SANTA CRUZ BIOTECHNOLOGY, INC.

T-bet (D-5): sc-137114

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

T helper (Th) lymphocytes differentiate into two unique subsets, Th1 and Th2, which differ both in function and in the cytokines they secrete. Th1 and Th2 cytokines promote the growth and differentiation of their subset, and inhibit the growth and differentiation of the opposing subset. T-bet (T box expressed in T cells) is a Th1-specific T box transcription factor that controls the expression of the Th1 cytokine, IFN-γ. T-bet also converts effector Th2 cells into the opposing Th1 subset. T-bet is selectively expressed in Th1 cells. The level of T-bet expression is increased by signals mediated by the T cell receptor (TCR). IL-12 also induces an increase in the level of T-bet. T-bet was originally isolated from nuclear extracts of resting and PMA/ionomycin-activated AE7 cells. T-bet is expressed in low levels in AE7 cells and in increased levels in stimulated AE7.

REFERENCES

1. Mosmann, T.R., et al. 1989. Th1 and Th2 cells: different patterns of lymphokine secretion lead to different functional properties. Annu. Rev. Immunol. 7: 145-173.
2. Paul, W.E., et al. 1994. Lymphocyte responses and cytokines. Cell 76: 241-251.
3. Ababas, A.K., et al. 1996. Functional diversity of helper T lymphocytes. Nature 383: 787-793.
4. O'Garra, A. 1998. Checkpoints for regulation of development and interferon γ production by Th1 cells in TCR-transgenic models. Eur. Cytokine Netw. 9: 41-42.
5. Szabo, S.J., et al. 2000. A novel transcription factor, T-bet, directs Th1 lineage commitment. Cell 100: 655-669.
6. Mehta, D.S., et al. 2005. NFATc2 and T-bet contribute to T-helper-cell-subset-specific regulation of IL-21 expression. Proc. Natl. Acad. Sci. USA 102: 2016-2021.

CHROMOSOMAL LOCATION

Genetic locus: TBX21 (human) mapping to 17q21.32.

SOURCE

T-bet (D-5) is a mouse monoclonal antibody raised against amino acids 326-535 of T-bet of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-137114 X, 200 µg/0.1 ml.

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.

APPLICATIONS

T-bet (D-5) is recommended for detection of T-bet 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).

Suitable for use as control antibody for T-bet siRNA (h): sc-36598, T-bet shRNA Plasmid (h): sc-36598-SH and T-bet shRNA (h) Lentiviral Particles: sc-36598-V.

T-bet (D-5) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

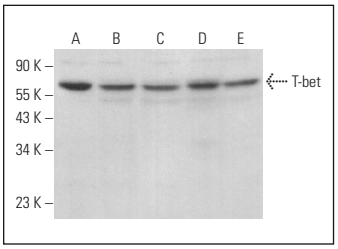
Molecular Weight of T-bet: 62 kDa.

Positive Controls: BJAB nuclear extract: sc-2145, BJAB whole cell lysate: sc-2207 or Raji whole cell lysate: sc-364236.

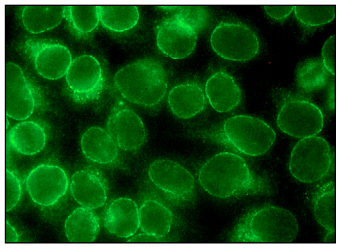
RECOMMENDED SUPPORT REAGENTS

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



T-bet (D-5): sc-137114. Western blot analysis of T-bet expression in BJAB nuclear extract (**A**) and BJAB (**B**), Raji (**C**), ALL-SIL (**D**) and U-698-M (**E**) whole cell lysates.



T-bet (D-5): sc-137114. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear envelope localization.

SELECT PRODUCT CITATIONS

1. Park, H.S., et al. 2020. *Mycobacterium avium* subsp. *paratuberculosis* MAP1889c protein induces maturation of dendritic cells and drives Th2-biased immune responses. Cells 9: 944.

CONJUGATES

See **T-bet (4B10): sc-21749** for T-bet antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.