

# Muscle Actin (HHF35): sc-53014

## BACKGROUND

All eukaryotic cells express Actin, which often constitutes as much as 50% of total cellular protein. Actin filaments can form both stable and labile structures and are crucial components of microvilli and the contractile apparatus of muscle cells. While lower eukaryotes, such as yeast, have only one Actin gene, higher eukaryotes have several isoforms encoded by a family of genes. At least six types of Actin are present in mammalian tissues and fall into three classes.  $\alpha$ -Actin expression is limited to various types of muscle, whereas  $\beta$ - and  $\gamma$ -Actin are the principle constituents of filaments in other tissues. Members of the small GTPase family regulate the organization of the Actin cytoskeleton. Rho controls the assembly of Actin stress fibers and focal adhesion, Rac regulates Actin filament accumulation at the plasma membrane and Cdc42 stimulates formation of filopodia.

## REFERENCES

1. Tsukada, T., et al. 1987. HHF35, a Muscle-Actin-specific monoclonal antibody. I. Immunocytochemical and biochemical characterization. *Am. J. Pathol.* 126: 51-60.
2. Tsukada, T., et al. 1987. HHF35, a Muscle Actin-specific monoclonal antibody. II. Reactivity in normal, reactive, and neoplastic human tissues. *Am. J. Pathol.* 127: 389-402.
3. Miettinen, M. 1988. Antibody specific to Muscle Actins in the diagnosis and classification of soft tissue tumors. *Am. J. Pathol.* 130: 205-215.
4. Schmidt, R.A., et al. 1988. Diagnosis of rhabdomyosarcomas with HHF35, a monoclonal antibody directed against Muscle Actins. *Am. J. Pathol.* 131: 19-28.
5. Doolittle, R.F. 1995. The origins and evolution of eukaryotic proteins. *Philos. Trans. R. Soc. Lond., B, Biol. Sci.* 349: 235-240.
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7. Schutt, C.E., et al. 1995. A discourse on modeling F-Actin. *J. Struct. Biol.* 115: 186-198.
8. Nobes, C.D., et al. 1995. Rho, Rac, and Cdc42 GTPases regulate the assembly of multimolecular focal complexes associated with Actin stress fibers, lamellipodia, and filopodia. *Cell* 81: 53-62.
9. Barkalow, K., et al. 1995. Actin cytoskeleton. Setting the pace of cell movement. *Curr. Biol.* 5: 1000-1002.

## CHROMOSOMAL LOCATION

Genetic locus: ACTG2 (human) mapping to 2p13.1; Actg2 (mouse) mapping to 6 C3.

## SOURCE

Muscle Actin (HHF35) is a mouse monoclonal antibody raised against myocardium of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

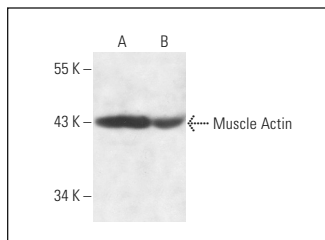
Muscle Actin (HHF35) is recommended for detection of muscle specific  $\alpha$  and  $\gamma$  Actin isomers of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with  $\beta$  Actin isomers.

Suitable for use as control antibody for Actin siRNA (h): sc-29191, Actin siRNA (m): sc-29192, Actin shRNA Plasmid (h): sc-29191-SH, Actin shRNA Plasmid (m): sc-29192-SH, Actin shRNA (h) Lentiviral Particles: sc-29191-V and Actin shRNA (m) Lentiviral Particles: sc-29192-V.

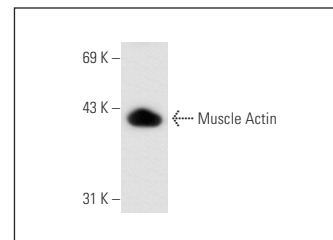
Molecular Weight of Muscle Actin: 43 kDa.

Positive Controls: A-10 cell lysate: sc-3806, A-431 whole cell lysate: sc-2201 or HeLa whole cell lysate: sc-2200.

## DATA



Muscle Actin (HHF35): sc-53014. Western blot analysis of Muscle Actin expression in A-10 whole cell lysate (A,B) under reducing (A) and non-reducing (B) conditions.



Muscle Actin (HHF35): sc-53014. Western blot analysis of Muscle Actin expression in HeLa whole cell lysate.

## SELECT PRODUCT CITATIONS

1. de Andrade, C.R., et al. 2011. Quiescensulfhydryl oxidase (QSOX) is expressed in the human atheroma core: possible role in apoptosis. *In Vitro Cell. Dev. Biol. Anim.* 47: 716-727.
2. Servato, J.P.S., et al. 2017. Ameloblastic fibrosarcoma: a case report and literature review. *Braz. Dent. J.* 28: 262-272.
3. Dos Santos, J.N., et al. 2018. Odontogenic carcinosarcoma: morphologic and immunohistochemical description of a case. *Oral Surg. Oral Med. Oral Pathol. Oral Radiol.* 126: e264-e270.

## STORAGE

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