

# connexin 40 (B-3): sc-365107

## 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  $\alpha$ -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 effected. For example, upregulation of connexin 40 following cardiac surgery can mark a susceptibility to post-operative atrial fibrillation.

## REFERENCES

- Manjunath, C.K., et al. 1987. Human cardiac gap junctions: isolation, ultrastructure, and protein composition. *J. Mol. Cell. Cardiol.* 19: 131-134.
- Grossman, H.B., et al. 1994. Decreased connexin expression and intercellular communication in human bladder cancer cells. *Cancer Res.* 54: 3062-3065.

## CHROMOSOMAL LOCATION

Genetic locus: GJA5 (human) mapping to 1q21.2; Gja5 (mouse) mapping to 3 F2.1.

## SOURCE

connexin 40 (B-3) is a mouse monoclonal antibody raised against amino acids 231-346 mapping within a C-terminal cytoplasmic domain of connexin 40 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

connexin 40 (B-3) is available conjugated to agarose (sc-365107 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365107 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365107 PE), fluorescein (sc-365107 FITC), Alexa Fluor<sup>®</sup> 488 (sc-365107 AF488), Alexa Fluor<sup>®</sup> 546 (sc-365107 AF546), Alexa Fluor<sup>®</sup> 594 (sc-365107 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-365107 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-365107 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-365107 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

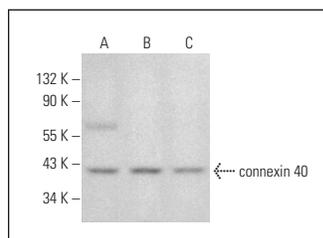
connexin 40 (B-3) is recommended for detection of connexin 40 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for connexin 40 siRNA (h): sc-43078, connexin 40 siRNA (m): sc-43079, connexin 40 shRNA Plasmid (h): sc-43078-SH, connexin 40 shRNA Plasmid (m): sc-43079-SH, connexin 40 shRNA (h) Lentiviral Particles: sc-43078-V and connexin 40 shRNA (m) Lentiviral Particles: sc-43079-V.

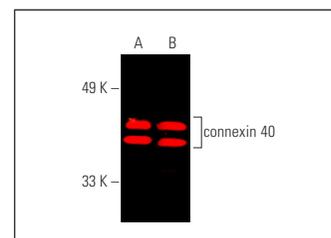
Molecular Weight of connexin 40: 40 kDa.

Positive Controls: c4 whole cell lysate: sc-364186, F9 cell lysate: sc-2245 or P19 cell lysate: sc-24760.

## DATA



connexin 40 (B-3): sc-365107. Western blot analysis of connexin 40 expression in c4 (A), F9 (B) and P19 (C) whole cell lysates.



connexin 40 (B-3): sc-365107. Near-infrared western blot analysis of connexin 40 expression in c4 (A) and P19 (B) whole cell lysates. Blocked with UltraCruz<sup>®</sup> Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.

## SELECT PRODUCT CITATIONS

- Yuan, D., et al. 2015. Connexin 43 expressed in endothelial cells modulates monocyte-endothelial adhesion by regulating cell adhesion proteins. *Mol. Med. Rep.* 12: 7146-7152.
- Ni, X., et al. 2018. Increased expression and functionality of the gap junction in peripheral blood lymphocytes is associated with hypertension-mediated inflammation in spontaneously hypertensive rats. *Cell. Mol. Biol. Lett.* 23: 40.
- Ni, X., et al. 2019.  $\beta$ -estradiol alleviates hypertension- and concanavalin A-mediated inflammatory responses via modulation of connexins in peripheral blood lymphocytes. *Mol. Med. Rep.* 19: 3743-3755.
- Zhou, E., et al. 2020. Vascular smooth muscle cell phenotypic transition regulates gap junctions of cardiomyocyte. *Heart Vessels* 35: 1025-1035.
- Wang, K., et al. 2022. Interaction of KCNA5, CX43, and CX40 proteins in the atrial muscle of patients with atrial fibrillation. *Cell Biol. Int.* E-published.

## RESEARCH USE

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