Anti-Human CD19, Human IgG1, Recombinant

**Background:**
CD19 is a single-pass type I transmembrane protein belonging to the immunoglobulin (Ig) superfamily (IgSF). It contains two Ig-like C2-type domains. CD19 is an important pan B cell marker and co-stimulatory protein involved in growth regulation of B cells. CD19 is expressed only in B cells and follicular dendritic cells of the hematopoietic system. It is present on most pre-B cells and most non-T-cell acute lymphocytic leukemia cells (ALL) and B-cell type chronic lymphocytic leukemia cells (CLL). CD19 is a co-receptor for the antigen receptor complex on B cells to decrease the threshold for antigen receptor-dependent stimulation. It forms a complex with CD21, CD81 and CD225 in the membrane of B cells. It associates with GRB2 and SOS when activated and phosphorylated on Tyr-348 / Tyr-378. CD19 is a hallmark differentiaion antigen of the B cell lineage and positively regulates antigen B-cell receptor (BCR) signal transduction for B cell selection, maturation, and differentiation. Defects in CD19 are the cause of immunodeficiency common variable type 3 (CVID3), which is characterized by antibody deficiency, hypogammaglobulinemia, recurrent bacterial infections and an inability to mount an antibody response to antigen. The defect results from a failure of B-cell differentiation and impaired secretion of antibody while the numbers of circulating B cells is usually in the normal range, but can be low.

**References:**

**Construct Detail:**
Expressed as the combination of a heavy chain (HC) containing VH from anti-CD19 mAb and CH1-3 region of human IgG1 and a light chain (LC) encoding VL from anti-CD19 mAb and CL of human kappa light chain. Exists as a disulfide linked dimer of the HC and LC hetero-dimer under non-reducing condition.

**Source:**
Mamalian cells stably expressing anti-CD19 heavy chain and light chain (in human IgG1k format) and growing in chemical-defined media with no animal component or antibiotics.

**M.W.:**
Calculated molecular mass (kDa): 146 (49 kDa for a single HC, 24 kDa for a single LC); Estimated by SDS-PAGE under non-reducing condition(kDa): 150.

**Purity:**
>95% judged by SDS-PAGE under reducing condition (see the gel image inserted).

**Formulation:**
Supplied at 1.0 mg/ml in sterile PBS pH 7.4 without any carrier protein or preservative (the concentration was determined by UV absorption with an A280nm of 1.0 for 0.73 mg/ml of IgG and verified by SDS-PAGE and Coomassie blue staining).

**Endotoxin:**
<0.1 EU per 1 µg of purified recombinant protein determined by the LAL method.

**Bioactivity:**
Binds CD19 extracellular domain proteins (SKU#FCL0806 & #FCL0803) with high affinity (Kd < 1 nM) measured by ELISA. Recognizes cell surface CD19 by flow cytometry, IHC staining and fluorescent microscopy. Binds CD19 with the same specificity as anti-CD19 monoclonal antibodies, mouse IgG2a (SKU#MAB0806) and rabbit IgG (SKU#MAB0803).

**Storage:**
The product is shipped at 4°C. Upon receipt, centrifuge the product briefly before opening the vial. Store small aliquots at the temperature below –20°C for long-term storage and the product is stable for 3 months. Avoid repeated freeze-thaw cycles.

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