

connexin 46 (D-6): sc-377361

BACKGROUND

The connexin family of proteins form hexameric complexes called "connexons" that facilitate movement of low molecular weight proteins between cells via gap junctions. Connexin proteins share a common topology of four transmembrane α -helical domains, two extracellular loops, a cytoplasmic loop and cytoplasmic N- and C-termini. Many of the key functional differences arise from specific amino acid substitutions in the most highly conserved domains, the transmembrane and extracellular regions. Each of the approximately 20 connexin isoforms produces channels with distinct permeabilities and electrical and chemical sensitivities; therefore, one connexin usually cannot fully substitute for another. Consequently, a wide variety of malignant phenotypes associate with decreased connexin expression and gap junction communication, dependent on the particular connexin that is affected. For instance, deletion of the gene encoding connexin 46, normally expressed in the lens, produces severe cataracts.

REFERENCES

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2. Xia, C.H., et al. 2006. Diverse gap junctions modulate distinct mechanisms for fiber cell formation during lens development and cataractogenesis. *Development* 133: 2033-2040.
3. Dunia, I., et al. 2006. Structural and immunocytochemical alterations in eye lens fiber cells from Cx46 and Cx50 knockout mice. *Eur. J. Cell Biol.* 85: 729-752.
4. Xia, C.H., et al. 2006. Absence of $\alpha 3$ (Cx46) and $\alpha 8$ (Cx50) connexins leads to cataracts by affecting lens inner fiber cells. *Exp. Eye Res.* 83: 688-696.
5. Xia, C.H., et al. 2006. Knock-in of $\alpha 3$ connexin prevents severe cataracts caused by an $\alpha 8$ point mutation. *J. Cell Sci.* 119: 2138-2144.
6. Tang, Y., et al. 2007. Age-related cataracts in $\alpha 3$ Cx46-knockout mice are dependent on a calpain 3 isoform. *Invest. Ophthalmol. Vis. Sci.* 48: 2685-2694.
7. Cheng, C., et al. 2008. Gap junction communication influences intercellular protein distribution in the lens. *Exp. Eye Res.* 86: 966-974.
8. Hoang, Q.V., et al. 2010. Functional analysis of hemichannels and gap-junctional channels formed by connexins 43 and 46. *Mol. Vis.* 16: 1343-1352.
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CHROMOSOMAL LOCATION

Genetic locus: Gja3 (mouse) mapping to 14 C3.

SOURCE

connexin 46 (D-6) is a mouse monoclonal antibody raised against amino acids 232-357 mapping within an internal region of connexin 46 of mouse origin.

PRODUCT

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

APPLICATIONS

connexin 46 (D-6) is recommended for detection of connexin 46 of mouse and rat origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

Suitable for use as control antibody for connexin 46 siRNA (m): sc-43082, connexin 46 shRNA Plasmid (m): sc-43082-SH and connexin 46 shRNA (m) Lentiviral Particles: sc-43082-V.

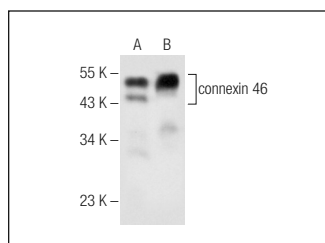
Molecular Weight of connexin 46: 53 kDa.

Positive Controls: rat eye extract: sc-364805 or mouse eye extract: sc-364241.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



connexin 46 (D-6): sc-377361. Western blot analysis of connexin 46 expression in mouse eye (A) and rat eye (B) tissue extracts.

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.