

## MHC class I chain-related gene B

Human, Recombinant (rHuMIC-B)

Expressed in *E. coli*

Cat. No. CRP08129

Lot. No. (See product label)

### PRODUCT INFORMATION

**Description :** MIC-B (MHC class I chain-related gene B) is a transmembrane glycoprotein that functions as a ligand for human NKG2D. A closely related protein, MIC-A, shares 85% amino acid identity with MIC-B. These 2 proteins are distantly related to the MHC class I proteins. MIC-A and MIC-B (MIC-A/B) possess three extracellular immunoglobulin-like domains, but have no capacity to bind peptide or interact with  $\beta$ 2-microglobulin. The genes encoding MIC-A/B are found within the major histocompatibility complex on human chromosome 6. The MIC-B locus is polymorphic with more than 15 recognized human alleles. MIC-A/B are minimally expressed on normal cells, but are frequently expressed on epithelial tumors and can be induced by bacterial and viral infections. MIC-A/B are ligands for NKG2D, an activating receptor expressed on NK cells, NKT cells,  $\gamma\delta$  T cells, and CD8+  $\alpha\beta$  T cells. Recognition of MIC-A/B by NKG2D results in the activation of cytolytic activity and/or cytokine production by these effector cells. MIC-A/B recognition is involved in tumor surveillance, viral infections, and autoimmune diseases. The release of soluble forms of MIC-A/B from tumors down-regulates NKG2D surface expression on effector cells resulting in the impairment of anti-tumor immune response.

**Amino-Acid Sequence:** 326 amino acid residues containing the extracellular domain of mature human MICB (amino acid residues Ala23 – Tyr312)

**M. W. :** approximately 37 kDa

**Recombinant:** Expressed in *E. coli*

**Purity:** >95% by SDS-PAGE and HPLC analyses.

**Formulation:** Lyophilized from a 0.2 $\mu$ m filtered concentrated (1mg/ml) solution in PBS, pH 7.0

**Specific Activity:** Measured by its ability to bind MICB antibody in a ELISA.

**Endotoxin:** Less than 1EU/ $\mu$ g of rHuMIC-B as determined by LAL method.

**Reconstitution:** We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1% BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at <-20°C. Further dilutions should be made in appropriate buffered solutions.

**Storage:** This lyophilized preparation is stable at 2-8°C, but should be kept at -20°C for long term storage, preferably desiccated. Upon reconstitution, the preparation is stable for up to one week at 2-8°C. For maximal stability, apportion the reconstituted preparation into working aliquots and store at -20°C to -70°C. Avoid repeated freeze/thaw cycles.

### GENE INFORMATION

**Gene Name:** [HLA-B](#)

**Synonyms:** AS; HLAB; HLAC; SPDA1; HLA-B73; HLA-B-7301; major histocompatibility complex, class I, B; ankylosing spondylitis; 1B53\_HUMAN; HLA class I histocompatibility antigen, B-53; alpha chain [Precursor]; MHC class I antigen; B\*53; Bw-53; HLAB;B'DT;B-12;B-21;B-5;HLA-B-5501;OTTHUMP00000034826; HLA class I histocompatibility antigen, B alpha chain; HLA class I histocompatibility antigen, B alpha chain precursor; Human transforming growth factor-beta induced gene product (BIGH3);mRNA, complete cds; MHC HLA-B cell surface glycoprotein;MHC class I HLA-B40MD alpha chain; MHC class I HLA-C antigen; MHC class I antigen B\*13; MHC class I antigen HLA-B heavy chain; MHC class I antigen SHCHA; ankylosing spondylitis; leucocyte antigen C; leukocyte antigen class I-B; lymphocyte antigen; major histocompatibility complex class I B; major histocompatibility complex, class I, B.

**mRNA Refseq:** [NM\\_005514](#)

**Protein Refseq :** [NP\\_005505](#)

**MIM:** [142830](#)

**Gene ID:** [3106](#)

**Chromosome Location:** 6p21.3

**Pathway:** Antigen processing and presentation; Cell adhesion molecules (CAMs); Natural killer cell mediated cytotoxicity;Type I diabetes mellitus;Signaling in Immune system.

**Function:** MHC class I receptor activity ; molecular\_function;protein binding.

### REFERENCES

- Hill AV, Allsopp CE, Kwiatkowski D, Anstey NM, Twumasi P, Rowe PA, Bennett S, Brewster D, McMichael AJ, Greenwood BM (1991). "Common west African HLA antigens are associated with protection from severe malaria". *Nature* 352 (6336): 595–600.
- Brown MA, Crane AM, Wordsworth BP (2002). "Genetic aspects of susceptibility, severity, and clinical expression in ankylosing spondylitis". *Curr Opin Rheumatol* 14 (4): 354–60.
- Carrington M, O'Brien SJ (2003). "The influence of HLA genotype on AIDS". *Annu Rev Med* 54: 535–51.

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