SANTA CRUZ BIOTECHNOLOGY, INC.

FOXC1 (4D11): sc-293455

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The forkhead transcription factor genes FOXC1 (Mf1) and FOXC2 (Mfh1) interact with the Notch signaling pathway and are required for the prepatterning of anterior and posterior domains in the presumptive somites through a putative Notch/Delta/Mesp regulatory loop. The genes have similar, dose-dependent functions, and compensate for each other in the early development of the heart, blood vessels and somites. Both FOXC1 and FOXC2 are expressed in the mesenchyme from which the ocular drainage structures derive. FOXC1 and FOXC2 also interact in kidney and heart development. Mutations in the FOXC1 gene result in Axenfeld-Rieger malformations of the anterior segment of the eye and lead to an increased susceptibility of glaucoma, including juvenile glaucoma. Functional regions in FOXC1 are required for nuclear localization and transcriptional regulation. Specifically, two regions in the FOXC1 forkhead domain, one rich in basic amino acid residues, and a second, highly conserved among all FOX proteins, are necessary for nuclear localization of the FOXC1 protein.

REFERENCES

1. Smith, R.S., Zabaleta, A., Kume, T., Savinova, O.V., Kidson, S.H., Martin, J.E., Nishimura, D.Y., Alward, W.L., Hogan, B.L. and John, S.W. 2000. Haploinsufficiency of the transcription factors FOXC1 and FOXC2 results in aberrant ocular development. Hum. Mol. Genet. 9: 1021-1032.
2. Kume, T., Deng, K. and Hogan, B.L. 2000. Murine forkhead/winged helix genes FOXC1 (Mf1) and FOXC2 (Mfh1) are required for the early organogenesis of the kidney and urinary tract. Development 127: 1387-1395.
3. Kawase, C., Kawase, K., Taniguchi, T., Sugiyama, K., Yamamoto, T., Kitazawa, Y., Alward, W.L., Stone, E.M., Nishimura, D.Y. and Sheffield, V.C. 2001. Screening for mutations of Axenfeld-Rieger syndrome caused by FOXC1 gene in Japanese patients. J. Glaucoma 10: 477-482.
4. Kume, T., Jiang, H., Topczewska, J.M. and Hogan, B.L. 2001. The murine winged helix transcription factors, FOXC1 and FOXC2, are both required for cardiovascular development and somitogenesis. Genes Dev. 15: 2470-2482.
5. Berry, F.B., Saleem, R.A. and Walter, M.A. 2002. FOXC1 transcriptional regulation is mediated by N- and C-terminal activation domains and contains a phosphorylated transcriptional inhibitory domain. J. Biol. Chem. 277: 10292-10297.

CHROMOSOMAL LOCATION

Genetic locus: FOXC1 (human) mapping to 6p25.3; Foxc1 (mouse) mapping to 13 A3.2.

SOURCE

FOXC1 (4D11) is a mouse monoclonal antibody raised against a recombinant protein mapping within amino acids 464-553 representing full length FOXC1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

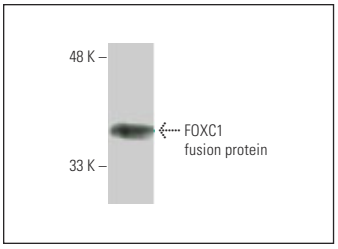
FOXC1 (4D11) is recommended for detection of FOXC1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for FOXC1 siRNA (h): sc-43766, FOXC1 siRNA (m): sc-145221, FOXC1 shRNA Plasmid (h): sc-43766-SH, FOXC1 shRNA Plasmid (m): sc-145221-SH, FOXC1 shRNA (h) Lentiviral Particles: sc-43766-V and FOXC1 shRNA (m) Lentiviral Particles: sc-145221-V.

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).

DATA



FOXC1 (4D11): sc-293455. Western blot analysis of human recombinant FOXC1 fusion protein.

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 for detailed protocols and support products.