CD40 Antibody [clone FGK45.5] (V8350)

Catalog No.	Formulation	Size
V8350-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V8350-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V8350SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Mouse
Format	Purified
Host	Rat
Clonality	Monoclonal (rat origin)
Isotype	Rat IgG2a, kappa
Clone Name	FGK45.5
Purity	Protein G affinity chromatography
UniProt	P27512
Applications	Flow cytometry: 1-2ug/million cells Immunofluorescence: 1-3ug/ml
Limitations	This CD40 antibody is available for research use only.



Description

CD40 Antibody Clone FGK45.5 recognizes CD40 molecule, also known as Tumor necrosis factor receptor superfamily

member 5 antibody and TNFRSF5 antibody, a type I transmembrane receptor that belongs to the tumor necrosis factor receptor superfamily. CD40 is a cell surface glycoprotein primarily expressed on B lymphocytes, dendritic cells, macrophages, and other antigen-presenting cells, where it functions as a critical regulator of adaptive immune activation. CD40 Antibody Clone FGK45.5 is widely used in immunology research due to the well-characterized biological activity associated with this clone.

CD40 plays an essential role in T cell-dependent B cell responses. Binding of CD40 to its ligand CD154, also known as CD40 ligand or CD40L, expressed on activated CD4-positive T cells, initiates receptor trimerization and recruitment of TNF receptor-associated factors. This signaling cascade activates NF-kappaB, MAPK, and PI3K pathways, promoting B cell proliferation, immunoglobulin class switching, germinal center formation, and long-lived memory B cell development. In dendritic cells and macrophages, CD40 engagement enhances antigen presentation, upregulates costimulatory molecules, and stimulates cytokine production.

CD40 antibody research has been central to understanding immune regulation, tolerance, and tumor immunity. CD40 signaling contributes to host defense against pathogens but can also drive chronic inflammation and autoimmune disease when dysregulated. In oncology, CD40 is expressed in multiple hematologic malignancies, including B cell lymphomas and leukemias, and has been explored as a therapeutic target in both agonistic and antagonistic antibody strategies. Activation of CD40 on antigen-presenting cells can enhance cytotoxic T cell responses and reshape the tumor microenvironment, supporting ongoing research into CD40-directed immunotherapies.

The CD40 protein contains extracellular cysteine-rich domains responsible for ligand binding and a cytoplasmic tail that interacts with adaptor proteins rather than possessing intrinsic kinase activity. CD40 is encoded by the CD40 gene located on chromosome 20q13.12 in humans, and its expression is tightly regulated during B cell maturation and immune activation. Beyond lymphoid tissues, CD40 expression can be induced in endothelial cells, epithelial cells, and fibroblasts under inflammatory conditions, linking CD40 signaling to vascular inflammation and tissue remodeling.

CD40 Antibody Clone FGK45.5 is recognized in the literature as a widely used monoclonal antibody for studying CD40-mediated signaling pathways. By targeting CD40 on immune cells, this antibody supports investigations into B cell biology, dendritic cell activation, T cell priming, and immune checkpoint modulation. Its established presence in published immunology research makes CD40 Antibody Clone FGK45.5 a valuable tool for mechanistic studies of immune activation and immune-based therapeutic strategies.

Application Notes

Optimal dilution of the CD40 antibody should be determined by the researcher.

Immunogen

Purified recombinant Mouse CD40 fusion protein was used as the immunogen for the CD40 antibody.

Storage

Store the CD40 antibody at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).

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