

# p-Presenilin 1 (Ser 353/357): sc-16795

## BACKGROUND

Presenilin 1 (known also as S182) maps to the AD3 locus of chromosome 14q24.2. Mutations in the gene encoding Presenilin 1 are linked to early-onset Alzheimer's disease. GSK-3 $\beta$  phosphorylates Presenilin 1 at Ser 353 and Ser 357. Substitution of one or both of these residues reduces the association of Presenilin 1 and  $\beta$ -catenin. A highly related protein, designated Presenilin 2 (also known as murine ALG-3), shares 80% amino acid sequence identity with Presenilin 1. Presenilin 1 and Presenilin 2 have similar structures and represent members of the seven transmembrane receptor superfamily. Families who suffer from an inherited form of early-onset Alzheimer's disease often carry point mutations in the gene encoding human Presenilin 2. Whether these proteins function as ligand-gated ion channels or G protein-coupled receptors has yet to be resolved.

## REFERENCES

- Bird, T.D., Lampe, T.H., Nemens, E.J., Miner, G.W., Sumi, S.M. and Schellenberg, G.D. 1988. Familial Alzheimer's disease in American descendants of the Volga Germans: probable genetic founder effect. *Ann. Neurol.* 23: 25-31.
- Sherrington, R., Rogaev, E.I., Liang, Y., Rogaeva, E.A., Levesque, G., Ikeda, M., Chi, H., Lin, C., Li, G., Holman, K., Tsuda, T., Mar, L., Foncin, J.-F., Bruni, A.C., Montesi, M.P., Sorbi, S., Rainero, I., Pinessi, L., Nee, L., Chumakov, I., Pollen, D., Brookes, A., Sanseau, P., et al. 1995. Cloning of a gene bearing missense mutations in early-onset familial Alzheimer's disease. *Nature* 375: 754-760.
- Alzheimer's Disease Collaborative Group. 1995. The structure of the Presenilin 1 (S182) gene and identification of six novel mutations in early onset AD families. *Nat. Genet.* 11: 219-222.
- Rogaev, E.I., Sherrington, R., Rogaeva, E.A., Levesque, G., Ikeda, M., Liang, Y., Chi, H., Lin, C., Holman, K., Tsuda, T., Mar, L., Sorbi, S., Nacmias, B., Piacentini, S., Amaducci, L., Chumakov, I., Cohen, D., Lannfelt, L., Fraser, P.E., Rommens, J.M. and St. George-Hyslop, P.H. 1995. Familial Alzheimer's disease in kindreds with missense mutations in a gene on chromosome 1 related to the Alzheimer's disease type 3 gene. *Nature* 376: 775-778.
- Levy-Lahad, E., Wasco, W., Poorkaj, P., Romano, D.M., Oshima, J., Pettingell, W.H., Yu, C.E., Jondro, P.D., Schmidt, S.D., Wang, K., Crowley, A.C., Fu, Y.-H., Guenette, S.Y., Galas, D., Nemens, E., Wijsman, E.M., Bird, T.D., Schellenberg, G.D. and Tanzi, R.E. 1995. Candidate gene for the chromosome 1 familial Alzheimer's disease locus. *Science* 269: 973-977.
- Kireschenbaum, F., Hsu, S.C., Cordell, B. and McCarthy, J.V. 2001. Substitution of a glycogen synthase kinase-3 $\beta$  phosphorylation site in Presenilin 1 separates Presenilin function from  $\beta$ -catenin signaling. *J. Biol. Chem.* 276: 7366-7375.

## CHROMOSOMAL LOCATION

Genetic locus: PSEN1 (human) mapping to 14q24.2; Psen1 (mouse) mapping to 12 D1.

## RESEARCH USE

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

## SOURCE

p-Presenilin 1 (Ser 353/357) is available as either goat (sc-16795) or rabbit (sc-16795-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Ser 353 and 357 phosphorylated Presenilin 1 of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-16795 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

p-Presenilin 1 (Ser 353/357) is recommended for detection of Ser 353 and 357 dually phosphorylated Presenilin 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

p-Presenilin 1 (Ser 353/357) is also recommended for detection of correspondingly phosphorylated Presenilin 1 in additional species, including avian.

Suitable for use as control antibody for Presenilin 1 siRNA (h): sc-36312, Presenilin 1 siRNA (m): sc-36313, Presenilin 1 shRNA Plasmid (h): sc-36312-SH, Presenilin 1 shRNA Plasmid (m): sc-36313-SH, Presenilin 1 shRNA (h) Lentiviral Particles: sc-36312-V and Presenilin 1 shRNA (m) Lentiviral Particles: sc-36313-V.

Molecular Weight of p-Presenilin 1: 47 kDa.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.