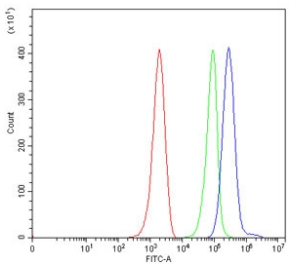
Cd86 Antibody (RQ6840)

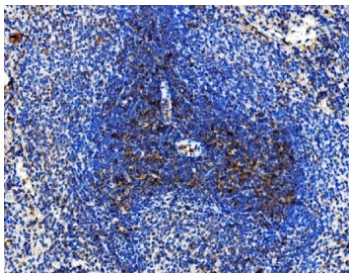
Catalog No.	Formulation	Size
RQ6840	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

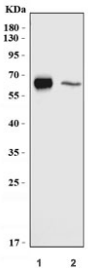
Availability	1-3 business days
Species Reactivity	Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P42082
Applications	Western Blot : 1-2ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml Flow Cytometry : 1-3ug/million cells Direct ELISA : 0.1-0.5ug/ml
Limitations	This Cd86 antibody is available for research use only.



Flow cytometry testing of mouse ANA-1 cells with Cd86 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= Cd86 antibody.



IHC staining of FFPE rat spleen tissue with Cd86 antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot testing of 1) rat lung and 2) mouse lung tissue lysate with Cd86 antibody. Predicted molecular weight ~38 kDa (unmodified), 45-70 kDa (glycosylated).

Description

Cd86 antibody detects Cluster of differentiation 86, a co-stimulatory molecule expressed primarily on antigen-presenting cells (APCs) such as dendritic cells, macrophages, and B lymphocytes. The UniProt recommended name is T-lymphocyte activation antigen CD86 (Cd86), with alternate names B7-2, B70, and Ly-58. Cd86 plays a critical role in regulating adaptive immune responses by providing the necessary co-stimulatory signals for T-cell activation and survival.

Functionally, Cd86 antibody recognizes a type I transmembrane glycoprotein that interacts with two key receptors on T cells: CD28 and CTLA-4. Binding to CD28 delivers an activating signal that promotes T-cell proliferation, interleukin-2 production, and differentiation into effector subsets. In contrast, engagement of CTLA-4 provides an inhibitory signal, dampening immune responses and maintaining self-tolerance. The dynamic balance between these interactions determines whether immune activation or suppression occurs, making Cd86 a pivotal checkpoint in immune regulation.

Cd86 expression is tightly controlled by immune stimuli. Resting APCs express low basal levels, but its transcription and surface expression are rapidly upregulated upon exposure to inflammatory cytokines such as IFN-gamma, TNF-alpha, and IL-1, or after recognition of pathogen-associated molecular patterns (PAMPs) via Toll-like receptors (TLRs). Elevated Cd86 levels are essential for effective antigen presentation and T-cell priming during infection or vaccination. Conversely, aberrant or sustained Cd86 signaling has been linked to autoimmune disorders, chronic inflammation, and transplant rejection.

The Cd86 antibody is commonly used in immunohistochemistry, flow cytometry, and immunoblotting to analyze immune activation states and characterize dendritic cell or macrophage populations. In experimental models, blocking Cd86 with specific antibodies can inhibit T-cell proliferation, induce tolerance, or promote regulatory T-cell expansion. This has led to significant research interest in Cd86 as a therapeutic target for modulating immune responses in autoimmune diseases, cancer immunotherapy, and graft-versus-host disease.

Structurally, Cd86 is composed of two extracellular immunoglobulin-like domains (V-type and C2-type), a single transmembrane region, and a short cytoplasmic tail containing potential signaling motifs. The Cd86 antibody identifies this extracellular region, allowing sensitive detection of both native and recombinant protein forms. Cd86, along with its homolog Cd80 (B7-1), constitutes the B7 family of co-stimulatory molecules. Although Cd80 and Cd86 share overlapping receptor specificities, they differ in expression kinetics, ligand affinity, and roles in immune synapse formation. Cd86 is typically expressed earlier and more abundantly than Cd80 following APC activation, making it a more sensitive marker of early immune response.

Genetically, the Cd86 gene in mouse is located on chromosome 16 (16qA1) and encodes a 329-amino-acid glycoprotein.

The protein contains multiple N-linked glycosylation sites that influence its stability and receptor binding efficiency. Cross-species comparison shows high homology between mouse, rat, and human orthologs, supporting translational relevance in comparative immunology. In research, Cd86 expression is widely used as a functional indicator of dendritic cell maturation and macrophage activation in response to stimuli such as lipopolysaccharide (LPS) or CpG oligodeoxynucleotides.

Beyond adaptive immunity, Cd86 also plays emerging roles in modulating innate responses, including cytokine release and phagocytosis. Its interaction with other immune regulators such as PD-L1 and ICOSL integrates multiple signaling networks within the immunological synapse. As a biomarker, Cd86 expression correlates with immune checkpoint engagement and tumor microenvironment activity, highlighting its diagnostic and prognostic potential. In combination with other markers like MHC class II and CD40, Cd86 provides valuable insight into the immune status of tissues and cell populations.

NSJ Bioreagents offers Cd86 antibody reagents validated for research applications involving antigen presentation, immune activation, and co-stimulatory pathway studies. These antibodies support assays in immunology, oncology, and vaccine development, offering precise and reproducible results for the characterization of APC function and T-cell modulation.

Application Notes

Optimal dilution of the Cd86 antibody should be determined by the researcher.

Immunogen

Recombinant mouse protein (amino acids T35-E221) was used as the immunogen for the Cd86 antibody.

Storage

After reconstitution, the Cd86 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.