

## Brilliant Violet 421™ anti-mouse CD8a Antibody

<b>Catalog# / Size</b>	100737 / 125 µL 100753 / 50 µg 100738 / 500 µL
<b>Clone</b>	53-6.7
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	T8, Lyt2, Ly-2
<b>Isotype</b>	Rat IgG2a, κ
<b>Description</b>	CD8, also known as Lyt-2, Ly-2, or T8, consists of disulfide-linked α and β chains that form the α(CD8a)/β(CD8b) heterodimer and α/α homodimer. CD8a is a 34 kD protein that belongs to the immunoglobulin family. The CD8 α/β heterodimer is expressed on the surface of most thymocytes and a subset of mature TCR α/β T cells. CD8 expression on mature T cells is non-overlapping with CD4. The CD8 α/α homodimer is expressed on a subset of γ/δ TCR-bearing T cells, NK cells, intestinal intraepithelial lymphocytes, and lymphoid dendritic cells. CD8 is an antigen co-receptor on T cells that interacts with MHC class I on antigen-presenting cells or epithelial cells. CD8 promotes T cell activation through its association with the TCR complex and protein tyrosine kinase lck.

### Product Details

---

<b>Verified Reactivity</b>	Mouse
<b>Antibody Type</b>	Monoclonal
<b>Host Species</b>	Rat
<b>Immunogen</b>	Mouse thymus or spleen
<b>Formulation</b>	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and BSA (origin USA).
<b>Preparation</b>	The antibody was purified by affinity chromatography and conjugated with Brilliant Violet 421™ under optimal conditions.
<b>Concentration</b>	µg sizes: 0.2 mg/mL µL sizes: lot-specific (to obtain lot-specific concentration, please enter the lot number in our <a href="#">Concentration and Expiration Lookup</a> or <a href="#">Certificate of Analysis</a> online tools.)
<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> <a href="#">IHC - Verified</a> <a href="#">SB - Reported in the literature, not verified in house</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 immunofluorescent staining using the µg size, the suggested use of this reagent is ≤0.5 µg per million cells in 100 µl volume. For immunofluorescent staining using µl sizes, the suggested use of this reagent is 5 µl per million cells in 100 µl staining volume or 5 µl per 100 µl of whole blood. It is recommended that the reagent be titrated for optimal performance for each application.  Brilliant Violet 421™ excites at 405 nm and emits at 421 nm. The standard bandpass filter 450/50 nm is recommended for detection. Brilliant Violet 421™ is a trademark of Sirigen Group Ltd.  <a href="#">Learn more about Brilliant Violet™.</a>

This product is subject to proprietary rights of Sirigen Inc. and is made and sold under license from Sirigen Inc. The purchase of this product conveys to the buyer a non-transferable right to use the purchased product for research purposes only. This product may not be resold or incorporated in any manner into another product for resale. Any use for therapeutics or diagnostics is strictly prohibited. This product is covered by U.S. Patent(s), pending patent applications and foreign equivalents.

**Excitation Laser** Violet Laser (405 nm)

**Application Notes** Clone 53-6.7 antibody competes with clone 5H10-1 antibody for binding to thymocytes<sup>3</sup>. The 53-6.7 antibody has been reported to block antigen presentation via MHC class I and inhibit T cell responses to IL-2. This antibody has also been used for depletion of CD8a<sup>+</sup> cells. Additional reported applications (for the relevant formats) include: immunoprecipitation<sup>1,3</sup>, *in vivo* and *in vitro* cell depletion<sup>2,10,15</sup>, inhibition of CD8 T cell proliferation<sup>3</sup>, blocking of cytotoxicity<sup>3,4</sup>, immunohistochemical staining<sup>5,6</sup> of acetone-fixed frozen sections and zinc-fixed paraffin-embedded sections, and spatial biology (IBEX)<sup>29,30</sup>. Clone 53-6.7 is not recommended for immunohistochemistry of formalin-fixed paraffin sections. The Ultra-LEAF™ purified antibody (Endotoxin < 0.01 EU/μg, Azide-Free, 0.2 μm filtered) is recommended for functional assays or *in vivo* studies (Cat No. 100746).

**Additional Product Notes** Iterative Bleaching Extended multi-plexity (IBEX) is a fluorescent imaging technique capable of highly-multiplexed spatial analysis. The method relies on cyclical bleaching of panels of fluorescent antibodies in order to image and analyze many markers over multiple cycles of staining, imaging, and, bleaching. It is a community-developed open-access method developed by the Center for Advanced Tissue Imaging (CAT-I) in the National Institute of Allergy and Infectious Diseases (NIAID, NIH).

#### Application References

(PubMed link indicates BioLegend citation)

1. Ledbetter JA, *et al.* 1979. *Immunol. Rev.* 47:63. (IHC, IP)
2. Hathcock KS. 1991. *Current Protocols in Immunology*. 3.4.1. (Deplete)
3. Takahashi K, *et al.* 1992. *P. Natl. Acad. Sci. USA* 89:5557. (Block, IP)
4. Ledbetter JA, *et al.* 1981. *J. Exp. Med.* 153:1503. (Block)
5. Hata H, *et al.* 2004. *J. Clin. Invest.* 114:582. (IHC)
6. Fan WY, *et al.* 2001. *Exp. Biol. Med.* 226:1045. (IHC)
7. Shih FF, *et al.* 2006. *J. Immunol.* 176:3438. (FC)
8. Kamimura D, *et al.* 2006. *J. Immunol.* 177:306.
9. Bouwer HGA, *et al.* 2006. *P. Natl. Acad. Sci. USA* 103:5102. (FC, Deplete)
10. Kao C, *et al.* 2005. *Int. Immunol.* 17:1607. [PubMed](#)
11. Ko SY, *et al.* 2005. *J. Immunol.* 175:3309. (FC) [PubMed](#)
12. Rasmussen JW, *et al.* 2006. *Infect. Immun.* 74:6590. [PubMed](#)
13. Lee CH, *et al.* 2009. *Clin. Cancer Res.* [PubMed](#)
14. Geiben-Lynn R, *et al.* 2008. *Blood* 112:4585. (Deplete) [PubMed](#)
15. Kingeter LM, *et al.* 2008. *J. Immunol.* 181:6244. [PubMed](#)
16. Guo Y, *et al.* 2008. *Blood* 112:480. [PubMed](#)
17. Andrews DM, *et al.* 2008. *J. Virol.* 82:4931. [PubMed](#)
18. Britschqui MR, *et al.* 2008. *J. Immunol.* 181:7681. [PubMed](#)
19. Kenna TJ, *et al.* 2008. *Blood* 111:2091. [PubMed](#)
20. Jordan JM, *et al.* 2008. *Infect. Immun.* 76:3717. [PubMed](#)
21. Todd DJ, *et al.* 2009. *J. Exp. Med.* 206:2151. [PubMed](#)
22. Bankoti J, *et al.* 2010. *Toxicol. Sci.* 115:422. (FC) [PubMed](#)
23. Medyouf H, *et al.* 2010. *Blood* 115:1175. [PubMed](#)
24. Riedl P, *et al.* 2009. *J. Immunol.* 183:370. [PubMed](#)
25. Apte SH, *et al.* 2010. *J. Immunol.* 185:998. [PubMed](#)
26. Bankoti J, *et al.* 2010. *Toxicol. Sci.* 115:422. (FC) [PubMed](#)
27. del Rio ML, *et al.* 2011. *Transpl. Int.* 24:501. (FC) [PubMed](#)
28. Cui L, *et al.* 2015. *J Control Release.* 206:220. [PubMed](#)
29. Radtke AJ, *et al.* 2020. *Proc Natl Acad Sci U S A.* 117:33455-65. (SB) [PubMed](#)
30. Radtke AJ, *et al.* 2022. *Nat Protoc.* 17:378-401. (SB) [PubMed](#)

#### Product Citations

1. Jayachandran R, *et al.* 2019. *Immunity.* 50:152. [PubMed](#)
2. McNamara HA, *et al.* 2020. *Cell Host Microbe.* 572:28. [PubMed](#)
3. Groza D, *et al.* 2018. *Oncoimmunology.* 7:e1424676. [PubMed](#)
4. Gabriely G, *et al.* 2021. *iScience.* 24:103347. [PubMed](#)
5. Nguyen NDNT, *et al.* 2020. *NPJ Vaccines.* 5:7. [PubMed](#)
6. Delvecchio FR, *et al.* 2021. *Cell Mol Gastroenterol Hepatol.* 12:1543. [PubMed](#)
7. Mogilenko DA, *et al.* 2020. *Immunity.* 54(1):99-115.e12. [PubMed](#)
8. Lee J, *et al.* 2020. *Gut Microbes.* 1:. [PubMed](#)
9. Baptista AP *et al.* 2019. *Immunity.* 50(5):1188-1201. [PubMed](#)
10. Stathopoulou C, *et al.* 2020. *Immunity.* 49(2):247-263.e7.. [PubMed](#)
11. Yang F, *et al.* 2021. *Front Microbiol.* 11:512581. [PubMed](#)
12. Delacher M, *et al.* 2021. *Immunity.* 54(4):702-720.e17. [PubMed](#)
13. Acharya N, *et al.* 2020. *Immunity.* 53(3):658-671.e6. [PubMed](#)
14. Franks SE, *et al.* 2019. *J Immunol.* 202:3381. [PubMed](#)
15. Pokrovskii M, *et al.* 2020. *EMBO J.* 39:e104159. [PubMed](#)
16. Menzel L, *et al.* 2021. *Cell Rep.* 37:109878. [PubMed](#)
17. Lutes LK, *et al.* 2021. *eLife.* 10:00. [PubMed](#)
18. Jtte BB, *et al.* 2021. *iScience.* 24(8):102833. [PubMed](#)
19. Wang Y, *et al.* 2021. *Cancer Cell.* .: [PubMed](#)
20. LaFleur MW, *et al.* 2019. *Nat Immunol.* 20:1335. [PubMed](#)
21. Fukushima T, *et al.* 2019. *Cell Rep.* 29:4144. [PubMed](#)
22. Lees JG, *et al.* 2020. *PLoS One.* 15:e0238164. [PubMed](#)
23. Helm M, *et al.* 2022. *Life (Basel).* 12:. [PubMed](#)
24. Paprckova D, *et al.* 2022. *Front Immunol.* 13:1009198. [PubMed](#)
25. Mitchell JE, *et al.* 2021. *Cell Reports.* 35(2):108966. [PubMed](#)
26. Ding Z, Dahlin J 2016. *Sci Rep.* 6:28290. [PubMed](#)

27. Wang C, *et al.* 2021. Cell Rep. 37:110021. [PubMed](#)
28. Woodworth JS, *et al.* 2021. Nat Commun. 12:6658. [PubMed](#)
29. Levine LS, *et al.* 2021. Immunity. 54(4):829-844.e5. [PubMed](#)
30. Stokes J, *et al.* 2020. Oncoimmunology. 9:1758011. [PubMed](#)
31. MacDonald A, *et al.* 2021. Front Immunol. 12:755995. [PubMed](#)
32. Miller IC, *et al.* 2021. Nature Biomedical Engineering. .: [PubMed](#)
33. Köchl R, *et al.* 2020. Elife. 9:00. [PubMed](#)
34. Fulham MA, *et al.* 2019. Am J Physiol Cell Physiol. 317:C687. [PubMed](#)
35. Wagle MV, *et al.* 2021. Nat Commun. 12:2782. [PubMed](#)
36. Park D, *et al.* 2020. Cancer Res. 80:4172. [PubMed](#)
37. Fan Z, *et al.* 2020. EMBO Mol Med. 12:e11571. [PubMed](#)
38. Hutter K, *et al.* 2020. FEBS J. . [PubMed](#)
39. Ruer-Laventie J, *et al.* 2020. Bio Protoc. e3531:10. [PubMed](#)
40. Imani J, *et al.* 2021. JCI Insight. 6:. [PubMed](#)
41. Lu X, *et al.* 2020. Sci Transl Med. 12:. [PubMed](#)
42. Guo P, *et al.* 2021. J Immunol. 207:408. [PubMed](#)
43. Knizkova D, *et al.* 2022. Nat Immunol. 23:1644. [PubMed](#)
44. Bambouskova M, *et al.* 2021. Cell Reports. 34(10):108756. [PubMed](#)
45. Ringel AE, *et al.* 2020. Cell. 183(7):1848-1866.e26. [PubMed](#)
46. Siamishi I, *et al.* 2020. Cell Reports. 31(11):107756. [PubMed](#)
47. Bergin SM, *et al.* 2021. Brain Behav Immun. 95:477. [PubMed](#)
48. Sum E, *et al.* 2021. Clin Cancer Res. 27:4036. [PubMed](#)
49. Chen Z, *et al.* 2014. Cancer Immunol Res. 2:911. [PubMed](#)
50. LaFleur MW, *et al.* 2019. Nat Commun. 10:1668. [PubMed](#)
51. Kacherovsky N, *et al.* 2019. Nat Biomed Eng. 0.66875. [PubMed](#)
52. Horkova V, *et al.* 2020. Cell Reports. 30(5):1504-1514.e7.. [PubMed](#)
53. Sinclair LV, *et al.* 2020. Immunometabolism. 2:e200029. [PubMed](#)
54. LM S, *et al.* 2016. Cell Rep. 16(12): 3286-96. [PubMed](#)
55. Hu-Lieskovan S, *et al.* 2015. Sci Transl Med. 7:279. [PubMed](#)
56. Ballet R, *et al.* 2014. PLoS Pathog. 10:1004550. [PubMed](#)
57. Tanaka Y, *et al.* 2020. Sci Rep. 10:17284. [PubMed](#)
58. Evgin L, *et al.* 2020. Nat Commun. 2.671527778. [PubMed](#)
59. Wei Z, *et al.* 2021. Nat Commun. 0.805555556. [PubMed](#)
60. Giampazolias E, *et al.* 2021. Cell. . [PubMed](#)
61. Zhang Q, *et al.* 2021. Front Cell Dev Biol. 9:655552. [PubMed](#)
62. Zwick M, *et al.* 2019. Front Immunol. 10:222. [PubMed](#)
63. Klepsch V, *et al.* 2018. Nat Commun. 9:1538. [PubMed](#)
64. Dai Z, *et al.* 2022. Signal Transduct Target Ther. 7:85. [PubMed](#)
65. Sakamoto K, *et al.* 2021. Immunity. 54:2321. [PubMed](#)
66. Dong X, *et al.* 2022. Front Immunol. 13:896472. [PubMed](#)
67. Murdock BJ, *et al.* 2021. JCI Insight. 6:. [PubMed](#)
68. Briukhovetska D, *et al.* 2020. Frontiers in Immunology. 1.428472222. [PubMed](#)
69. Pavelko K, *et al.* 2017. Front Immunol. . 10.3389/fimmu.2017.01532. [PubMed](#)
70. Zheng Y, *et al.* 2022. J Immunol. 208:501. [PubMed](#)
71. Kiss M, *et al.* 2020. Cancer Immunol Res. 9:309. [PubMed](#)
72. Hoyer FF, *et al.* 2020. Immunity. 51(5):899-914.e7.. [PubMed](#)
73. Heil J, *et al.* 2021. Nat Commun. 12:6963. [PubMed](#)
74. Neckermann P, *et al.* 2021. Front Immunol. 12:761214. [PubMed](#)
75. Hackstein CP, *et al.* 2022. Nat Commun. 13:7472. [PubMed](#)
76. Freed-Pastor WA, *et al.* 2021. Cancer Cell. .: [PubMed](#)
77. Iwanami N, *et al.* 2020. iScience. 23:101260. [PubMed](#)
78. Parks CA, *et al.* 2019. Proc Natl Acad Sci U S A. 116:3136. [PubMed](#)
79. Li X, *et al.* 2022. Oncoimmunology. 11:2118210. [PubMed](#)
80. Li Q, *et al.* 2022. J Biol Chem. :101753. [PubMed](#)
81. Corrado M, *et al.* 2020. Cell Metab. 32:981. [PubMed](#)
82. Dammeijer F, *et al.* 2020. Cancer Cell. 38(5):685-700.e8. [PubMed](#)
83. Young A, *et al.* 2017. Cancer Res. 77:4684. [PubMed](#)
84. Liang Z, *et al.* 2022. iScience. 25:105233. [PubMed](#)

**RRID** AB\_10897101 (BioLegend Cat. No. 100737)  
 AB\_2562558 (BioLegend Cat. No. 100753)  
 AB\_11204079 (BioLegend Cat. No. 100738)

## Antigen Details

---

<b>Structure</b>	Ig superfamily, CD8α chain, 34 kD
<b>Distribution</b>	Most thymocytes, T cell subset, some NK cells, lymphoid dendritic cells
<b>Function</b>	Co-receptor for TCR
<b>Ligand/Receptor</b>	MHC class I molecule
<b>Antigen References</b>	1. Barclay A, <i>et al.</i> 1997. The Leukocyte Antigen FactsBook Academic Press. 2. Zamoyska R. 1994. <i>Immunity</i> 1:243. 3. Ellmeier W, <i>et al.</i> 1999. <i>Annu. Rev. Immunol.</i> 17:523.

Gene ID

[12525](#)

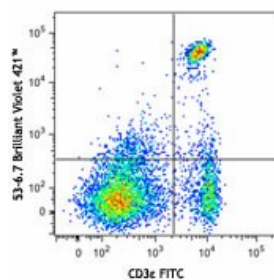
## Related Protocols

[Cell Surface Flow Cytometry Staining Protocol](#)

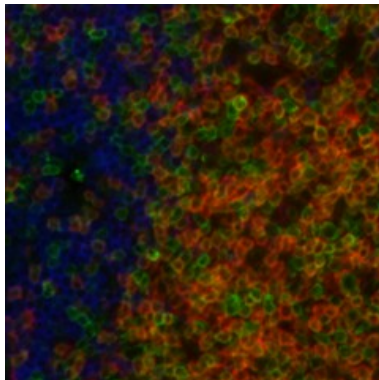
## Other Formats

APC anti-mouse CD8a, Biotin anti-mouse CD8a, FITC anti-mouse CD8a, PE anti-mouse CD8a, PE/Cyanine5 anti-mouse CD8a, Purified anti-mouse CD8a, PE/Cyanine7 anti-mouse CD8a, APC/Cyanine7 anti-mouse CD8a, Alexa Fluor® 488 anti-mouse CD8a, Alexa Fluor® 647 anti-mouse CD8a, Pacific Blue™ anti-mouse CD8a, Alexa Fluor® 700 anti-mouse CD8a, PerCP/Cyanine5.5 anti-mouse CD8a, PerCP anti-mouse CD8a, Brilliant Violet 421™ anti-mouse CD8a, Brilliant Violet 570™ anti-mouse CD8a, Brilliant Violet 650™ anti-mouse CD8a, Brilliant Violet 605™ anti-mouse CD8a, Ultra-LEAF™ Purified anti-mouse CD8a, Brilliant Violet 711™ anti-mouse CD8a, Brilliant Violet 785™ anti-mouse CD8a, Brilliant Violet 510™ anti-mouse CD8a, Purified anti-mouse CD8a (Maxpar® Ready), Alexa Fluor® 594 anti-mouse CD8a, PE/Dazzle™ 594 anti-mouse CD8a, APC/Fire™ 750 anti-mouse CD8a, GoInVivo™ Purified anti-mouse CD8a, TotalSeq™-A0002 anti-mouse CD8a, Spark Blue™ 550 anti-mouse CD8a, Spark NIR™ 685 anti-mouse CD8a, TotalSeq™-C0002 anti-mouse CD8a, TotalSeq™-B0002 anti-mouse CD8a, Spark YG™ 570 anti-mouse CD8a, PE/Fire™ 640 anti-mouse CD8a, PE/Fire™ 700 anti-mouse CD8a, Spark Blue™ 574 anti-mouse CD8a Antibody, Spark Violet™ 423 anti-mouse CD8a Antibody, Spark UV™ 387 anti-mouse CD8a

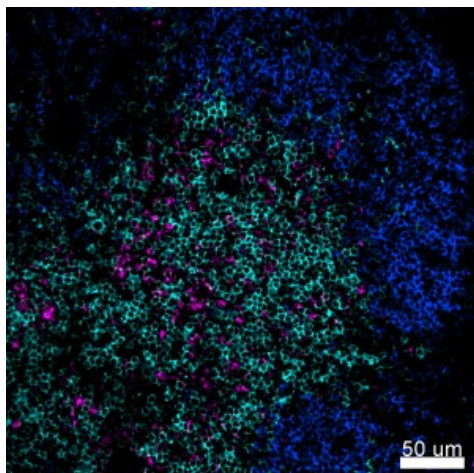
## Product Data



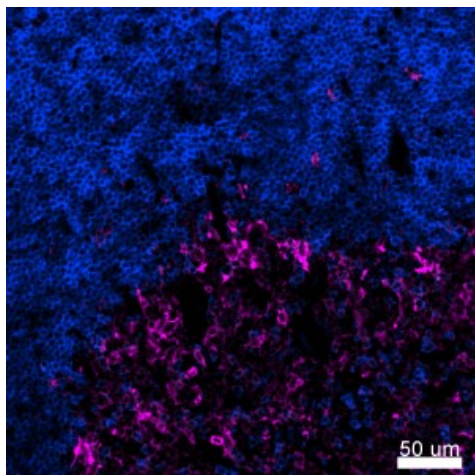
C57BL/6 mouse splenocytes were stained with CD3ε FITC and CD8a (clone 53-6.7) Brilliant Violet 421™. Quadrant gating was based on the rat IgG2a, κ Brilliant Violet 421™ isotype control.



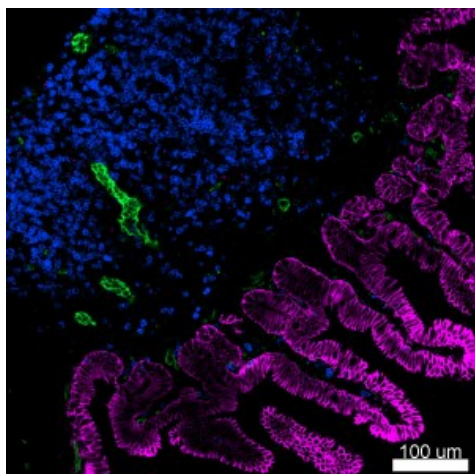
BL6 mouse lymph nodes, fixed O/N in PLP, blocked with 10% rat serum, stained with CD8a-BV421 (red), B220-Alexa Fluor® 647 (blue), and TCRβ-Alexa Fluor® 488 (green) in 1% BSA and 0.1% Tween-20 in PBS. Images were acquired with an automated widefield microscope (Nikon Eclipse Ti) and a CCD camera (QImaging Retiga 2000R). Emitted light was collected through 440/40, 525/50, and 700/75 nm bandpass filters. Images provided by Ann Haberman and Christine Podolski, Yale University.



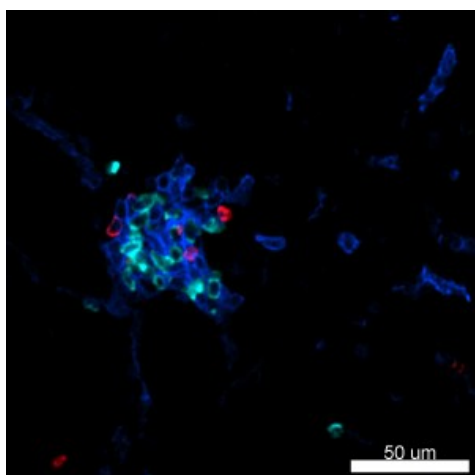
Confocal image of C57BL/6 mouse spleen sample acquired using the IBEX method of highly multiplexed antibody-based imaging: CD4 (cyan), CD8 (magenta), and IgD (blue) in Cycle 1. Tissues were prepared using ~1% (vol/vol) formaldehyde and a detergent. Following fixation, samples are immersed in 30% (wt/vol) sucrose for cryoprotection. Images are courtesy of Drs. Andrea J. Radtke and Ronald N. Germain of the Center for Advanced Tissue Imaging (CAT-I) in the National Institute of Allergy and Infectious Diseases (NIAID, NIH).



Confocal image of C57BL/6 mouse thymus sample acquired using the IBEX method of highly multiplexed antibody-based imaging: CD8 (blue) in Cycle 2 and CD11c (magenta) in Cycle 3. Tissues were prepared using ~1% (vol/vol) formaldehyde and a detergent. Following fixation, samples are immersed in 30% (wt/vol) sucrose for cryoprotection. Images are courtesy of Drs. Andrea J. Radtke and Ronald N. Germain of the Center for Advanced Tissue Imaging (CAT-I) in the National Institute of Allergy and Infectious Diseases (NIAID, NIH).



Confocal image of C57BL/6 mouse small intestine sample acquired using the IBEX method of highly multiplexed antibody-based imaging: EpCAM (magenta) in Cycle 1, CD8 (blue) in Cycle 1, and CD31 (green) in Cycle 2. Tissues were prepared using ~1% (vol/vol) formaldehyde and a detergent. Following fixation, samples are immersed in 30% (wt/vol) sucrose for cryoprotection. Images are courtesy of Drs. Andrea J. Radtke and Ronald N. Germain of the Center for Advanced Tissue Imaging (CAT-I) in the National Institute of Allergy and Infectious Diseases (NIAID, NIH).



Confocal image of C57BL/6 mouse liver sample acquired using the IBEX method of highly multiplexed antibody-based imaging: CD8 (cyan) in Cycle 2, CD44 (blue) in Cycle 2, and NK1.1 (red) in Cycle 3. Tissues were prepared using ~1% (vol/vol) formaldehyde and a detergent. Following fixation, samples are immersed in 30% (wt/vol) sucrose for cryoprotection. Images are courtesy of Drs. Andrea J. Radtke and Ronald N. Germain of the Center for Advanced Tissue Imaging (CAT-I) in the National Institute of Allergy and Infectious Diseases (NIAID, NIH).

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.

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