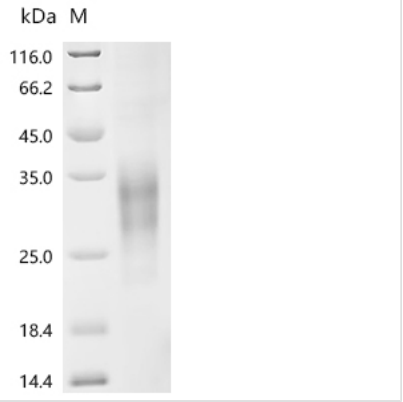
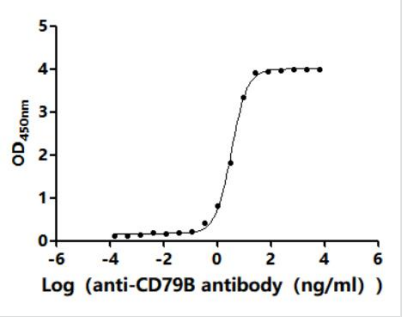
Recombinant Human B-cell antigen receptor complex-associated protein beta chain (CD79B),partial (Active)

Product Code	CSB-MP004958HU1
Abbreviation	Recombinant Human CD79B protein, partial (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P40259
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, 6% Trehalose, pH 7.4
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Human CD79B at 2 μg/mL can bind Anti-CD79B recombinant antibody(CSB-RA004958MA2HU). The EC50 is 3.214-3.642 ng/mL.
Sequence	ARSEDRYRNPKGSACSRIWQSPRFIARKRGFTVKMHCYMNSASGNVSWLWK QEMDENPQQLKLEKGRMEESQNESLATLTIQGIRFEDNGIYFCQQKCNNTSEV YQGCGTELRVMGFSTLAQLKQRNTLKD
Source	Mammalian cell
Target Names	CD79B
Expression Region	29-159aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal 10xHis-tagged
Mol. Weight	16.7kDa
Protein Length	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Activity
Measured by its binding ability in a functional ELISA. Immobilized Human CD79B at 2 μg/ml can bind Anti-CD79B recombinant antibody(CSB-RA004958MA2HU). The EC_{50} is 3.214-3.642 ng/mL.

Description

The human CD79B, amino acids Asp159-Arg143 with a C-terminal 10xHis-tag was co-expressed and purified as a human CD79B protein. The endotoxin of this recombinant human CD79B protein is less than 1.0 EU/ug as determined by the LAL method. This recombinant CD79B protein has been validated to be biologically active through a functional ELISA where it binds the anti-CD79B recombinant antibody (CSB-RA004958MA2HU), with the EC_{50} of 3.214-3.642 ng/mL.

The human CD79B protein is a crucial component of the B-cell receptor (BCR) complex, which plays a significant role in B-cell development and function. CD79B, along with its counterpart CD79A, forms a disulfide-linked heterodimer that associates with membrane immunoglobulin (mIg) to facilitate antigen recognition and signal transduction in B cells [1]. CD79B is primarily expressed on the surface of mature B cells and is absent in plasma cells, making it a valuable marker for identifying B-cell malignancies such as non-Hodgkin lymphoma (NHL) and chronic lymphocytic leukemia (CLL) [2].

CD79B mainly transduces signals following antigen binding to the BCR. This signaling is essential for various B-cell activities, including differentiation, activation, and proliferation [3]. The BCR signaling pathway, which relies on CD79B, is critical for the formation of immune synapses and the regulation of B-cell migration [4]. Notably, aberrations in CD79B expression or function can lead to dysregulated BCR signaling, which is associated with immunosuppression in the tumor microenvironment [4].

Research has shown that mutations in the CD79B gene can impact its function and expression. Specific mutations in the immunoreceptor tyrosine-based activation motif (ITAM) of CD79B can lead to altered signaling capabilities,

potentially contributing to the pathogenesis of B-cell lymphomas [5]. Additionally, the expression levels of CD79B can vary significantly among different B-cell malignancies, which has implications for therapeutic targeting using antibody-drug conjugates (ADCs) [6][7]. These ADCs are designed to selectively target CD79B on malignant B cells, thereby enhancing the efficacy of treatment while minimizing damage to normal cells [2].

The downregulation of CD79B has been observed in various hematological malignancies, suggesting that its expression is tightly controlled and can be disrupted in pathological conditions [8][9]. Understanding the regulatory mechanisms governing CD79B expression and function is critical for developing targeted therapies and improving patient outcomes in B-cell-related diseases.

References:

[1] L. Duncan, K. Webster, V. Gupta, S. Nair, & E. Deane. Molecular characterisation of the cd79a and cd79b subunits of the b cell receptor complex in the gray short-tailed opossum (monodelphis domestica) and tammar wallaby (macropus eugenii): delayed b cell immunocompetence in marsupial neonates, Veterinary Immunology and Immunopathology, vol. 136, no. 3-4, p. 235-247, 2010. https://doi.org/10.1016/j.vetimm.2010.03.013
[2] A. Herrera, M. Patel, J. Burke, R. Advani, B. Cheson, J. Sharman, et al. Anti-cd79b antibody–drug conjugate dcds0780a in patients with b-cell non-hodgkin lymphoma: phase 1 dose-escalation study, Clinical Cancer Research, vol. 28, no. 7, p. 1294-1301, 2022. https://doi.org/10.1158/1078-0432.ccr-21-3261
[3] D. Pu, D. Liú, C. Li, C. Chen, Y. Che, J. Lv, et al. A novel ten-gene prognostic signature for cervical cancer based on cd79b-related immunomodulators, Frontiers in Genetics, vol. 13, 2022. https://doi.org/10.3389/fgene.2022.933798
[4] Y. Wang, Y. Yang, Z. Zhao, H. Sun, D. Luo, L. Huttad, et al. A new nomogram model for prognosis of hepatocellular carcinoma based on novel gene signature that regulates cross-talk between immune and tumor cells, BMC Cancer, vol. 22, no. 1, 2022. https://doi.org/10.1186/s12885-022-09465-9
[5] B. Kloo, D. Nagel, M. Pfeifer, M. Grau, M. Düwel, M. Vincendeau, et al. Critical role of pi3k signaling for nf-κb–dependent survival in a subset of activated b-cell–like diffuse large b-cell lymphoma cells, Proceedings of the National Academy of Sciences, vol. 108, no. 1, p. 272-277, 2010. https://doi.org/10.1073/pnas.1008969108
[6] A. Polson, J. Calemine-Fenaux, P. Chan, W. Chang, E. Christensen, S. Clark, et al. Antibody-drug conjugates for the treatment of non–hodgkin's lymphoma: target and linker-drug selection, Cancer Research, vol. 69, no. 6, p. 2358-2364, 2009. https://doi.org/10.1158/0008-5472.can-08-2250
[7] M. Pfeifer, B. Zheng, T. Erdmann, H. Koeppen, R. McCord, M. Grau, et al. Anti-cd22 and anti-cd79b antibody drug conjugates are active in different molecular diffuse large b-cell lymphoma subtypes, Leukemia, vol. 29, no. 7, p. 1578-1586, 2015. https://doi.org/10.1038/leu.2015.48
[8] X. Huang, K. Takata, Y. Sato, T. Tanaka, K. Ichimura, M. Tamura, et al. Downregulation of the b?cell receptor signaling component cd79b in plasma cell myeloma: a possible post transcriptional regulation, Pathology International, vol. 61, no. 3, p. 122-129, 2011. https://doi.org/10.1111/j.1440-1827.2010.02634.x
[9] D. Jovanovic, P. Djurdjevic, N. Andjelkovic, & L. Zivic. Possible role of cd22,

cd79b and cd20 expression in distinguishing small lymphocytic lymphoma from chronic lymphocytic leukemia, Wspó?czesna Onkologia, vol. 1, p. 29-33, 2014. https://doi.org/10.5114/wo.2013.38570

Endotoxin	Less than 1.0 EU/ug as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.