

## Delta-3 (G-16): sc-66516

### BACKGROUND

The LIN-12/Notch family of transmembrane receptors is believed to play a central role in development by regulating cell fate decisions. Notch can be activated by several ligands including Jagged1, Jagged2 and the Delta family of proteins. Delta-3, also known as DLL3 (*Drosophila* Delta homolog 3) or SCDO1, is a single-pass type I membrane protein that can bind to and activate Notch receptors. Required to divert neurons along their specified differentiation pathways, Delta-3 can inhibit primary neurogenesis and assist in forming somite boundaries during paraxial mesoderm segmentation. Delta-3 contains six EGF-like domains, one transmembrane domain and one DSL domain which is required for proper binding to the Notch receptor. Ubiquitination by Skeleto-phosphin (also known as MIB2, mindbomb homolog 2) leads to endocytosis and subsequent degradation of Delta-3. Defects in the gene encoding Delta-3 are the cause of autosomal recessive spondylocostal dysostosis type 1 (SCDO1), a condition characterized by rib fusions and multiple hemivertebrae.

### REFERENCES

1. Bulman, M.P., et al. 2000. Mutations in the human Delta homologue, DLL3, cause axial skeletal defects in spondylocostal dysostosis. *Nat. Genet.* 24: 438-441.
2. Turnpenny, P.D., et al. 2003. Novel mutations in DLL3, a somitogenesis gene encoding a ligand for the Notch signalling pathway, cause a consistent pattern of abnormal vertebral segmentation in spondylocostal dysostosis. *J. Med. Genet.* 40: 333-339.
3. Maisenbacher, M.K., et al. 2005. Molecular analysis of congenital scoliosis: a candidate gene approach. *Hum. Genet.* 116: 416-419.
4. Ladi, E., et al. 2005. The divergent DSL ligand Dll3 does not activate Notch signaling but cell autonomously attenuates signaling induced by other DSL ligands. *J. Cell Biol.* 170: 983-992.
5. Chen, J., et al. 2006. Expression of Notch signaling pathway genes in mouse embryos lacking  $\beta$ -galactosyltransferase-1. *Gene Expr. Patterns* 6: 376-382.
6. Giampietro, P.F., et al. 2006. DLL3 as a candidate gene for vertebral malformations. *Am. J. Med. Genet. A* 140: 2447-2453.
7. Geffers, I., et al. 2007. Divergent functions and distinct localization of the Notch ligands DLL1 and DLL3 *in vivo*. *J. Cell Biol.* 178: 465-476.
8. Hartman, B.H., et al. 2007. DLL3 is expressed in developing hair cells in the mammalian cochlea. *Dev. Dyn.* 236: 2875-2883.
9. Loomes, K.M., et al. 2007. DLL3 and Notch1 genetic interactions model axial segmental and craniofacial malformations of human birth defects. *Dev. Dyn.* 236: 2943-2951.

### CHROMOSOMAL LOCATION

Genetic locus: DLL3 (human) mapping to 19q13.2.

### SOURCE

Delta-3 (G-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Delta-3 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-66516 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

Delta-3 (G-16) is recommended for detection of Delta-3 of 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).

Delta-3 (G-16) is also recommended for detection of Delta-3 in additional species, including bovine and porcine.

Suitable for use as control antibody for Delta-3 siRNA (h): sc-62206, Delta-3 shRNA Plasmid (h): sc-62206-SH and Delta-3 shRNA (h) Lentiviral Particles: sc-62206-V.

Molecular Weight of Delta-3: 65 kDa.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### 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) or our catalog for detailed protocols and support products.