

## APC/Cyanine7 anti-mouse/human CD45R/B220 Antibody

|                          |   |
|--------------------------|---|
| <b>Catalog# / Size</b>   | 103223 / 25 µg<br>103224 / 100 µg   |
| <b>Clone</b>             | RA3-6B2   |
| <b>Regulatory Status</b> | RUO   |
| <b>Other Names</b>       | B220  |
| <b>Isotype</b>           | Rat IgG2a, κ  |
| <b>Description</b>       | CD45R, also known as B220, is an isoform of CD45. It is a member of the protein tyrosine phosphatase (PTP) family with a molecular weight of approximately 180-240 kD. CD45R is expressed on B cells (at all developmental stages from pro-B cells through mature B cells), activated B cells, and subsets of T and NK cells. CD45R (B220) is also expressed on a subset of abnormal T cells involved in the pathogenesis of systemic autoimmunity in MRL- <i>Fas<sup>lpr</sup></i> and MRL- <i>Fas<sup>gld</sup></i> mice. It plays a critical role in TCR and BCR signaling. The primary ligands for CD45 are galectin-1, CD2, CD3, and CD4. CD45R is commonly used as a pan-B cell marker; however, CD19 may be more appropriate for B cell specificity. |

### Product Details

|   |   |
|---|---|
| <b>Verified Reactivity</b>                        | Mouse, Human  |
| <b>Reported Reactivity</b>                        | Cat   |
| <b>Antibody Type</b>                              | Monoclonal  |
| <b>Host Species</b>                               | Rat   |
| <b>Immunogen</b>                                  | Abelson murine leukemia virus-induced pre-B tumor cells   |
| <b>Formulation</b>                                | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide.   |
| <b>Preparation</b>                                | The antibody was purified by affinity chromatography, and conjugated with APC/Cyanine7 under optimal conditions.  |
| <b>Concentration</b>                              | 0.2 mg/ml   |
| <b>Storage &amp; Handling</b>                     | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. <b>Do not freeze.</b>   |
| <b>Application</b>                                | <a href="#">FC - Quality tested</a>   |
| <b>Recommended Usage</b>                          | Each lot of this antibody is quality control tested by <a href="#">immunofluorescent staining with flow cytometric analysis</a> . For flow cytometric staining, the suggested use of this reagent is ≤0.25 µg per million cells in 100 µl volume. It is recommended that the reagent be titrated for optimal performance for each application.  |
| <b>Excitation Laser</b>                           | Red Laser (633 nm)  |
| <b>Application Notes</b>                          | Clone RA3-6B2 has been described to react with an epitope on the extracellular domain of the transmembrane CD45 glycoprotein which is dependent upon the expression of exon A and specific carbohydrate residues. Additional reported applications (for the relevant formats) include: immunoprecipitation <sup>1</sup> , <i>in vitro</i> and <i>in vivo</i> modulation of B cell responses <sup>2-4</sup> , immunohistochemistry of acetone-fixed frozen sections and formalin-fixed paraffin-embedded sections <sup>5,6</sup> , and spatial biology (IBEX) <sup>14,15</sup> . |
| <b>Additional Product Notes</b>                   | BioLegend is in the process of converting the name APC/Cy7 to APC/Cyanine7. The dye molecule remains the same, so you should expect the same quality and performance from our APC/Cyanine7 products. Please contact <a href="#">Technical Service</a> if you have any questions.  |
| <b>Application References</b>                     | <ol style="list-style-type: none"> <li>1. Coffman RL. 1982. <i>Immunol. Rev.</i> 69:5. (IP)</li> <li>2. George A, et al. 1994. <i>J. Immunol.</i> 152:1014. (Activ)</li> <li>3. Asensi V, et al. 1989. <i>Immunology</i> 68:204. (Activ)</li> </ol>   |
| <b>(PubMed link indicates BioLegend citation)</b> |   |

4. Domiati-Saad R, *et al.* 1993. *J. Immunol.* 151:5936. (Activ)
5. Hata H, *et al.* 2004. *J. Clin. Invest.* 114:582. (IHC)
6. Monteith CE, *et al.* 1996. *Can. J. Vet. Res.* 60:193. (IHC)
7. Shih FF, *et al.* 2006. *J. Immunol.* 176:3438. (FC)
8. Chang C L-T, *et al.* 2007. *J. Immunol.* 178:6984.
9. Fazilleau N, *et al.* 2007. *Nature Immunol.* 8:753.
10. Lang GL, *et al.* 2008. *Blood* 111:2158. [PubMed](#)
11. Charles N, *et al.* 2010. *Nat. Med.* 16:701. (FC) [PubMed](#)
12. del Rio ML, *et al.* 2011. *Transpl. Int.* 24:501. (FC) [PubMed](#)
13. Murakami R, *et al.* 2013. *PLoS One.* 8:73270. [PubMed](#)
14. Radtke AJ, *et al.* 2020. *Proc Natl Acad Sci U S A.* 117:33455-65. (SB) [PubMed](#)
15. Radtke AJ, *et al.* 2022. *Nat Protoc.* 17:378-401. (SB) [PubMed](#)

## Product Citations

1. Chuang H, *et al.* 2014. *Nat Commun.* 5:4602. [PubMed](#)
2. Huang Y, *et al.* 2015. *Proc Natl Acad Sci U S A.* 112:39. [PubMed](#)
3. Chung Y, *et al.* 2014. *J Vis Exp.* 89: 51660. [PubMed](#)
4. Ishikura S, *et al.* 2016. *J Biol Chem.* 291: 15282 - 15291. [PubMed](#)
5. Yu X, *et al.* 2020. *Nat Commun.* 11:1110. [PubMed](#)
6. Grigsby SM, *et al.* 2021. *Cancers (Basel).* 13:. [PubMed](#)
7. Lawson H, *et al.* 2021. *Stem Cell Reports.* 16:2784. [PubMed](#)
8. Rivas MA, *et al.* 2021. *Nat Immunol.* 22:240. [PubMed](#)
9. Garcia-Fabiani MB, *et al.* 2020. *Methods Enzymol.* 632:369. [PubMed](#)
10. Furuta Y, *et al.* 2017. *PLoS One.* 12(2):e0172509. [PubMed](#)
11. Gazit R, *et al.* 2014. *J Exp Med.* 211:1315. [PubMed](#)
12. Viny AD, *et al.* 2019. *Cell Stem Cell.* 25:682. [PubMed](#)
13. Roco JA *et al.* 2019. *Immunity.* 51(2):337-350 . [PubMed](#)
14. Sharma GP, *et al.* 2021. *PLoS One.* 16:e0259042. [PubMed](#)
15. Lechuga-Vieco AV, *et al.* 2020. *Sci Adv.* 6:eaba5345. [PubMed](#)
16. Stewart I *et al.* 2018. *Immunity.* 49(3):477-489 . [PubMed](#)
17. Chen S, *et al.* 2022. *Cancer Discov.* .: [PubMed](#)
18. Coleby R, *et al.* 2021. *Clin Exp Rheumatol.* :39. [PubMed](#)
19. Roufaiel M, *et al.* 2016. *Nat Immunol.* 10.1038/ni.3564. [PubMed](#)
20. Jacoby E, *et al.* 2016. *Blood.* 127: 1361 - 1370. [PubMed](#)
21. D'Auria K, *et al.* 2013. *Infect Immun.* 81:3814. [PubMed](#)
22. Schmidleithner L *et al.* 2019. *Immunity.* 50(5):1232-1248 . [PubMed](#)
23. Sun Y *et al.* 2018. *Cancer cell.* 34(4):643-658 . [PubMed](#)
24. Bowers E, *et al.* 2018. *Nat Med.* 24:95. [PubMed](#)
25. Liang Q, *et al.* 2022. *iScience.* 25:104043. [PubMed](#)
26. Leimkühler NB, *et al.* 2020. *Cell Stem Cell.* 28:637. [PubMed](#)
27. Palm A, *et al.* 2016. *Sci Rep.* 10.1038/srep20531. [PubMed](#)
28. Fuster JJ, *et al.* 2020. *Cell Rep.* 33:108326. [PubMed](#)
29. Mathew NR, *et al.* 2021. *Cell Reports.* 35(12):109286. [PubMed](#)
30. Petursdottir D, *et al.* 2017. *Front Immunol.* . 10.3389/fimmu.2017.01699. [PubMed](#)
31. Shinoda K, *et al.* 2020. *Cell Reports.* 29(13):4471-4481.e6.. [PubMed](#)
32. Fujino T, *et al.* 2021. *Nat Commun.* 12:1826. [PubMed](#)
33. Inoue D, *et al.* 2021. *Nat Genet.* 53:707. [PubMed](#)
34. Go DM, *et al.* 2021. *Cell Mol Gastroenterol Hepatol.* 12:715. [PubMed](#)
35. Zong L, *et al.* 2021. *NPJ Aging Mech Dis.* 7:25. [PubMed](#)
36. Sochalska M, *et al.* 2016. *Oncogene.* 10.1038/onc.2016.362. [PubMed](#)
37. Dema B, *et al.* 2014. *J Exp Med.* 211:2159. [PubMed](#)
38. Thayer T, *et al.* 2011. *Diabetes.* 60:2144. [PubMed](#)
39. Yoshimi A, *et al.* 2019. *Nature.* 574:273. [PubMed](#)
40. Sarapulov AV, *et al.* 2020. *Front Immunol.* 11:599. [PubMed](#)
41. Sasaki K, *et al.* 2019. *Nat Commun.* 10:3878. [PubMed](#)
42. Rogawski DS, *et al.* 2021. *Nat Commun.* 12:2792. [PubMed](#)
43. Muppidi J, *et al.* 2015. *J Exp Med.* 212: 2213 - 2222. [PubMed](#)
44. Dos Santos Dias L, *et al.* 2021. *PLoS Pathog.* e1009324:17. [PubMed](#)
45. Kunimoto H, *et al.* 2018. *Cancer Cell.* 33:44. [PubMed](#)
46. Lam WY *et al.* 2018. *Cell reports.* 24(9):2479-2492 . [PubMed](#)
47. He W *et al.* 2018. *Immunity.* 49(6):1175-1190 . [PubMed](#)
48. Sato R, *et al.* 2020. *Int Immunol.* 499:32. [PubMed](#)
49. Benet Z, *et al.* 2021. *Cell Reports.* 34(6):108733. [PubMed](#)
50. Chen X *et al.* 2017. *Cell stem cell.* 21(6):747-760 . [PubMed](#)
51. Kleppe M *et al.* 2018. *Cancer cell.* 33(1):29-43 . [PubMed](#)
52. Forbester JL, *et al.* 2020. *J Virol.* 94:. [PubMed](#)
53. Soto-Díaz K, *et al.* 2021. *Front Immunol.* 12:734349. [PubMed](#)
54. Rivas MA, *et al.* 2021. *Front Immunol.* 12:688493. [PubMed](#)
55. Rodda L, *et al.* 2015. *J Immunol.* 195: 4781 - 4791. [PubMed](#)
56. Venturutti L, *et al.* 2020. *Cell.* 182(2):297-316.e27. [PubMed](#)
57. Yao M, *et al.* 2020. *Cell.* 180(3):502-520. [PubMed](#)
58. Russler-Germain EV, *et al.* 2021. *Elife.* 10:. [PubMed](#)
59. Grune J, *et al.* 2022. *Nat Cardiovasc Res.* 1:649. [PubMed](#)
60. Witkowski MT, *et al.* 2020. *Cancer Cell.* 37:867. [PubMed](#)
61. Zhang C, *et al.* 2020. *Cell Rep.* 32:108206. [PubMed](#)
62. Frodermann V, *et al.* 2019. *Nat Med.* 25:1761. [PubMed](#)
63. Sullivan JA, *et al.* 2020. *Cell Rep.* 30:1039. [PubMed](#)
64. St Clair JB, *et al.* 2017. *PLoS One.* 12:e0170556. [PubMed](#)
65. Roy K, *et al.* 2019. *Immunity.* 50:616. [PubMed](#)

66. Bei T, *et al.* 2021. *Molecules*. 26:. [PubMed](#)
67. Panea C, *et al.* 2021. *Commun Biol*. 4:913. [PubMed](#)
68. Lim CX, *et al.* 2020. *Cell Rep*. 3793:30. [PubMed](#)
69. Chauveau L, *et al.* 2021. *EMBO Rep*. 22:e52447. [PubMed](#)
70. Jacoby E, *et al.* 2016. *Nat Commun*. 7:12320. [PubMed](#)
71. He Z, *et al.* 2016. *Exp Hematol*. 44:161-165. [PubMed](#)
72. Fournier M, Bijl C 2015. *Stem Cells Dev*. 24: 2413-2422. [PubMed](#)
73. Gough D, *et al.* 2014. *Blood*. 124:2252. [PubMed](#)
74. Wang YH, *et al.* 2019. *Front Immunol*. 10:1909. [PubMed](#)
75. Chen Z, *et al.* 2019. *J Exp Med*. 216:152. [PubMed](#)
76. Yang S, *et al.* 2022. *J Exp Med*. 219:. [PubMed](#)
77. Frost JN, *et al.* 2021. *Med (N Y)*. 2:164. [PubMed](#)
78. Huang Y, *et al.* 2016. *J Immunol*. 196: 217 - 231. [PubMed](#)
79. Georgoudaki A, *et al.* 2016. *Cell Rep*. 15: 2000-2011. [PubMed](#)
80. DiToro D, *et al.* 2020. *Immunity*. 650:52. [PubMed](#)
81. Nowlan B, *et al.* 2019. *Haematologica*. 105:71. [PubMed](#)
82. Wang X, *et al.* 2021. *EMBO J*. 40:e105926. [PubMed](#)
83. Yan-Feng L, *et al.* 2017. *Sci Rep*. 7:40133. [PubMed](#)
84. Xiao G, *et al.* 2018. *Cell*. 173:470. [PubMed](#)
85. Matsumura T, *et al.* 2022. *Nat Commun*. 13:7064. [PubMed](#)
86. Kim DK, *et al.* 2022. *Nat Commun*. 13:6292. [PubMed](#)
87. Zhang CR, *et al.* 2022. *Blood Cancer Discov*. 3:220. [PubMed](#)
88. Rive CM, *et al.* 2022. *Mol Ther Methods Clin Dev*. 26:4. [PubMed](#)
89. King R, *et al.* 2021. *Sci Adv*. 7:eabj5293. [PubMed](#)
90. Kobia FM, *et al.* 2020. *PLoS Biol*. 18:e3000850. [PubMed](#)
91. Haniuda K, *et al.* 2020. *Cell Rep*. 33:108333. [PubMed](#)
92. Kovacs SB, *et al.* 2021. *STAR Protoc*. 2:100244. [PubMed](#)
93. Uribe-Herranz M, *et al.* 2018. *JCI Insight*. 3. [PubMed](#)
94. Celik H, *et al.* 2018. *Cancer Cell*. 34:741. [PubMed](#)
95. Isvoranu G, *et al.* 2019. *Oncol Lett*. 17:4197. [PubMed](#)
96. Muri J, *et al.* 2020. *Cell Reports*. 29(9):2731-2744.e4.. [PubMed](#)
97. Cantor DJ *et al.* 2019. *Cell reports*. 26(1):108-118 . [PubMed](#)
98. Kim SK, *et al.* 2018. *Genes Dev*. 32:849. [PubMed](#)
99. Montes de Oca M, *et al.* 2016. *PLoS Pathog*. 12: 1005398. [PubMed](#)
100. Katzmarski N, *et al.* 2021. *Nat Immunol*. 22:1382. [PubMed](#)
101. Baptista M, *et al.* 2016. *Nat Commun*. 7:12175. [PubMed](#)
102. Aryal B, *et al.* 2016. *Nat Commun*. 7:12313. [PubMed](#)
103. Andresen L, *et al.* 2016. *PLoS One*. 11: 0148428. [PubMed](#)
104. Altin J, *et al.* 2014. *Proc Natl Acad Sci U S A*. 111:2067. [PubMed](#)
105. Luo H, *et al.* 2019. *Cell Rep*. 26:945. [PubMed](#)
106. RL M, *et al.* 2015. *Proc Natl Acad Sci U S A*. 112:6506-6514. [PubMed](#)
107. Jaeger N, *et al.* 2020. *Cell Rep*. 33:108331. [PubMed](#)
108. Heyde A, *et al.* 2021. *Cell*. 184(5):1348-1361.e22. [PubMed](#)
109. Schäfer AL, *et al.* 2021. *Front Immunol*. 12:696810. [PubMed](#)
110. Gonzalez-Figueroa P, *et al.* 2021. *Cell*. 184(7):1775-1789.e19. [PubMed](#)
111. BJ L, *et al.* 2017. *J Exp Med* . 10.1084/jem.20161461. [PubMed](#)
112. Sato-Hashimoto M, *et al.* 2011. *J Immunol*. 187:291. [PubMed](#)
113. Whiteley AM *et al.* 2017. *eLife*. 6 pii: e26435. [PubMed](#)
114. Amend A, *et al.* 2021. *Int J Mol Sci*. 22:. [PubMed](#)

**RRID** AB\_313006 (BioLegend Cat. No. 103223)  
 AB\_313007 (BioLegend Cat. No. 103224)

## Antigen Details

---

|                           |   |
|---------------------------|---|
| <b>Structure</b>          | Protein tyrosine phosphatase (PTP) family, 180-240 kD   |
| <b>Distribution</b>       | B cells, T cell subset, NK cell subset  |
| <b>Function</b>           | Phosphatase, T and B cell activation  |
| <b>Ligand/Receptor</b>    | Galectin-1, CD2, CD3, CD4   |
| <b>Cell Type</b>          | B cells, NK cells, T cells  |
| <b>Biology Area</b>       | Cell Biology, Immunology, Inhibitory Molecules, Neuroscience, Neuroscience Cell Markers   |
| <b>Molecular Family</b>   | CD Molecules  |
| <b>Antigen References</b> | <ol style="list-style-type: none"> <li>1. Barclay A, <i>et al.</i> 1997. <i>The Leukocyte Antigen FactsBook</i> Academic Press.</li> <li>2. Trowbridge IS, <i>et al.</i> 1993. <i>Annu. Rev. Immunol</i>. 12:85.</li> <li>3. Kishihara K, <i>et al.</i> 1993. <i>Cell</i> 74:143.</li> <li>4. Pulido R, <i>et al.</i> 1988. <i>J. Immunol</i>. 140:3851.</li> </ol> |
| <b>Gene ID</b>            | <a href="#">19264</a><br><a href="#">5788</a>   |

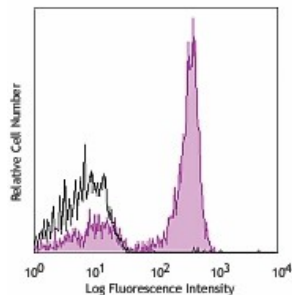
## Related Protocols

[Cell Surface Flow Cytometry Staining Protocol](#)

## Other Formats

Alexa Fluor® 594 anti-mouse/human CD45R/B220, APC anti-mouse/human CD45R/B220, Biotin anti-mouse/human CD45R/B220, FITC anti-mouse/human CD45R/B220, PE anti-mouse/human CD45R/B220, PE/Cyanine5 anti-mouse/human CD45R/B220, Purified anti-mouse/human CD45R/B220, PE/Cyanine7 anti-mouse/human CD45R/B220, APC/Cyanine7 anti-mouse/human CD45R/B220, Alexa Fluor® 488 anti-mouse/human CD45R/B220, Alexa Fluor® 647 anti-mouse/human CD45R/B220, Pacific Blue™ anti-mouse/human CD45R/B220, Alexa Fluor® 700 anti-mouse/human CD45R/B220, PerCP anti-mouse/human CD45R/B220, PerCP/Cyanine5.5 anti-mouse/human CD45R/B220, Brilliant Violet 421™ anti-mouse/human CD45R/B220, Brilliant Violet 570™ anti-mouse/human CD45R/B220, Brilliant Violet 650™ anti-mouse/human CD45R/B220, Brilliant Violet 605™ anti-mouse/human CD45R/B220, Brilliant Violet 785™ anti-mouse/human CD45R/B220, Brilliant Violet 510™ anti-mouse/human CD45R/B220, Purified anti-mouse/human CD45R/B220 (Maxpar® Ready), Brilliant Violet 711™ anti-mouse/human CD45R/B220, PE/Dazzle™ 594 anti-mouse/human CD45R/B220, APC/Fire™ 750 anti-mouse/human CD45R/B220, Brilliant Violet 750™ anti-mouse/human CD45R/B220, TotalSeq™-A0103 anti-mouse/human CD45R/B220, Spark Blue™ 550 anti-mouse/human CD45R/B220, Spark NIR™ 685 anti-mouse/human CD45R/B220, TotalSeq™-B0103 anti-mouse/human CD45R/B220, Ultra-LEAF™ Purified anti-mouse/human CD45R/B220, TotalSeq™-C0103 anti-mouse/human CD45R/B220, PE/Fire™ 640 anti-mouse/human CD45R/B220, APC/Fire™ 810 anti-mouse/human CD45R/B220, PE/Fire™ 700 anti-mouse/human CD45R/B220, Spark Violet™ 538 anti-mouse/human CD45R/B220, Spark YG™ 581 anti-mouse/human CD45R/B220, Spark YG™ 570 anti-mouse/human CD45R/B220, PE/Fire™ 810 anti-mouse/human CD45R/B220, Spark Blue™ 574 anti-mouse/human CD45R/B220 Antibody, Spark Violet™ 423 anti-mouse/human CD45R/B220 Antibody, Spark Red™ 718 anti-mouse/human CD45R/B220

## Product Data



C57BL/6 splenocytes stained with RA3-6B2 APC/Cyanine7

For research use only. Not for diagnostic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

\*These products may be covered by one or more Limited Use Label Licenses (see the BioLegend Catalog or our website, [www.biolegend.com/ordering#license](http://www.biolegend.com/ordering#license)). BioLegend products may not be transferred to third parties, resold, modified for resale, or used to manufacture commercial products, reverse engineer functionally similar materials, or to provide a service to third parties without written approval of BioLegend. By use of these products you accept the terms and conditions of all applicable Limited Use Label Licenses. Unless otherwise indicated, these products are for research use only and are not intended for human or animal diagnostic, therapeutic or commercial use.

BioLegend Inc., 8999 BioLegend Way, San Diego, CA 92121 [www.biolegend.com](http://www.biolegend.com)  
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587