

# CD3- $\epsilon$ (48-2B): sc-1174

## BACKGROUND

The T cell antigen receptor (TCR) recognizes foreign antigens and translates such recognition events into intracellular signals that elicit a change in the cell from a dormant to an activated state. Much of this signaling process can be attributed to a multisubunit complex of proteins that associates directly with the TCR. This complex has been designated CD3 (cluster of differentiation 3). It is composed of five invariant polypeptide chains that associate to form three dimers: a heterodimer of  $\gamma$  and  $\epsilon$  chains (CD3- $\gamma$  and CD3- $\epsilon$ ), a heterodimer of  $\delta$  and  $\epsilon$  chains (CD3- $\delta$  and CD3- $\epsilon$ ) and a homodimer of two  $\zeta$  chains (CD3- $\zeta$ ) or a heterodimer of  $\zeta$  and  $\eta$  chains (CD3- $\zeta$  and CD3- $\eta$ ). CD3- $\zeta$  and CD3- $\eta$  are encoded by the same gene, but differ in their carboxyl-terminal ends due to an alternative splicing event. CD3- $\gamma$ , CD3- $\epsilon$  and CD3- $\delta$  each contain a single copy of a conserved immunoreceptor tyrosine-based activation motif (ITAM). In contrast, CD3- $\zeta$  contains three consecutive copies of the same motif. Phosphorylated ITAMs act as docking sites for protein kinases such as ZAP-70 and Syk and are also capable of regulating their kinase activity. The crystal structure of the ZAP-70 SH2 domains bound to CD3- $\zeta$  ITAMs has been solved.

## CHROMOSOMAL LOCATION

Genetic locus: Cd3e (mouse) mapping to 9 A5.2.

## SOURCE

CD3- $\epsilon$  (48-2B) is an Armenian hamster monoclonal antibody raised against CD3- $\epsilon$  of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for biological studies, sc-1174 L, 200  $\mu$ g/0.1 ml.

CD3- $\epsilon$  (48-2B) is available conjugated to either phycoerythrin (sc-1174 PE) or fluorescein (sc-1174 FITC), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM.

## APPLICATIONS

CD3- $\epsilon$  (48-2B) is recommended for detection of CD3- $\epsilon$  of mouse and rat origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells).

Suitable for use as control antibody for CD3- $\epsilon$  siRNA (m): sc-29990, CD3- $\epsilon$  shRNA Plasmid (m): sc-29990-SH and CD3- $\epsilon$  shRNA (m) Lentiviral Particles: sc-29990-V.

Molecular Weight of CD3- $\epsilon$ : 23 kDa.

## STORAGE

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

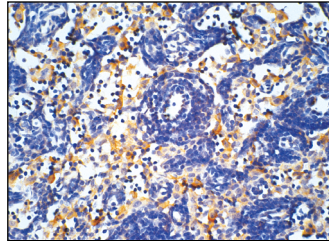
## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

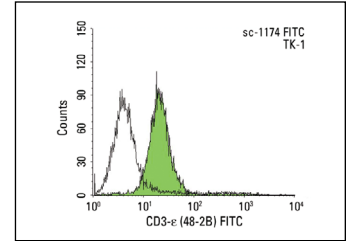
## RESEARCH USE

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

## DATA



CD3- $\epsilon$  (48-2B): sc-1174. Immunoperoxidase staining of formalin-fixed, paraffin-embedded normal mouse lymph node showing membrane and cytoplasmic staining.



CD3- $\epsilon$  (48-2B): sc-1174. Indirect FCM analysis of TK-1 cells stained with CD3- $\epsilon$  (48-2B), followed by FITC-conjugated mouse anti-Armenian hamster IgG: sc-2792. Black line histogram represents the isotype control, normal Armenian hamster: sc-3886.

## SELECT PRODUCT CITATIONS

- Zhang, J., et al. 1998. TCR  $\alpha$   $\beta$  chains associate with the plasma membrane independently of CD3 and TCR  $\zeta$  chains in murine primary T cells. *J. Immunol.* 161: 2930-2937.
- Majeski, E., et al. 2003. Respiratory reovirus 1/L induction of intraluminal fibrosis, a model of bronchiolitis obliterans organizing pneumonia, is dependent on T lymphocytes. *Am. J. Pathol.* 163: 1467-1479.
- Ishihara, K., et al. 2004. The point mutation of tyrosine 759 of the IL-6 family cytokine receptor gp130 synergizes with HTLV-1 pX in promoting rheumatoid arthritis-like arthritis. *Int. Immunol.* 16: 455-465.
- Singbartl, K., et al. 2005. T cells modulate neutrophil-dependent acute renal failure during endotoxemia: critical role for CD28. *J. Am. Soc. Nephrol.* 16: 720-728.
- Zernecke, A., et al. 2006. Importance of junctional adhesion molecule-A for neointimal lesion formation and infiltration in atherosclerosis-prone mice. *Arterioscler. Thromb. Vasc. Biol.* 26: e10-e13.
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- Lewis, R.D., et al. 2010. The membrane attack complex of complement drives the progression of atherosclerosis in apolipoprotein E knockout mice. *Mol. Immunol.* 47: 1098-1105.



See **CD3- $\epsilon$  (145-2C11): sc-18871** for CD3- $\epsilon$  antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.