

# NG2 (9.2.27): sc-80003

## BACKGROUND

NG2 (also known as melanoma-associated chondroitin sulfate proteoglycan 4, MCSP, MCSPG, MSK16 and MEL-CSPG) stabilizes cell-substratum interactions during early events of melanoma cell spreading on endothelial basement membranes. NG2 may facilitate primary melanoma progression by enhancing the activation of key signaling pathways important for tumor invasion and growth. Threonine 2256 phosphorylation of rat NG2 (Threonine 2252 phosphorylation of human NG2) leads to redistribution of NG2 on the surface of astrocytomas, polarization of the cell and a significant increase in cell motility. NG2 acts as a co-receptor for spreading and focal contact formation in association with  $\alpha 4 \beta 1$  integrin in malignant melanoma cells. NG2 is present on blood vessels throughout the rat embryo. Microvessels within the rat CNS express NG2 on endothelial cells, and outside the CNS, NG2 is present on smooth muscle cells. NG2 is a novel marker for epidermal stem cells that contributes to their patterned distribution by promoting stem cell clustering.

## REFERENCES

1. Iida, J., et al. 1995. Spreading and focal contact formation of human melanoma cells in response to the stimulation of both melanoma-associated proteoglycan (NG2) and  $\alpha 4/\beta 1$  Integrin. *Cancer Res.* 55: 2177-2185.
2. Grako, K.A., et al. 1995. Participation of the NG2 proteoglycan in rat aortic smooth muscle cell responses to platelet-derived growth factor. *Exp. Cell Res.* 221: 231-240.
3. Grako, K.A., et al. 1999. PDGF $\alpha$ -receptor is unresponsive to PDGF-AA in aortic smooth muscle cells from the NG2 knockout mouse. *J. Cell Sci.* 112: 905-915.
4. Makgiansar, I.T., et al. 2004. Phosphorylation of NG2 proteoglycan by protein kinase C  $\alpha$  regulates polarized membrane distribution and cell motility. *J. Biol. Chem.* 279: 55262-55270.
5. Pitera, J.E., et al. 2004. Dysmorphogenesis of kidney cortical peritubular capillaries in angiopoietin-2-deficient mice. *Am. J. Pathol.* 165: 1895-1906.
6. Aguirre, A.A., et al. 2004. NG2-expressing cells in the subventricular zone are type C-like cells and contribute to interneuron generation in the post-natal hippocampus. *J. Cell Biol.* 165: 575-589.
7. Fukushi, J., et al. 2004. NG2 proteoglycan promotes endothelial cell motility and angiogenesis via engagement of galectin-3 and  $\alpha 3/\beta 1$  Integrin. *Mol. Biol. Cell* 15: 3580-3590.

## CHROMOSOMAL LOCATION

Genetic locus: CSPG4 (human) mapping to 15q24.2.

## SOURCE

NG2 (9.2.27) is a mouse monoclonal antibody raised against urea extracts from M21 melanoma cells 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  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NG2 (9.2.27) is available conjugated to agarose (sc-80003 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-80003 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-80003 PE), fluorescein (sc-80003 FITC), Alexa Fluor<sup>®</sup> 488 (sc-80003 AF488), Alexa Fluor<sup>®</sup> 546 (sc-80003 AF546), Alexa Fluor<sup>®</sup> 594 (sc-80003 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-80003 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-80003 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-80003 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

NG2 (9.2.27) is recommended for detection of precursor and mature NG2 and human melanoma, glioma and proliferating brain endothelial cells of human origin by 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 flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells).

Suitable for use as control antibody for NG2 siRNA (h): sc-40771, NG2 shRNA Plasmid (h): sc-40771-SH and NG2 shRNA (h) Lentiviral Particles: sc-40771-V.

Molecular Weight of NG2: 270-300 kDa.

Positive Controls: SK-MEL-24 whole cell lysate: sc-364259 or SK-MEL-28 cell lysate: sc-2236

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## SELECT PRODUCT CITATIONS

1. Svendsen, A., et al. 2011. Expression of the progenitor marker NG2/CSPG4 predicts poor survival and resistance to ionising radiation in glioblastoma. *Acta Neuropathol.* 122: 495-510.
2. Sardone, F., et al. 2014. Effect of mechanical strain on the collagen VI pericellular matrix in anterior cruciate ligament fibroblasts. *J. Cell. Physiol.* 229: 878-886.

## RESEARCH USE

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