

# Atlastin (E-9): sc-376619

## BACKGROUND

Atlastins are Golgi-localized, integral membrane proteins that function as GTPases. The Atlastin proteins, also designated SPG3A and guanylate-binding protein 3, comprise a Dynamin superfamily that plays a role in axonal maintenance. Hereditary spastic paraplegia (HSP) is an inherited neurodegenerative disorder that is characterized by retrograde axonal degeneration. HSP primarily affects long corticospinal neurons and causes spastic lower extremity weakness. Spastin, a microtubule (MT)-severing AAA ATPase, is a binding partner of Atlastin that is involved in membrane dynamics. This Spastin/Atlastin binding may be involved in the biochemical pathway that leads to HSP development. Mutations in the Atlastin gene (SPG3A) account for approximately 10% of all autosomal dominant HSPs, while mutations in the Spastin gene (SPG4) account for almost 40%.

## REFERENCES

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2. Elliott, J.L. 2004. Beginning to understand hereditary spastic paraplegia Atlastin. *Arch. Neurol.* 61: 1842-1843.
3. Dürr, A., et al. 2004. Atlastin1 mutations are frequent in young-onset autosomal dominant spastic paraplegia. *Arch. Neurol.* 61: 1867-1872.
4. Abel, A., et al. 2004. Early onset autosomal dominant spastic paraplegia caused by novel mutations in SPG3A. *Neurogenetics* 5: 239-243.
5. Hedera, P., et al. 2005. Spinal cord magnetic resonance imaging in autosomal dominant hereditary spastic paraplegia. *Neuroradiology* 47: 730-734.
6. Scarano, V., et al. 2005. The R495W mutation in SPG3A causes spastic paraplegia associated with axonal neuropathy. *J. Neurol.* 252: 901-903.
7. Park, S.Y., et al. 2005. Mutation analysis of SPG4 and SPG3A genes and its implication in molecular diagnosis of Korean patients with hereditary spastic paraplegia. *Arch. Neurol.* 62: 1118-1121.
8. Evans, K., et al. 2006. Interaction of two hereditary spastic paraplegia gene products, Spastin and Atlastin, suggests a common pathway for axonal maintenance. *Proc. Natl. Acad. Sci. USA* 103: 10666-10671.

## CHROMOSOMAL LOCATION

Genetic locus: ATL1 (human) mapping to 14q22.1.

## SOURCE

Atlastin (E-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 525-550 at the C-terminus of Atlastin of human origin.

## STORAGE

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

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376619 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

Atlastin (E-9) is recommended for detection of Atlastin of 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).

Suitable for use as control antibody for Atlastin siRNA (h): sc-60225, Atlastin shRNA Plasmid (h): sc-60225-SH and Atlastin shRNA (h) Lentiviral Particles: sc-60225-V.

Molecular Weight of Atlastin: 64 kDa.

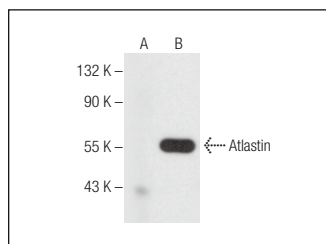
Positive Controls: human platelet extract: sc-363773 or Atlastin (h): 293 Lysate: sc-111145.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgG<sub>λ</sub> BP-HRP: sc-516132 or m-IgG<sub>λ</sub> BP-HRP (Cruz Marker): sc-516132-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-IgG<sub>λ</sub> BP-FITC: sc-516185 or m-IgG<sub>λ</sub> BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



Atlastin (E-9): sc-376619. Western blot analysis of Atlastin expression in non-transfected: sc-110760 (A) and human Atlastin transfected: sc-111145 (B) 293 whole cell lysates.

## RESEARCH USE

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