

## FITC anti-mouse/human CD45R/B220 Antibody

<b>Catalog# / Size</b>	103205 / 50 µg 103206 / 500 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

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<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 FITC under optimal conditions.
<b>Concentration</b>	0.5 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 ≤1.0 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>	Blue Laser (488 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>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, <i>et al.</i> 1994. <i>J. Immunol.</i> 152:1014. (Activ)</li> <li>3. Asensi V, <i>et al.</i> 1989. <i>Immunology</i> 68:204. (Activ)</li> <li>4. Domiati-Saad R, <i>et al.</i> 1993. <i>J. Immunol.</i> 151:5936. (Activ)</li> <li>5. Hata H, <i>et al.</i> 2004. <i>J. Clin. Invest.</i> 114:582. (IHC)</li> <li>6. Monteith CE, <i>et al.</i> 1996. <i>Can. J. Vet. Res.</i> 60:193. (IHC)</li> <li>7. Shih FF, <i>et al.</i> 2006. <i>J. Immunol.</i> 176:3438. (FC)</li> </ol>
<b>(PubMed link indicates BioLegend citation)</b>	

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. Lunardi A, *et al.* 2015. *Cancer Discovery.* 5:550. [PubMed](#)
2. Zaman R, *et al.* 2021. *Immunity.* .: [PubMed](#)
3. Katsumura KR, *et al.* 2018. *Proc Natl Acad Sci U S A.* 115:E10109. [PubMed](#)
4. Shah D, *et al.* 2021. *Oncoimmunology.* 10:1939601. [PubMed](#)
5. Zhao J, *et al.* 2021. *Emerg Microbes Infect.* 10:913. [PubMed](#)
6. Lutter K, *et al.* 2022. *Front Immunol.* 13:967914. [PubMed](#)
7. Bruggemann TR, *et al.* 2022. *iScience.* 25:105185. [PubMed](#)
8. Israelow B, *et al.* 2020. *bioRxiv.* . [PubMed](#)
9. Furuta Y, *et al.* 2017. *PLoS One.* 12(2):e0172509. [PubMed](#)
10. Hata E, *et al.* 2016. *Int Immunol.* 28: 283 - 292. [PubMed](#)
11. Engel O, *et al.* 2015. *Stroke.* 46: 3232 - 3240. [PubMed](#)
12. Kaku H, *et al.* 2014. *J Immunol.* 193:5904. [PubMed](#)
13. Wu N, *et al.* 2020. *Cell Rep.* 30:1129. [PubMed](#)
14. Schönberger K, *et al.* 2022. *Cell Stem Cell.* 29:131. [PubMed](#)
15. Zhang R, *et al.* 2021. *Cell Mol Immunol.* 18:1222. [PubMed](#)
16. Ota T, *et al.* 2013. *J Immunol.* 191:3179. [PubMed](#)
17. Xia S, *et al.* 2014. *J Leukoc Biol.* 95:733. [PubMed](#)
18. Tan X, *et al.* 2016. *PLoS One.* 11: 0160985. [PubMed](#)
19. Bao H, *et al.* 2020. *Mol Med Rep.* 4:675. [PubMed](#)
20. Dong L, *et al.* 2021. *Cancer Cell.* . [PubMed](#)
21. Stewart I *et al.* 2018. *Immunity.* 49(3):477-489 . [PubMed](#)
22. Kim CJ, *et al.* 2018. *Immunity.* 49:1034. [PubMed](#)
23. Kelly L, *et al.* 2011. *J Immunol.* 187:3026. [PubMed](#)
24. Hewitson JP, *et al.* 2020. *J Immunol.* 204:2949. [PubMed](#)
25. Johnson KD, *et al.* 2022. *Blood Adv.* 6:1464. [PubMed](#)
26. Chen X, *et al.* 2021. *Theranostics.* 11:4655. [PubMed](#)
27. Zhu X, *et al.* 2017. *Arch Oral Biol.* 10.1016/j.archoralbio.2017.03.010. [PubMed](#)
28. Jones M, *et al.* 2016. *PLoS One.* 11: 0157271. [PubMed](#)
29. Wang X, *et al.* 2016. *PLoS Pathog.* 12: 1005367. [PubMed](#)
30. Yang W, *et al.* 2020. *Nat Commun.* 3.553472222. [PubMed](#)
31. Yang X, *et al.* 2020. *Blood Sci.* 2:89. [PubMed](#)
32. Ma C, *et al.* 2022. *Proc Natl Acad Sci U S A.* 119:.. [PubMed](#)
33. Carbonneau C, *et al.* 2012. *Blood.* 119:717. [PubMed](#)
34. Luff DH, *et al.* 2021. *Front Immunol.* 631271:12. [PubMed](#)
35. Ohyagi M, *et al.* 2021. *Nat Commun.* 12:7344. [PubMed](#)
36. Xu F, *et al.* 2022. *Cell Death Discov.* 8:142. [PubMed](#)
37. Tu X, *et al.* 2022. *Nat Commun.* 13:6977. [PubMed](#)
38. Fujikura D, *et al.* 2013. *PLoS One.* 8:e55321. [PubMed](#)
39. Delgado-Benito V *et al.* 2018. *Molecular cell.* 72(4):636-649 . [PubMed](#)
40. Zanotti KJ, *et al.* 2019. *J Immunol.* 202:1573. [PubMed](#)
41. Mariani SA, *et al.* 2019. *Immunity.* 50:1439. [PubMed](#)
42. Dey A *et al.* 2019. *The EMBO journal.* 38(7) pii: e100293. [PubMed](#)
43. Huang L, *et al.* 2017. *PLoS Biol.* 10.1371/journal.pbio.2001750. [PubMed](#)
44. Dai B, *et al.* 2022. *Theranostics.* 12:7603. [PubMed](#)
45. Tanaka Y, *et al.* 2021. *Int J Mol Sci.* 22:.. [PubMed](#)
46. Ma Y, *et al.* 2015. *J Immunol.* 195: 3769 - 3780. [PubMed](#)
47. Wong R, *et al.* 2020. *Immunity.* 53(5):1078-1094.e7. [PubMed](#)
48. Emgård J, *et al.* 2018. *Immunity.* 143:419. [PubMed](#)
49. Qi X, *et al.* 2019. *Nat Med.* 25:1225. [PubMed](#)
50. Nakata T, *et al.* 2020. *Proc Natl Acad Sci U S A.* 117:28930. [PubMed](#)
51. Yang K, *et al.* 2022. *J Clin Invest.* 132:.. [PubMed](#)
52. Jing L, *et al.* 2022. *Front Immunol.* 13:864995. [PubMed](#)
53. Wang Z, *et al.* 2021. *J Virol.* 95:e0141421. [PubMed](#)
54. Zhang X, *et al.* 2021. *Front Immunol.* 12:680068. [PubMed](#)
55. Köchl R, *et al.* 2020. *Elife.* 9:00. [PubMed](#)
56. Pang D, *et al.* 2015. *Clin Transl Immunology.* 4: e41. [PubMed](#)
57. Park HB, *et al.* 2020. *Oncoimmunology.* 9:1772663. [PubMed](#)
58. Wang GZ, *et al.* 2019. *Nat Commun.* 10:1125. [PubMed](#)
59. Mrdjen D *et al.* 2018. *Immunity.* 48(2):380-395 . [PubMed](#)
60. Zhang L, *et al.* 2021. *Methods Mol Biol.* 2388:175. [PubMed](#)
61. Yang L, *et al.* 2021. *Cell Death Differ.* 28:2616. [PubMed](#)
62. Nabar NR, *et al.* 2022. *Autophagy.* 18:204. [PubMed](#)
63. Zhang B, *et al.* 2021. *Nat Biomed Eng.* 5:1288. [PubMed](#)
64. Lu X, *et al.* 2016. *Nat Commun.* 7: 12719. [PubMed](#)
65. Hrdinka M, *et al.* 2016. *PLoS One.* 11: 0162863. [PubMed](#)
66. Li Y, *et al.* 2020. *Cell Stem Cell.* 27(5):732-747.e7. [PubMed](#)
67. DeVito NC, *et al.* 2021. *Cell Reports.* 35(5):109071. [PubMed](#)
68. Noah AC, *et al.* 2020. *J Appl Physiol (1985).* 473:128. [PubMed](#)
69. Derecka M, *et al.* 2020. *Nat Immunol.* 261:21. [PubMed](#)

70. Hutter K, *et al.* 2020. FEBS J. . [PubMed](#)
71. Greenwald AC, *et al.* 2019. J Exp Med. 216:215. [PubMed](#)
72. Srivastava S, *et al.* 2019. Cancer Cell. 35:489. [PubMed](#)
73. Paul S, *et al.* 2018. Appl Microbiol Biotechnol. 102:8895. [PubMed](#)
74. Marinescu CI, *et al.* 2021. Stem Cell Res Ther. 12:319. [PubMed](#)
75. Zhu Y, *et al.* 2022. Clin Transl Med. 12:e887. [PubMed](#)
76. Elahi S, *et al.* 2020. Stem Cell Res. 43:101710. [PubMed](#)
77. Zhang YN, *et al.* 2020. EBioMedicine. 56:102819. [PubMed](#)
78. Siamishi I, *et al.* 2020. Cell Reports. 31(11):107756. [PubMed](#)
79. St Clair JB, *et al.* 2017. PLoS One. 12:e0170556. [PubMed](#)
80. Roy K, *et al.* 2019. Immunity. 50:616. [PubMed](#)
81. Garo LP, *et al.* 2019. Cell Rep. 28:3353. [PubMed](#)
82. Reismann D, *et al.* 2017. Nat Commun. 10.1038/s41467-017-01538-9. [PubMed](#)
83. Chen X, *et al.* 2021. Cell Rep. 37:109991. [PubMed](#)
84. Ku C, *et al.* 2015. Genes Dev. 29: 1930-1941. [PubMed](#)
85. Lim CX, *et al.* 2020. Cell Rep. 3793:30. [PubMed](#)
86. Xiang W, *et al.* 2018. Nat Commun. 9:2574. [PubMed](#)
87. Zhang H, *et al.* 2019. Mol Cell. 76:110. [PubMed](#)
88. Li H, *et al.* 2020. Nature. 584:274. [PubMed](#)
89. Gu X, *et al.* 2022. Vaccines (Basel). 10:. [PubMed](#)
90. Kondo M, *et al.* 2016. J Immunol. 196: 563 - 572. [PubMed](#)
91. Hayashi K, *et al.* 2015. Int Immunol. 27: 435-445. [PubMed](#)
92. Morrison V, *et al.* 2015. J Immunol. 195: 105 - 115. [PubMed](#)
93. Jamali A, *et al.* 2020. Cell Reports. 32(9):108099. [PubMed](#)
94. Wittner J, *et al.* 2022. Mucosal Immunol. 15:668. [PubMed](#)
95. Kang X, *et al.* 2022. J Immunol Res. 2022:8118577. [PubMed](#)
96. Georgoudaki A, *et al.* 2016. Cell Rep. 15: 2000-2011. [PubMed](#)
97. Liu R, *et al.* 2018. Front Immunol. 9:592. [PubMed](#)
98. Nowlan B, *et al.* 2019. Haematologica. 105:71. [PubMed](#)
99. Morelli AE, *et al.* 2020. Cell Rep. 30:3448. [PubMed](#)
100. Zhang W, *et al.* 2020. Nat Commun. 11:1187. [PubMed](#)
101. Liu J, *et al.* 2021. Immun Inflamm Dis. 9:299. [PubMed](#)
102. Liu R, *et al.* 2021. Mol Cell Biol. 41:e0025121. [PubMed](#)
103. Chen C, *et al.* 2021. J Virol. 95:e0082921. [PubMed](#)
104. Chen RJ, *et al.* 2022. iScience. 25:105595. [PubMed](#)
105. Chen R, *et al.* 2021. Cell Reports. 34(7):108751. [PubMed](#)
106. Hirata SI, *et al.* 2020. Allergy. 75:1939. [PubMed](#)
107. Hsieh Y, *et al.* 2014. Infect Immun. 82:2087. [PubMed](#)
108. Baomei Wang *et al.* 2019. Cell reports. 26(6):1614-1626 . [PubMed](#)
109. Weng TY, *et al.* 2018. Sci Rep. 8:8216. [PubMed](#)
110. Zhang C, *et al.* 2021. J Virol. 95:e0079021. [PubMed](#)
111. Al-Barwani F, *et al.* 2014. PLoS One. 9:104523. [PubMed](#)
112. Younes AI, *et al.* 2021. Transl Oncol. 14:100983. [PubMed](#)
113. Kobia FM, *et al.* 2020. PLoS Biol. 18:e3000850. [PubMed](#)
114. Schuler F, *et al.* 2017. Nat Commun. 10.1038/s41467-017-01850-4. [PubMed](#)
115. Laban H, *et al.* 2018. J Cell Biol. 217:1503. [PubMed](#)
116. Alexander Mildner *et al.* 2017. Immunity. 46(5):849-862 . [PubMed](#)
117. Raju S, *et al.* 2020. Cell Reports. 29(9):2556-2564.e3.. [PubMed](#)
118. Sanchez HN, *et al.* 2020. Nat Commun. 0.5. [PubMed](#)
119. Nguyen HTT, *et al.* 2021. PLoS Pathog. 17:e1010026. [PubMed](#)
120. Soria-Castro R, *et al.* 2020. Sci Rep. 10:17802. [PubMed](#)
121. Ghezraoui H, *et al.* 2018. Nature. 560:122. [PubMed](#)
122. Tian D, *et al.* 2019. Nat Commun. 10:4246. [PubMed](#)
123. Clemente-Casares X, *et al.* 2017. Immunity. 47:974. [PubMed](#)
124. Zheng Y, *et al.* 2022. J Immunol. 208:501. [PubMed](#)
125. Hoechst B, *et al.* 2016. J Immunol. 195:1517-1523. [PubMed](#)
126. Wu Y, *et al.* 2015. J Immunol. 195: 2612-2623. [PubMed](#)
127. Takahashi T, *et al.* 2017. J Exp Med. 10.1084/jem.20160247. [PubMed](#)
128. Li K, *et al.* 2020. Nat Commun. 4.8444444444. [PubMed](#)
129. Golan K *et al.* 2018. Cell stem cell. 23(4):572-585 . [PubMed](#)
130. Zegarra-Ruiz DF *et al.* 2018. Cell host & microbe. 25(1):113-127 . [PubMed](#)
131. Velazquez VM, *et al.* 2017. Mol Ther Methods Clin Dev. 0.277083333. [PubMed](#)
132. Ota T, *et al.* 2011. J Exp Med. 208:617. [PubMed](#)
133. Tsyklauri O, *et al.* 2021. EMBO Rep. 22:e50785. [PubMed](#)
134. Chao JL, *et al.* 2021. Cell Rep Med. 2:100399. [PubMed](#)
135. Srivastava S, *et al.* 2020. Cancer Cell. 39(2):193-208.e10. [PubMed](#)
136. Iwanami N, *et al.* 2020. iScience. 23:101260. [PubMed](#)
137. Rosnagl S, *et al.* 2016. PLoS Biol. 14: 1002562. [PubMed](#)
138. Burton OT, *et al.* 2018. Clin Exp Allergy. 48:288. [PubMed](#)
139. Nakamura K, *et al.* 2018. Cancer Cell. 33:634. [PubMed](#)
140. Pan J, *et al.* 2022. Front Immunol. 13:812924. [PubMed](#)
141. Ioanna E Galani *et al.* 2017. Immunity. 46(5):875-890 . [PubMed](#)
142. Jing Y, *et al.* 2019. J Allergy Clin Immunol. 144:1377. [PubMed](#)
143. Awida Z, *et al.* 2021. Int J Mol Sci. 23:. [PubMed](#)
144. Uematsu T, *et al.* 2015. Sci Rep. 5: 17577. [PubMed](#)
145. Tham SM, *et al.* 2021. Biomedicines. 9:. [PubMed](#)

## Antigen Details

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<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. The Leukocyte Antigen FactsBook 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> <a href="#">5788</a>

## Related Protocols

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[Cell Surface Flow Cytometry Staining Protocol](#)

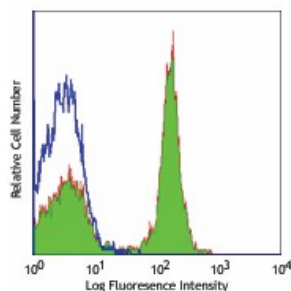
## Other Formats

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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

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C57BL/6 mouse splenocytes stained with RA3-6B2 FITC

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