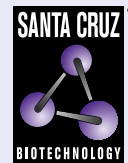


# CD3 (HIT3a): sc-19590



The Power to Question

## 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 ( $\gamma\epsilon$ ), a heterodimer of  $\delta$  and  $\epsilon$  chains ( $\delta\epsilon$ ) and a homodimer of two  $\zeta$  chains ( $\zeta\zeta$ ) or a heterodimer of  $\zeta$  and  $\eta$  chains ( $\zeta\eta$ ). The  $\zeta$  and  $\epsilon$  chains are encoded by the same gene but differ in their carboxyl-terminal ends due to an alternative splicing event. The  $\gamma$ ,  $\epsilon$  and  $\delta$  chains each contain a single copy of a conserved immunoreceptor tyrosine-based activation motif (ITAM). In contrast, the  $\zeta$  chain 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 ZAP-70's SH2 domains bound to the  $\zeta$  chain ITAMs has been solved.

## REFERENCES

- Exley, M., et al. 1991. Structure, assembly and intracellular transport of the T cell receptor for antigen. *Semin. Immunol.* 3: 283-297.
- Weiss, A., et al. 1991. Signal transduction by the T cell antigen receptor. *Semin. Immunol.* 3: 313-324.
- Chan, A.C., et al. 1994. The role of protein tyrosine kinases and protein tyrosine phosphatases in cell antigen receptor signal transduction. *Semin. Immunol.* 12: 555-592.
- Aoe, T., et al. 1994. Different cytoplasmic structure of the CD3  $\zeta$  family dimer modulates the activation signal and function of T cells. *Int. Immunol.* 6: 1671-1679.
- Ohno, H., et al. 1994. Targeted disruption of the CD3  $\eta$  locus causes high lethality in mice: modulation of Oct-1 transcription on the opposite strand. *EMBO J.* 13: 1157-1165.
- Neumeister, E.N., et al. 1995. Binding of ZAP-70 to phosphorylated T-cell receptor  $\zeta$  and  $\eta$  enhances its autophosphorylation and generates specific binding sites for SH2 domain-containing proteins. *Mol. Cell. Biol.* 15: 3171-3178.

## SOURCE

CD3 (HIT3a) is a mouse monoclonal antibody.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD3 (HIT3a) is available conjugated to either phycoerythrin (sc-19590 PE) or fluorescein (sc-19590 FITC), 200  $\mu$ g/ml, for IF, IHC(P) and FCM.

## STORAGE

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

## APPLICATIONS

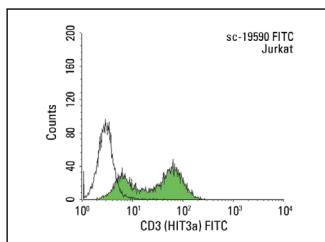
CD3 (HIT3a) is recommended for detection of CD3 and CD3/TCR complex of human origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells).

Molecular Weight of CD3: 25 kDa.

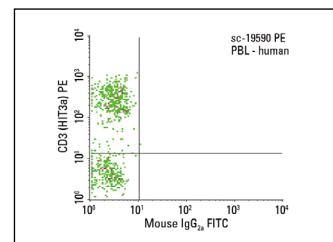
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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



CD3 (HIT3a) FITC: sc-19590 FITC. FCM analysis of Jurkat cells. Black line histogram represents the isotype control, normal mouse IgG<sub>2a</sub>-FITC: sc-2856.



CD3 (HIT3a) PE: sc-19590 PE. FCM analysis of human peripheral blood leukocytes. Quadrant markers were set based on the isotype control, normal mouse IgG<sub>2a</sub>-PE: sc-2867.

## SELECT PRODUCT CITATIONS

- Sánchez-Rodríguez, E.N., et al. 2011. Persistence of decidual NK cells and KIR genotypes in healthy pregnant and preeclamptic women: a case-control study in the third trimester of gestation. *Reprod. Biol. Endocrinol.* 9: 8.
- Zhang, Y., et al. 2015. Increased survival time of a patient with metastatic malignant melanoma following immunotherapy: a case report and literature review. *Oncol. Lett.* 10: 883-886.
- Zhang, Y., et al. 2017. Clinical effects of autologous cytokine-induced killer cell-based immunotherapy in the treatment of endometrial cancer: a case report and literature review. *Onco Targets Ther.* 10: 4687-4690.

## RESEARCH USE

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

## PROTOCOLS

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



See **CD3 (PC3/188A): sc-20047** for CD3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.