

# DSCR 2 (L-15): sc-83245

## BACKGROUND

An extra copy of chromosome 21, the smallest human autosome chromosome, results in Down syndrome. The Down Syndrome critical region (DSCR) maps specifically to chromosome 21q22.2 and includes several genes which are likely associated with the pathogenesis of Down syndrome. DSCR 2 (down syndrome critical region protein 2), also known as Proteasome assembly chaperone 1, is a 288 amino acid protein that acts as a 20S proteasome-assembling chaperone and forms heterodimers with 20S proteasome precursors. Interestingly, DSCR 2 inhibits transcription of PPAR $\beta$  and co-expression of these two proteins leads to the formation of DSCR 2 aggregates. With expression in adult colon, leukocytes, brain, testis and breast, DSCR 2 is localized to the endoplasmic reticulum and cytoplasm. There are two isoforms of DSCR 2 that exist as a result of alternative splicing events.

## REFERENCES

1. Vidal-Taboada, J.M., Sanz, S., Egea, A., Scartezzini, P. and Oliva, R. 1998. Identification and characterization of a new gene from human chromosome 21 between markers D21S343 and D21S268 encoding a leucine-rich protein. *Biochem. Biophys. Res. Commun.* 250: 547-554.
2. Vidal-Taboada, J.M., Lu, A., Pique, M., Pons, G., Gil, J. and Oliva, R. 2000. Down syndrome critical region gene 2: expression during mouse development and in human cell lines indicates a function related to cell proliferation. *Biochem. Biophys. Res. Commun.* 272: 156-163.
3. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605296. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Possik, P.A., Sommer, C.A., Issa Hori, J., Machado-Santelli, G.M., Jamur, M.C. and Henrique-Silva, F. 2004. DSCR 2, a Down syndrome critical region protein, is localized to the endoplasmic reticulum of mammalian cells. *Eur. J. Histochem.* 48: 267-272.
5. Vesa, J., Brown, Y., Greenfield, D. and Korenberg, J.R. 2005. Molecular and cellular characterization of the Down syndrome critical region protein 2. *Biochem. Biophys. Res. Commun.* 328: 235-242.
6. Hirano, Y., Hendil, K.B., Yashiroda, H., Iemura, S., Nagane, R., Hioki, Y., Natsume, T., Tanaka, K. and Murata, S. 2005. A heterodimeric complex that promotes the assembly of mammalian 20S proteasomes. *Nature* 437: 1381-1385.
7. Le Tallec, B., Barrault, M.B., Courbeyrette, R., Guerois, R., Marsolier-Kergoat, M.C. and Peyroche, A. 2007. 20S proteasome assembly is orchestrated by two distinct pairs of chaperones in yeast and in mammals. *Mol. Cell* 27: 660-674.
8. Einfeld, S., Götz, J. and Holsinger, R.M. 2008. Pathogenetic mechanisms in Down Syndrome. *J. Intellect. Disabil. Res.* 52: 813.

## CHROMOSOMAL LOCATION

Genetic locus: PSMG1 (human) mapping to 21q22.2; Psmg1 (mouse) mapping to 16 C4.

## SOURCE

DSCR 2 (L-15) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of DSCR 2 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-83245 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

DSCR 2 (L-15) is recommended for detection of DSCR 2 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); non cross-reactive with other DSCR family members.

DSCR 2 (L-15) is also recommended for detection of DSCR 2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for DSCR 2 siRNA (h): sc-91490, DSCR 2 siRNA (m): sc-143175, DSCR 2 shRNA Plasmid (h): sc-91490-SH, DSCR 2 shRNA Plasmid (m): sc-143175-SH, DSCR 2 shRNA (h) Lentiviral Particles: sc-91490-V and DSCR 2 shRNA (m) Lentiviral Particles: sc-143175-V.

Molecular Weight of DSCR 2 precursor: 43 kDa.

Molecular Weight of DSCR 2 mature form: 41 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> 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.