# PRODUCT INFORMATION

## B7-1/CD80 Long Isoform Extracellular Domain (human, recombinant; His- and Fc-tagged)

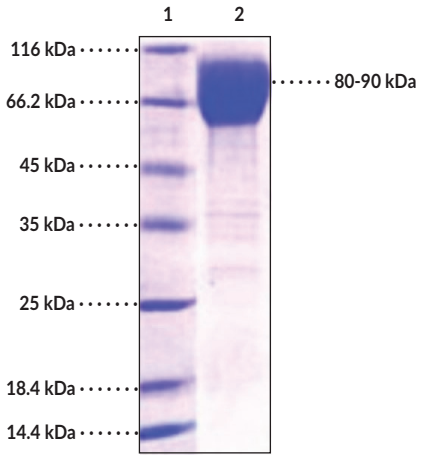
*Item No. 31821*

### Overview and Properties

| | |
|---|---|
| **Synonyms:** | B7.1, BB1, CD28LG, CD28LG1, LAB7, T-lymphocyte Activation Antigen CD80 |
| **Source:** | Active recombinant C-terminal human IgG1 Fc-His-tagged CD80 expressed in HEK293 cells |
| **Amino Acids:** | 35-242 |
| **Uniprot No.:** | P33681 |
| **Molecular Weight:** | 51.7 kDa |
| **Storage:** | -20°C (as supplied) |
| **Stability:** | ≥1 year |
| **Purity:** | ≥95% estimated by SDS-PAGE |
| **Supplied in:** | Lyophilized from sterile PBS, pH 7.4 |
| **Endotoxin Testing:** | <1.0 EU/µg, determined by the LAL endotoxin assay |
| **Protein Concentration:** | ***batch specific*** mg/ml |

*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

### Image




**Lane 1:** MW Markers
**Lane 2:** B7-1/CD80 Long Isoform Extracellular Domain (human, recombinant; His- and Fc-tagged)

**SDS-PAGE Analysis of B7-1/CD80 Long Isoform Extracellular Domain (human, recombinant; His- and Fc-tagged).** This protein has a calculated molecular weight of 51.7 kDa. It has an apparent molecular weight of approximately 80-90 kDa by SDS-PAGE under reducing conditions due to glycosylation.

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## Description

CD80, also known as B7-1, is a glycoprotein and member of the CD28/B7 family of co-stimulatory receptors that promotes T cell activation.[1,2] Alternative splicing of *CD80* produces one full-length long isoform, CD80 long, and two short isoform, s1CD80 and s2CD80.[2] CD80 long exists as a membrane-bound dimer and is composed of an extracellular immunoglobulin variable (IgV) domain that interacts with the co-stimulatory molecule CD28 or the inhibitory molecule CTLA-4, as well as an immunoglobulin constant (IgC) domain and a cytoplasmic tail that are both required for T cell co-stimulation.[1] s1CD80 and s2CD80 lack the transmembrane domain or the transmembrane domain and the IgC domain, respectively, and are found in the serum.[2] CD80 is transiently expressed on the surface of antigen-presenting cells (APCs) and is upregulated following ligation of the co-stimulatory molecule CD86, as well as by pro-inflammatory stimuli, such as LPS, and downregulated by the anti-inflammatory cytokine IL-10.[3-5] CD80 has two ligands, CD28 and CTLA-4, that compete for binding and are each expressed on naïve T cells but have opposing functions on T cell activation.[6] CD80 binding to CD28 promotes T cell activation, survival, and cytokine production, whereas CD80 binding to CTLA-4 inhibits T cell activation and promotes T cell anergy. Neutralization of CD80 with a monoclonal antibody reduces the severity of synovitis and bone erosion, as well as $CD4^+$ T cell infiltration, in inflamed joints in a mouse model of arthritis induced by complete Freund's adjuvant (CFA) and BSA.[7] Decreased CD80 tumor levels have been identified in patients with renal cell carcinoma.[8] *CD80* SNPs have been found in individuals with gastric cancer.[9] Cayman's B7-1/CD80 Long Isoform Extracellular Domain (human, recombinant; His- and FC-tagged) protein can be used for ELISA applications. This protein is a disulfide-linked homodimer. The reduced monomer, comprised of B7-1/CD80 (amino acids 35-242) fused to His-tagged human IgG1 Fc at its C-terminus, consists of 455 amino acids, a calculated molecular weight of 51.7 kDa, and a predicted N-terminus of Val35 after signal peptide cleavage. As a result of glycosylation, the monomer migrates at approximately 80-90 kDa by SDS-PAGE under reducing conditions.

## References


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