

desmoplakin I/II (G-2): sc-373789



The Power to Question

BACKGROUND

Desmosomes are major cell adhesion junctions that are particularly prominent in the epidermis and in cardiac tissue and are important for the rigidity and strength of the cell. The desmosome consists of several proteins, of which desmoplakin is the most abundant. Desmoplakin plays an important role in the attachment of the filaments to the desmosome. Specifically, desmoplakin interacts with plakophilin 1 (PKP1), PKP2 or PKP3, or combinations thereof, to selectively recruit plakophilins to desmosomal plaques. Desmoplakin has also been shown to function as a transglutaminase substrate *in vitro*, suggesting that it may participate in cell adhesion at the intraepidermal level. Desmoplakin exists as a two-stranded coil structure. Alternative splicing gives rise to two isoforms, desmoplakin I and II, which differ by 600 amino acids.

REFERENCES

- Green, K.J., Parry, D.A., Steinert, P.M., Virata, M.L., Wagner, R.M., Angst, B.D. and Nilles, L.A. 1990. Structure of the human desmoplakins: implications for function in the desmosomal plaque. *J. Biol. Chem.* 265: 2603-2612.
- Norgett, .E.E., Hatsell, S.J., Carvajal-Huerta, L., Cabezas, J.C., Common, J., Purkis, P.E., Whittock, N., Leigh, I.M., Stevens, H.P. and Kelsell, D.P. 2000. Recessive mutation in desmoplakin disrupts desmoplakin-intermediate filament interactions and causes dilated cardiomyopathy, woolly hair and keratoderma. *Hum. Mol. Genet.* 9: 2761-2766.
- Hofmann, I., Mertens, C., Brette, I. M, Nimrich, V., Schnolzer, M. and Herrmann, H. 2000. Interaction of plakophilins with desmoplakin and intermediate filament proteins: an *in vitro* analysis. *J. Cell Sci.* 113: 2471-2483.
- Esposito, C., Lombardi, M.L., Ruocco, V., Cozzolino, A., Mariniello, L. and Porta, R. 2000. Implication of tissue transglutaminase and desmoplakin in cell adhesion mechanism in human epidermis. *Mol. Cell. Biochem.* 206: 57-65.
- LocusLink Report (Locus ID: 1832). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: DSP (human) mapping to 6p24.3.

SOURCE

desmoplakin I/II (G-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2745-2781 near the C-terminus of desmoplakin I/II of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-373789 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

desmoplakin I/II (G-2) is recommended for detection of desmoplakin I/II 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).

desmoplakin I/II (G-2) is also recommended for detection of desmoplakin I/II in additional species, including equine and porcine.

Suitable for use as control antibody for desmoplakin I/II siRNA (h): sc-43724, desmoplakin I/II shRNA Plasmid (h): sc-43724-SH and desmoplakin I/II shRNA (h) Lentiviral Particles: sc-43724-V.

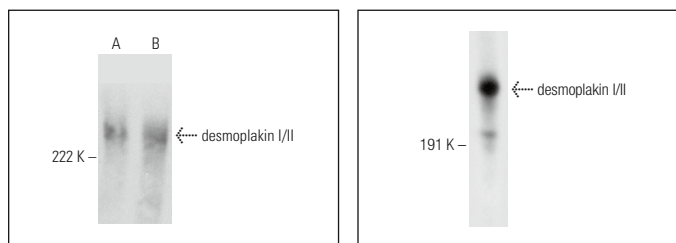
Molecular Weight of desmoplakin I: 250 kDa.

Molecular Weight of desmoplakin II: 210 kDa.

Positive Controls: ES-D3 whole cell lysate: sc-364776, HeLa whole cell lysate: sc-2200 or MIA PaCa-2 cell lysate: sc-2285.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA

desmoplakin I/II (G-2): sc-373789. Western blot analysis of desmoplakin I/II expression in ES-D3 (A) and NRK (B) whole cell lysates.

desmoplakin I/II (G-2): sc-373789. Western blot analysis of desmoplakin I/II expression in HeLa whole cell lysate.

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 for detailed protocols and support products.