et al. 2003. Localization of a class III Myosin to filopodia tips in transfected HeLa cells requires an Actin-binding site in its tail domain. *Mol. Biol. Cell* 14: 4173-4180.
6. Kambara, T., et al. 2006. Human Myosin III is a motor having an extremely high affinity for Actin. *J. Biol. Chem.* 281: 37291-37301.
7. Schneider, M.E., et al. 2006. A new compartment at stereocilia tips defined by spatial and temporal patterns of Myosin IIIa expression. *J. Neurosci.* 26: 10243-10252.
8. Dose, A.C., et al. 2007. Kinetic mechanism of human Myosin IIIa. *J. Biol. Chem.* 282: 216-231.
9. Dose, A.C., et al. 2008. The kinase domain alters the kinetic properties of the Myosin IIIa motor. *Biochemistry* 47: 2485-2496.

## CHROMOSOMAL LOCATION

Genetic locus: MYO3A (human) mapping to 10p12.1; Myo3a (mouse) mapping to 2 A3.

## SOURCE

Myosin IIIa (RR-8) is a mouse monoclonal antibody raised against recombinant Myosin IIIa of human origin.

## PRODUCT

Each vial contains 50 µg IgG<sub>2b</sub> kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Myosin IIIa (RR-8) is recommended for detection of Myosin IIIa of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:100-1:5000).

Suitable for use as control antibody for Myosin IIIa siRNA (h): sc-90539, Myosin IIIa siRNA (m): sc-149758, Myosin IIIa shRNA Plasmid (h): sc-90539-SH, Myosin IIIa shRNA Plasmid (m): sc-149758-SH, Myosin IIIa shRNA (h) Lentiviral Particles: sc-90539-V and Myosin IIIa shRNA (m) Lentiviral Particles: sc-149758-V.

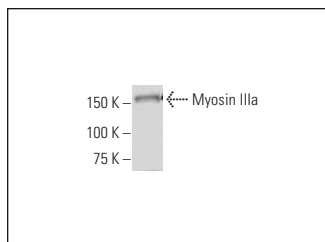
Molecular Weight of Myosin IIIa: 209 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

## 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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



Myosin IIIa (RR-8): sc-100953. Western blot analysis of Myosin IIIa expression in HeLa nuclear extract.

## 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](http://www.scbt.com) for detailed protocols and support products.