

# Anti-T-bet / Tbx21 Antibody [JE60-20]

HA721901



<b>Product Type:</b>	Recombinant Rabbit monoclonal IgG, primary antibodies
<b>Species reactivity:</b>	Human
<b>Applications:</b>	WB, IHC-P, IF-Cell, FC
<b>Molecular Wt:</b>	Predicted band size: 58 kDa
<b>Clone number:</b>	JE60-20

**Description:** T-box transcription factor TBX21, also called T-bet (T-box expressed in T cells), is a protein that in humans is encoded by the TBX21 gene. Though being for long thought of only as a master regulator of type 1 immune response, T-bet has recently been shown to be implicated in development of various immune cell subsets and maintenance of mucosal homeostasis. This gene is a member of a phylogenetically conserved family of genes that share a common DNA-binding domain, the T-box. T-box genes encode transcription factors involved in the regulation of developmental processes. This gene is the human ortholog of mouse Tbx21/Tbet gene. Studies in mouse show that Tbx21 protein is a Th1 cell-specific transcription factor that controls the expression of the hallmark Th1 cytokine, interferon-gamma (IFN $\gamma$ ). Expression of the human ortholog also correlates with IFN $\gamma$  expression in Th1 and natural killer cells, suggesting a role for this gene in initiating Th1 lineage development from naive Th precursor cells.

**Immunogen:** Synthetic peptide within Human Tbx21 aa 21-70 / 535.

**Positive control:** NK-92 cell lysate, human hodgkin's lymphoma tissue, human thymus tissue, human tonsil tissue, NK-92.

**Subcellular location:** Nucleus.

**Database links:** SwissProt: Q9UL17 Human

**Recommended Dilutions:**

<b>WB</b>	1:1,000
<b>IHC-P</b>	1:200
<b>IF-Cell</b>	1:100
<b>FC</b>	1:1,000

**Storage Buffer:** 1\*TBS (pH7.4), 0.05% BSA, 40% Glycerol. Preservative: 0.05% Sodium Azide.

**Storage Instruction:** Shipped at 4°C. Store at +4°C short term (1-2 weeks). It is recommended to aliquot into single-use upon delivery. Store at -20°C long term.

**Purity:** Protein A affinity purified.

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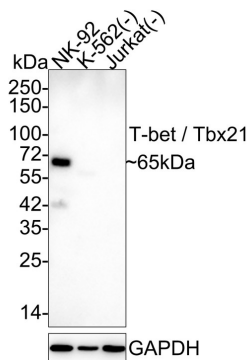
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## Images



**Fig1:** Western blot analysis of T-bet / Tbx21 on different lysates with Rabbit anti-T-bet / Tbx21 antibody (HA721901) at 1/1,000 dilution.

Lane 1: NK-92 cell lysate (20 µg/Lane)

Lane 2: K-562 cell lysate (negative) (20 µg/Lane)

Lane 3: Jurkat cell lysate (negative) (20 µg/Lane)

Predicted band size: 58 kDa

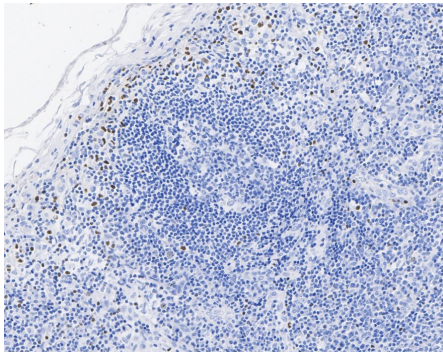
Observed band size: 65 kDa

Exposure time: 5 minutes; ECL: K1802;

4-20% SDS-PAGE gel.

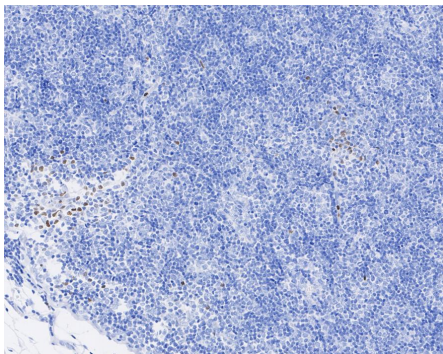
Proteins were transferred to a PVDF membrane and blocked with 5% NFDN/TBST for 1 hour at room temperature. The primary antibody (HA721901) at 1/1,000 dilution was used in 5% NFDN/TBST at 4°C overnight. Goat Anti-Rabbit IgG - HRP Secondary Antibody (HA1001) at 1/50,000 dilution was used for 1 hour at room temperature.

**Fig2:** Immunohistochemical analysis of paraffin-embedded human hodgkin's lymphoma tissue with Rabbit anti-T-bet / Tbx21 antibody (HA721901) at 1/200 dilution.



The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) (high pressure) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH<sub>2</sub>O and PBS, and then probed with the primary antibody (HA721901) at 1/200 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

**Fig3:** Immunohistochemical analysis of paraffin-embedded human thymus tissue with Rabbit anti-T-bet / Tbx21 antibody (HA721901) at 1/200 dilution.



The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) (high pressure) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH<sub>2</sub>O and PBS, and then probed with the primary antibody (HA721901) at 1/200 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

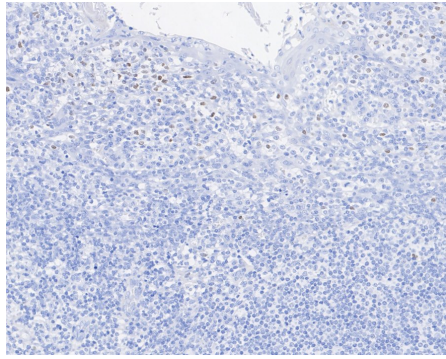
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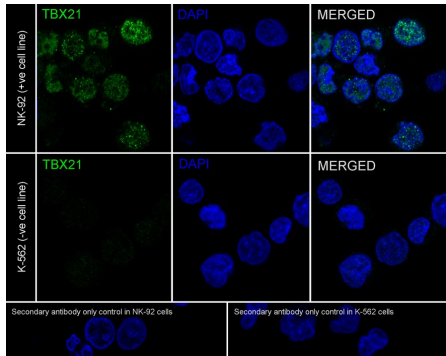
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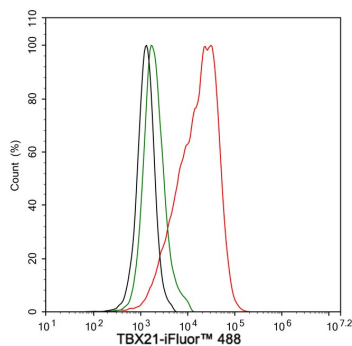
**Fig4:** Immunohistochemical analysis of paraffin-embedded human tonsil tissue with Rabbit anti-T-bet / Tbx21 antibody (HA721901) at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) (high pressure) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH<sub>2</sub>O and PBS, and then probed with the primary antibody (HA721901) at 1/200 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.



**Fig5:** Immunocytochemistry analysis of NK-92 (positive) and K-562 (negative) labeling T-bet / Tbx21 with Rabbit anti-T-bet / Tbx21 antibody (HA721901) at 1/100 dilution.

Cells were fixed in 4% paraformaldehyde for 20 minutes at room temperature, permeabilized with 0.1% Triton X-100 in PBS for 5 minutes at room temperature, then blocked with 1% BSA in 10% negative goat serum for 1 hour at room temperature. Cells were then incubated with Rabbit anti-T-bet / Tbx21 antibody (HA721901) at 1/100 dilution in 1% BSA in PBST overnight at 4 °C. Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. PBS instead of the primary antibody was used as the secondary antibody only control. Nuclear DNA was labelled in blue with DAPI.



**Fig6:** Flow cytometric analysis of NK-92 cells labeling T-bet / Tbx21.

Cells were fixed and permeabilized. Then stained with the primary antibody (HA721901, 1µg/mL) (red) compared with Rabbit IgG Isotype Control (green). After incubation of the primary antibody at +4 °C for an hour, the cells were stained with a iFluor™ 488 conjugate-Goat anti-Rabbit IgG Secondary antibody (HA1121) at 1/1,000 dilution for 30 minutes at +4 °C. Unlabelled sample was used as a control (cells without incubation with primary antibody; black).

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**Note:** All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE".

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### Background References

1. Yang X et al. TBX21 inhibits colorectal cancer metastasis through ARHGAP29/GSK3beta inhibitory signaling- and MYCT1/ZO-1 signaling-dependent manner. *Int J Biol Sci.* 2025 Jan
2. Zou Z et al. TBX21 knockdown attenuates neuroinflammation induced by intracerebral hemorrhage via the SIRT1-WDR5-H3K4me3 axis. *Brain Res Bull.* 2025 Sep

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