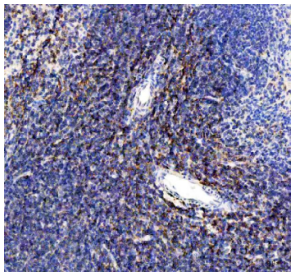
CD80 Antibody (RQ4248)

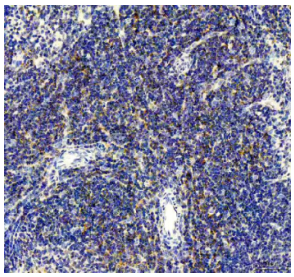
Catalog No.	Formulation	Size
RQ4248	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

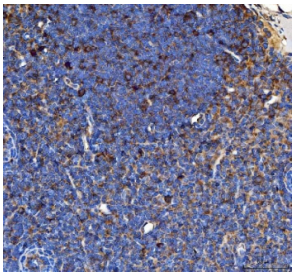
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P33681
Localization	Membrane
Applications	Immunohistochemistry (FFPE) : 2-5ug/ml Western Blot : 0.5-1ug/ml Direct ELISA : 0.1-0.5ug/ml
Limitations	This CD80 antibody is available for research use only.



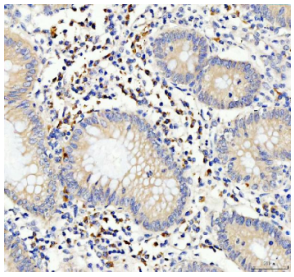
Immunohistochemical staining of FFPE mouse spleen tissue with CD80 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



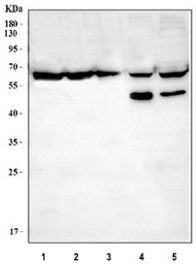
Immunohistochemical staining of FFPE rat spleen tissue with CD80 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE rat lymph node tissue with CD80 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE human appendix tissue with CD80 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot testing of 1) human Raji, 2) human Daudi, 3) human Ramos, 4) mouse thymus and 5) mouse RAW264.7 lysate with CD80 antibody. Instead of the ~33 kDa predicted size, CD80 is detected as a broad band between ~60-65 kDa, consistent with its known extensive N-linked glycosylation. Mouse samples display an additional lighter band at ~50 kDa, representing a less-glycosylated CD80 isoform commonly reported in immune tissues.

Description

CD80 antibody detects CD80, a cell surface costimulatory glycoprotein essential for T cell activation, immune synapse formation, and adaptive immune regulation. The UniProt recommended name is CD80 antigen. CD80 is expressed primarily on professional antigen presenting cells, including dendritic cells, macrophages, and B cells, where it functions as a key regulator of immune activation through interactions with CD28 and CTLA4 on T lymphocytes. By providing the necessary second signal for T cell priming, CD80 ensures that immune responses proceed only under appropriate stimulatory conditions.

Functionally, CD80 antibody identifies a type I transmembrane glycoprotein of approximately 288 amino acids that contains an extracellular immunoglobulin-like V-set and C-set domain, a single-pass transmembrane region, and a short cytoplasmic tail. CD80 is upregulated upon exposure to cytokines such as interferon gamma, microbial products, and inflammatory stimuli. Once expressed, CD80 engages CD28 to promote T cell proliferation, cytokine production, and survival. In contrast, CD80 interaction with CTLA4 transmits inhibitory signals that limit immune responses, maintain self tolerance, and prevent overactivation. This dual regulatory capacity positions CD80 as a central checkpoint for T cell mediated immunity.

The CD80 gene is located on chromosome 3q13.33 and is expressed in immune organs such as lymph nodes, spleen,

and thymus. Dendritic cells express CD80 at high levels during maturation, enabling them to prime naive T cells efficiently. B cells upregulate CD80 during germinal center reactions, supporting affinity maturation and memory formation. Macrophages and monocytes increase CD80 expression during inflammatory activation, facilitating cross talk with infiltrating T lymphocytes. CD80 is also inducible on certain non immune cells, including epithelial cells and endothelial cells, under strong cytokine stimulation, reflecting its broader role in modulating local immune environments.

CD80 participates in multiple stages of immune regulation. During early T cell priming, CD80 provides costimulation that augments antigen receptor signaling and promotes robust expansion of effector T cells. In peripheral tissues, CD80 expression helps shape effector responses, including cytotoxic T cell activity and helper T cell polarization. CD80 also plays a role in regulatory T cell function; by binding CTLA4, CD80 contributes to immunosuppressive feedback loops that restrain excessive inflammation. Additionally, CD80 influences B cell activation, antibody production, and germinal center dynamics by participating in T cell-B cell collaboration.

Pathologically, altered CD80 expression is associated with autoimmunity, chronic inflammation, infection, and cancer. Elevated CD80 levels can promote excessive T cell reactivity and contribute to disorders such as rheumatoid arthritis, type 1 diabetes, and inflammatory bowel disease. Conversely, reduced CD80 function may impair antiviral immunity or weaken antitumor responses. In oncology, CD80 expression on tumor infiltrating antigen presenting cells influences the effectiveness of immune surveillance and the response to immunotherapies targeting CTLA4 or PD1 pathways. CD80 dysregulation has also been implicated in transplant rejection, graft versus host disease, and allergic inflammation, underscoring its broad immunologic relevance.

CD80 is a therapeutic target as well as a biomarker. Agents that modulate CD80 interactions, including CTLA4 fusion proteins and monoclonal antibodies, are used clinically to alter immune activation in autoimmune disease and transplantation. Research applications commonly examine CD80 upregulation as an indicator of antigen presenting cell maturation, immune activation state, and responsiveness to innate immune stimuli. Because CD80 integrates activation and inhibitory pathways, it serves as a valuable marker for dissecting the balance between immune stimulation and tolerance.

CD80 antibody is validated for use in relevant research applications to detect CD80 expression and study costimulatory signaling, antigen presentation, and immune checkpoint mechanisms. NSJ Bioreagents provides CD80 antibody reagents optimized for immunology, infection biology, cancer research, and translational studies of T cell regulation.

Application Notes

Optimal dilution of the CD80 antibody should be determined by the researcher.

Immunogen

A recombinant human protein corresponding to amino acids V35-L244 was used as the immunogen for the CD80 antibody.

Storage

After reconstitution, the CD80 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.