

# DMRT3 (T-19): sc-82581

## BACKGROUND

In humans, the DMRT (doublesex and MAB-3 related transcription factor) genes encode a large family of transcription factors that are related to the *Drosophila* doublesex proteins. Expressed primarily in the gonads, DMRT proteins contain cysteine-rich DNA-binding motifs and are thought to play an important role in sexual development. DMRT3 (doublesex and MAB-3 related transcription factor 3), also known as DMRTA3, is a 472 amino acid protein that contains one DM DNA-binding domain and belongs to the DMRT family. Localized to the nucleus, DMRT3 is expressed specifically in testis and is thought to regulate transcriptional events during early sexual development. The gene encoding DMRT3 maps to human chromosome 9, which houses over 900 genes and comprises nearly 4% of the human genome. Hereditary hemorrhagic telangiectasia, which is characterized by harmful vascular defects, and Familial dysautonomia, are both associated with chromosome 9. Notably, chromosome 9 encompasses the largest interferon family gene cluster.

## REFERENCES

1. Raymond, C.S., Shamu, C.E., Shen, M.M., Seifert, K.J., Hirsch, B., Hodgkin, J. and Zarkower, D. 1998. Evidence for evolutionary conservation of sex-determining genes. *Nature* 391: 691-695.
2. Ottolenghi, C., Veitia, R., Quintana-Murci, L., Torchard, D., Scapoli, L., Souleyreau-Therville, N., Beckmann, J., Fellous, M. and McElreavey, K. 2000. The region on 9p associated with 46,XY sex reversal contains several transcripts expressed in the urogenital system and a novel doublesex-related domain. *Genomics* 64: 170-178.
3. Brunner, B., Hornung, U., Shan, Z., Nanda, I., Kondo, M., Zend-Ajusht, E., Haaf, T., Ropers, H.H., Shima, A., Schmid, M., Kalscheuer, V.M. and Schartl, M. 2001. Genomic organization and expression of the doublesex-related gene cluster in vertebrates and detection of putative regulatory regions for DMRT1. *Genomics* 77: 8-17.
4. Ottolenghi, C., Fellous, M., Barbieri, M. and McElreavey, K. 2002. Novel paralogy relations among human chromosomes support a link between the phylogeny of doublesex-related genes and the evolution of sex determination. *Genomics* 79: 333-343.
5. Smith, C.A., Hurley, T.M., McClive, P.J. and Sinclair, A.H. 2002. Restricted expression of DMRT3 in chicken and mouse embryos. *Mech. Dev.* 119 Suppl 1: S73-S76.
6. Kim, S., Kettlewell, J.R., Anderson, R.C., Bardwell, V.J. and Zarkower, D. 2003. Sexually dimorphic expression of multiple doublesex-related genes in the embryonic mouse gonad. *Gene Expr. Patterns* 3: 77-82.
7. Murphy, M.W., Zarkower, D. and Bardwell, V.J. 2007. Vertebrate DM domain proteins bind similar DNA sequences and can heterodimerize on DNA. *BMC Mol. Biol.* 8: 58.

## CHROMOSOMAL LOCATION

Genetic locus: DMRT3 (human) mapping to 9p24.3; Dmrt3 (mouse) mapping to 19 C1.

## SOURCE

DMRT3 (T-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of DMRT3 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-82581 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-82581 X, 200 µg/0.1 ml.

## APPLICATIONS

DMRT3 (T-19) is recommended for detection of DMRT3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other DMRT family members.

DMRT3 (T-19) is also recommended for detection of DMRT3 in additional species, including equine and avian.

Suitable for use as control antibody for DMRT3 siRNA (h): sc-77159, DMRT3 siRNA (m): sc-77160, DMRT3 shRNA Plasmid (h): sc-77159-SH, DMRT3 shRNA Plasmid (m): sc-77160-SH, DMRT3 shRNA (h) Lentiviral Particles: sc-77159-V and DMRT3 shRNA (m) Lentiviral Particles: sc-77160-V.

DMRT3 (T-19) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of DMRT3: 51 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.