

# BD Rhapsody™ Immune Response Panel Mm

**BD Biosciences Kit Part Number: 633753**

## Purpose

The BD Rhapsody Immune Response Panel Mm is a set of ready-to-use primer pools to use with the BD Rhapsody™ Single-Cell Analysis system. The panel consists of two sets of 397 primers: one pool of PCR1 primers for the first round of amplification of gene targets of interest and a second pool of nested primers to maximize specificity for the second round of amplification.

## Contents

Panel	PN	Component	Cap color	Quantity	Volume per unit (µL)	Storage
BD Rhapsody Immune Response Panel Mm (PN 633753)	650000120	PCR1 Primers-Immune Response Panel Mm (tube label: PCR1-Immune Res. Mm)	Blue	1 vial	210	-25°C to -15°C
	650000121	PCR2 Primers-Immune Response Panel Mm (tube label: PCR2-Immune Res. Mm)	Blue	1 vial	50	

Gene symbol	Accession number	Poly(A) site <sup>1</sup>	Common name	Function/process	Cell type specificity	Verified <sup>2</sup>
2810417H13Rik	ENSMUST00000045802.6	chr9:65902119	Pclaf	Miscellaneous	—	U; M
Ada	ENSMUST00000017841.3	chr2:163726816	—	Enzyme	Non-classical monocyte	U; M
Adgre1	ENSMUST00000086763.11	chr17:57483521	—	G-protein coupled receptor	Macrophage	U; M
Adgrg3	ENSMUST00000051259.9	chr8:95045246	GPR97	G-protein coupled receptor	Granulocyte; monocyte; macrophage; dendritic	U; M
Alas2	ENSMUST00000066337.12	chrX:150570618	—	Cell type marker	RBC	M
Anxa5	ENSMUST00000029266.13	chr3:36448922	—	Transporter	Monocyte; T subset	U; M
Apoe	ENSMUST00000174064.8	chr7:19696269	—	Apoptosis regulator	Macrophage	U; M
Aqp9	ENSMUST00000074465.8	chr9:71110736	—	Transporter	—	U; M
Arg1	ENSMUST00000020161.8	chr10:24915208	—	Enzyme	—	U; M
Arg2	ENSMUST00000021550.6	chr12:79156289	—	Enzyme	—	U; M
Arl4c	ENSMUST00000159814.1	chr1:88698259	ARL7; LAK	Enzyme	—	U; M
Atf6b	ENSMUST00000015605.14	chr17:34655074	CREBL1	Transcription factor	—	U; M
Aurkb	ENSMUST00000108666.7	chr11:69051580	—	Cell cycle (M phase)	—	U; M
Bach2	ENSMUST00000108180.8	chr4:32586104	—	Transcription factor	—	U; M
Bax	ENSMUST00000033093.9	chr7:45461734	—	Apoptosis regulator	—	U; M
Bcl11a	ENSMUST00000109514.7	chr11:24168435	—	Transcription factor	—	U; M
Bcl2	ENSMUST00000112751.1	chr1:106538207	—	Apoptosis regulator	—	U; M
Bcl2a1a	ENSMUST00000098485.3	chr9:88962417	—	Apoptosis regulator	—	U; M
Bcl6	ENSMUST00000023151.5	chr16:23965051	—	Transcription factor	—	U; M
Bin2	ENSMUST00000183211.7	chr15:100641082	—	Miscellaneous	—	U; M
Birc3	ENSMUST00000013949.14	chr9:7848716	—	Enzyme	—	U; M
Blk	ENSMUST00000014597.3	chr14:63372835	—	Kinase	—	U; M
Blnk	ENSMUST00000054769.6	chr19:40928928	—	Miscellaneous	—	U; M
Btg1	ENSMUST00000038377.7	chr10:96619627	—	Transcription factor	—	U; M
Btla	ENSMUST00000063654.4	chr16:45252875	—	CD marker	—	U; M
C1qa	ENSMUST00000046285.5	chr4:136895916	—	Complement protein	—	U; M

<sup>1</sup>The coordinates are based on mouse genome assembly GRCm38/mm10.

<sup>2</sup>U: Gene expression detected in 10 ng of a universal mouse reference RNA. M: Gene expression detected across 1,179 cells obtained from mouse lymphoid tissue.

Gene symbol	Accession number	Poly(A) site <sup>1</sup>	Common name	Function/process	Cell type specificity	Verified <sup>2</sup>
C1qb	ENSMUST00000046384.8	chr4:136880128	—	Complement protein	—	U; M
C3	ENSMUST00000024988.14	chr17:57203972	—	Complement protein	—	U; M
C5ar1	ENSMUST00000168818.1	chr7:16247256	—	G-protein coupled receptor	—	U; M
Casp1	ENSMUST00000027015.5	chr9:5307288	—	Enzyme	—	U; M
Casp8	ENSMUST00000027189.14	chr1:58847014	—	Enzyme	—	U; M
Cblb	ENSMUST00000114471.1	chr16:52208041	—	Enzyme	—	U; M
Ccl17	ENSMUST00000034232.2	chr8:94812036	TARC	Chemokine	—	U; M
Ccl19	ENSMUST00000102957.5	chr4:42754525	—	Chemokine	—	M
Ccl2	ENSMUST00000000193.5	chr11:82037451	MCP1	Chemokine	—	U; M
Ccl20	ENSMUST00000113437.8	chr1:83119167	—	Chemokine	—	U
Ccl22	ENSMUST00000034231.3	chr8:94751699	—	Chemokine	—	—
Ccl3	ENSMUST00000001008.5	chr11:83647845	MIP-1alpha	Chemokine	—	U; M
Ccl4	ENSMUST00000019074.3	chr11:83664679	MIP-1beta	Chemokine	—	U; M
Ccl5	ENSMUST00000035938.2	chr11:83525777	RANTES	Chemokine	Cytotoxic T; NK	U; M
Ccl6	ENSMUST00000019071.3	chr11:83588394	—	Chemokine	—	U; M
Ccl9	ENSMUST00000019266.5	chr11:83574659	—	Chemokine	—	U; M
Ccnd2	ENSMUST00000000188.11	chr6:127125161	—	Cell cycle (checkpoint)	—	U; M
Ccr1	ENSMUST00000026911.4	chr9:123962974	—	Chemokine receptor	—	U; M
Ccr10	ENSMUST00000062759.3	chr11:101173457	—	Chemokine receptor	—	U; M
Ccr2	ENSMUST00000168841.1	chr9:124109095	—	Chemokine receptor	—	U; M
Ccr3	ENSMUST00000039171.7	chr9:124031696	—	Chemokine receptor	—	M
Ccr5	ENSMUST00000111442.1	chr9:124127181	CD195	Chemokine receptor	—	U; M
Ccr6	ENSMUST00000180103.1	chr17:8257127	—	Chemokine receptor	—	U; M
Ccr7	ENSMUST00000103134.3	chr11:99144201	—	Chemokine receptor	—	U; M
Ccr8	ENSMUST00000048777.2	chr9:120094906	—	Chemokine receptor	—	U; M
Ccr9	ENSMUST00000163559.7	chr9:123781778	—	Chemokine receptor	T subset	U; M
Cd14	ENSMUST00000061829.6	chr18:36725074	—	Cell type marker	Monocyte	U; M
Cd160	ENSMUST00000107074.7	chr3:96800241	—	CD marker	NK; CD8 T	U; M
Cd163	ENSMUST00000032234.4	chr6:124330520	—	CD marker	Monocyte/macrophage	M
Cd19	ENSMUST00000206325.1	chr7:126408447	—	CD marker	B	M
Cd1d1	ENSMUST00000029717.3	chr3:86995860	—	CD marker	—	U; M

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Cd1d2	ENSMUST00000194208.5	chr3:86989780	—	CD marker	—	M
Cd2	ENSMUST00000029456.4	chr3:101275907	—	CD marker	Pan T	U; M
Cd200	ENSMUST00000163230.7	chr16:45382179	—	CD marker	—	U; M
Cd22	ENSMUST00000019248.12	chr7:30865847	—	CD marker	B	U; M
Cd244	ENSMUST00000004829.12	chr1:171585318	2B4	CD marker	Monocyte; NK	U; M
Cd247	ENSMUST00000005907.11	chr1:165862066	CD3Z	CD marker	—	M
Cd27	ENSMUST00000032486.12	chr6:125232621	—	CD marker	Pan T	U; M
Cd274	ENSMUST00000016640.7	chr19:29388091	PD-L1	CD marker	—	U; M
Cd28	ENSMUST00000027165.2	chr1:60773360	—	CD marker	Pan T	U; M
Cd300a	ENSMUST00000106582.8	chr11:114901938	—	CD marker	—	U; M
Cd33	ENSMUST00000205503.1	chr7:43528373	SIGLEC3	CD marker	Monocyte	U; M
Cd34	ENSMUST00000016638.7	chr1:194961279	—	CD marker	Hematopoietic stem	U; M
Cd36	ENSMUST00000170051.7	chr5:17782371	—	CD marker	Monocyte	U; M
Cd37	ENSMUST00000209779.1	chr7:45233636	—	CD marker	Monocyte	U; M
Cd38	ENSMUST00000030964.5	chr5:43912178	—	CD marker	—	U; M
Cd3d	ENSMUST00000034602.7	chr9:44986418	—	Cell type marker	Pan T	U; M
Cd3e	ENSMUST00000102832.1	chr9:44998738	—	Cell type marker	Pan T	U; M
Cd3g	ENSMUST00000002101.11	chr9:44969777	—	Cell type marker	T subset	U; M
Cd4	ENSMUST00000024044.6	chr6:124864704	—	Cell type marker	T subset	M
Cd40	ENSMUST00000017799.11	chr2:165071642	—	CD marker	—	U; M
Cd44	ENSMUST00000005218.14	chr2:102811383	—	CD marker	Memory T	U; M
Cd48	ENSMUST00000068584.6	chr1:171705196	BLAST	CD marker	—	U; M
Cd5	ENSMUST00000025571.7	chr19:10718142	Leu1	CD marker	T	U; M
Cd52	ENSMUST00000000696.6	chr4:134093695	—	CD marker	—	U; M
Cd6	ENSMUST00000080292.11	chr19:10789340	—	CD marker	—	U; M
Cd63	ENSMUST00000105229.7	chr10:128912800	—	CD marker	T subset; monocyte	U; M
Cd69	ENSMUST00000032259.5	chr6:129267379	—	Cell type marker	Activated	U; M
Cd7	ENSMUST00000026159.5	chr11:121036754	—	CD marker	—	U; M
Cd72	ENSMUST00000098104.9	chr4:43447734	—	CD marker	—	U; M
Cd74	ENSMUST00000167610.1	chr18:60812618	—	Cell type marker	Antigen presenting	U; M
Cd79a	ENSMUST00000003469.7	chr7:24901765	—	Cell type marker	B	U; M
Cd79b	ENSMUST00000167143.1	chr11:106311342	—	Cell type marker	B	U; M
Cd86	ENSMUST00000089620.10	chr16:36603874	—	CD marker	—	U; M
Cd8a	ENSMUST00000066747.13	chr6:71377609	—	Cell type marker	T subset	M
Cd8b1	ENSMUST00000065248.8	chr6:71337141	—	Cell type marker	T subset	U; M
Cd9	ENSMUST00000032492.8	chr6:125460265	—	CD marker	—	U; M
Chi3	ENSMUST00000063062.8	chr3:106147553	—	Enzyme	—	M

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Clec10a	ENSMUST00000102571.9	chr11:70170832	—	Cell adhesion	Dendritic	U; M
Clec4d	ENSMUST00000032240.3	chr6:123274924	—	Cell adhesion	—	U; M
Clec4e	ENSMUST00000032239.10	chr6:123282831	—	Cell adhesion	Monocyte	U; M
Cmklr1	ENSMUST00000047936.12	chr5:113612386	—	G-protein coupled receptor	—	M
Cnot2	ENSMUST00000105267.7	chr10:116485164	—	Transcription factor	—	U; M
Cpa3	ENSMUST00000001921.2	chr3:20215620	—	Cell type marker	Mast	U; M
Cr2	ENSMUST00000195120.5	chr1:195139665	CD21	CD marker	—	M
Csf1	ENSMUST00000014743.9	chr3:107741327	—	Cytokine	—	U; M
Csf2	ENSMUST00000019060.5	chr11:54247271	—	Cytokine	—	U; M
Cst7	ENSMUST00000089200.2	chr2:150578940	—	Cell type marker	Cytotoxic T; NK	U; M
Ctla4	ENSMUST00000027164.8	chr1:60915832	—	Immune checkpoint	—	U; M
Ctsd	ENSMUST00000151120.8	chr7:142375915	cathepsin D	Enzyme	—	U; M
Ctsw	ENSMUST00000025844.4	chr19:5465239	—	Cell type marker	Cytotoxic T; NK	U; M
Cx3cr1	ENSMUST00000064165.3	chr9:120048829	—	Chemokine	—	M
Cxcl1	ENSMUST00000031327.8	chr5:90893115	—	Chemokine	—	U; M
Cxcl10	ENSMUST00000038816.12	chr5:92346646	—	Chemokine	—	U; M
Cxcl11	ENSMUST00000077820.5	chr5:92359547	—	Chemokine	—	—
Cxcl13	ENSMUST00000023840.6	chr5:95961068	—	Chemokine	—	U; M
Cxcl16	ENSMUST00000019064.8	chr11:70455191	—	Chemokine	Monocyte	U; M
Cxcl2	ENSMUST00000200681.3	chr5:90905937	—	Chemokine	—	U; M
Cxcl9	ENSMUST00000113093.4	chr5:92322991	—	Chemokine	—	M
Cxcr1	ENSMUST00000190313.1	chr1:74191785	—	Chemokine receptor	—	M
Cxcr2	ENSMUST00000106899.3	chr1:74161246	—	Chemokine receptor	—	U; M
Cxcr3	ENSMUST00000056614.6	chrX:101731534	—	Chemokine receptor	—	U; M
Cxcr4	ENSMUST00000052172.6	chr1:128588198	CD184	Chemokine receptor	—	U; M
Cxcr5	ENSMUST00000179828.7	chr9:44511786	—	Chemokine receptor	—	M
Cxcr6	ENSMUST00000049810.7	chr9:123811754	—	Chemokine receptor	—	U; M
Ddx58	ENSMUST00000037907.12	chr4:40204902	RIG-I	Enzyme	—	U; M
Dock8	ENSMUST00000025831.6	chr19:25201935	—	Miscellaneous	—	U; M
Dpp4	ENSMUST00000047812.7	chr2:62331795	CD26	CD marker	—	U; M
Dusp1	ENSMUST00000025025.6	chr17:26505638	—	Stress response	—	U; M
Dusp2	ENSMUST00000028846.6	chr2:127338279	—	Miscellaneous	—	U; M
Ebf1	ENSMUST00000081265.11	chr11:45005010	—	Transcription factor	B	U; M

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Egr1	ENSMUST00000165033.1	chr18:34864984	—	Stress response	—	U; M
Elane	ENSMUST00000046091.5	chr10:79888217	—	Cell type marker	Neutrophil	U; M
Entpd1	ENSMUST00000112231.8	chr19:40739471	CD39	CD marker	—	U; M
Eomes	ENSMUST00000035020.14	chr9:118486117	—	Transcription factor	T subset	U; M
F13a1	ENSMUST00000164727.7	chr13:36867190	—	Enzyme	Monocyte	U; M
F5	ENSMUST00000086040.5	chr1:164220231	—	Enzyme	Monocyte	U; M
Fam129c	ENSMUST00000143662.7	chr8:71607932	—	Miscellaneous	B	U; M
Fam65b	ENSMUST00000091694.9	chr13:24706001	—	Kinase	B	U; M
Fas	ENSMUST00000025691.11	chr19:34327770	CD95	CD marker	—	U; M
Fasl	ENSMUST00000000834.3	chr1:161780689	—	Cytokine	—	U; M
Fcer1a	ENSMUST00000049706.10	chr1:173221284	—	Immune receptor	—	M
Fcer1g	ENSMUST00000079957.11	chr1:171229576	—	Immune receptor	Monocyte; NK	U; M
Fcer2a	ENSMUST00000005678.5	chr8:3681731	—	Cell adhesion	—	M
Fcgr3	ENSMUST00000164044.7	chr1:171051194	—	Cell type marker	Monocyte	U; M
Fcna	ENSMUST00000028307.8	chr2:25624665	—	Miscellaneous	—	U; M
Fcrla	ENSMUST00000046322.13	chr1:170917989	FREB	Cell adhesion	—	U; M
Flt3	ENSMUST00000049324.12	chr5:147330746	CD135	CD marker; kinase	Dendritic	U; M
Fn1	ENSMUST00000055226.12	chr1:71585586	—	Miscellaneous	Macrophage	U; M
Fosb	ENSMUST00000003640.3	chr7:19302695	—	Stress response	—	U; M
Fosl1	ENSMUST00000025850.5	chr19:5455944	—	Transcription factor	—	U; M
Foxo1	ENSMUST00000053764.6	chr3:52350091	—	Transcription factor	—	U; M
Foxp3	ENSMUST00000115740.7	chrX:7593893	—	Cell type marker	T subset	—
Fscn1	ENSMUST00000031565.14	chr5:142973062	—	miscellaneous	—	U; M
Fth1	ENSMUST00000025563.6	chr19:9985093	—	Enzyme	Monocyte	U; M
Fut4	ENSMUST00000061498.5	chr9:14748459	CD15	CD marker	—	U; M
Fyb	ENSMUST00000090461.11	chr15:6663317	—	Miscellaneous	T subset	U; M
Fyn	ENSMUST00000063091.12	chr10:39564293	—	Kinase	—	U; M
Gapdh	NM_008084.3	chr6:125161849	—	Metabolism	—	U; M
Gata3	ENSMUST00000102976.3	chr2:9857588	—	Transcription factor	—	U; M
Gimap5	ENSMUST00000055558.5	chr6:48753585	—	Enzyme	—	U; M
Gimap7	ENSMUST00000052503.7	chr6:48724636	—	Enzyme	—	U; M
Glg1	ENSMUST00000169020.7	chr8:111156701	—	Miscellaneous	—	U; M
Gzma	ENSMUST00000023897.5	chr13:113093824	—	Effector molecule	Cytotoxic T; NK	U; M
Gzmb	ENSMUST00000015581.4	chr14:56258856	—	Effector molecule	Cytotoxic T; NK	M
Gzmk	ENSMUST00000122399.7	chr13:113171608	—	Effector molecule	Cytotoxic T; NK	M

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Gzmm	ENSMUST00000020549.3	chr10:79695261	—	Effector molecule	—	U; M
H2-Aa	ENSMUST00000040655.12	chr17:34282778	—	MHC class II	—	U; M
H2-Ab1	ENSMUST00000040828.5	chr17:34269410	—	MHC class II	—	M
H2-DMa	ENSMUST00000042121.9	chr17:34139083	—	MHC class II	—	U; M
H2-DMb2	ENSMUST00000041982.7	chr17:34151411	—	MHC class II	—	U; M
H2-Eb1	ENSMUST00000074557.9	chr17:34316077	—	MHC class II	—	U; M
H2-K1	ENSMUST00000025181.16	chr17:33996023	—	MHC class I	—	U; M
H2-Ob	ENSMUST00000095342.9	chr17:34244448	—	MHC class II	—	U; M
Havcr2	ENSMUST00000020668.14	chr11:46481246	TIM-3	Immune checkpoint	T subset	U; M
Hif1a	ENSMUST00000021530.7	chr12:73946891	—	Transcription factor	—	U; M
Hmox1	ENSMUST00000005548.7	chr8:75100590	—	Effector molecule	—	U; M
Hprt	ENSMUST00000026723.8	chrX:53021660	—	Enzyme	—	U; M
Icam1	ENSMUST00000086399.4	chr9:21028520	—	Cell adhesion	—	U; M
Icos	ENSMUST000000102827.3	chr1:61000320	—	Immune receptor	—	U; M
Ier3	ENSMUST00000003635.6	chr17:35822911	—	Stress response	—	U; M
Ifitm2	ENSMUST00000081649.9	chr7:140954841	—	Miscellaneous	Monocyte	U; M
Ifitm3	ENSMUST00000026565.6	chr7:141009588	—	Miscellaneous	Monocyte	U; M
Ifna1	ENSMUST00000094972.1	chr4:88850656	—	Cytokine	—	—
Ifnar1	ENSMUST00000023689.10	chr16:91507438	—	Cytokine receptor	—	U; M
Ifng	ENSMUST00000068592.3	chr10:118445892	—	Cytokine	—	M
Ifngr1	ENSMUST00000020188.12	chr10:19610012	—	Cytokine receptor	—	U; M
Igbp1	ENSMUST00000033570.5	chrX:100516004	—	Miscellaneous	B	U; M
Igha	ENSMUST000000178282.2	chr12:113258715	—	Immunoglobulin	B; plasma	U; M
Ighd	ENSMUST000000194162.5	chr12:113406603	—	Immunoglobulin	B; plasma	M
Ighe	ENSMUST000000137336.2	chr12:113271181	—	Immunoglobulin	B; plasma	U
Ighg1	ENSMUST000000103420.2	chr12:113328881	—	Immunoglobulin	B; plasma	M
Ighg2b	ENSMUST000000103418.2	chr12:113306310	—	Immunoglobulin	B; plasma	U; M
Ighg2c	ENSMUST000000195192.1	chr12:113287292	—	Immunoglobulin	B; plasma	U; M
Ighg3	ENSMUST000000103423.2	chr12:113359566	—	Immunoglobulin	B; plasma	M
Ighm	ENSMUST000000177715.7	chr12:113418623	—	Immunoglobulin	B; plasma	U; M
Igkc	ENSMUST000000103410.2	chr6:70726937	—	Immunoglobulin	B; plasma	U; M
Iglc3	ENSMUST000000200235.1	chr16:19065229	—	Immunoglobulin	B; plasma	U; M
Ikbkb	ENSMUST00000033939.12	chr8:22659211	IKK2	Kinase	—	U; M
Ikzf2	ENSMUST00000027146.8	chr1:69531332	Helios; ZNFN1A2	Transcription factor	—	U; M
Il10	ENSMUST00000016673.5	chr1:131024972	—	Interleukin	Monocyte; T subset (regulatory T)	U; M
Il12a	ENSMUST000000107816.3	chr3:68698546	—	Interleukin	—	U; M

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Il12b	ENSMUST00000102796.9	chr11:44414033	—	Interleukin	—	U
Il12rb1	ENSMUST00000000808.7	chr8:70821420	—	Interleukin	—	U; M
Il12rb2	ENSMUST00000117441.7	chr6:67291318	—	Interleukin	—	U; M
Il13	ENSMUST00000020650.1	chr11:53631324	—	Interleukin	—	—
Il15	ENSMUST00000209363.1	chr8:82331746	—	Interleukin	—	U; M
Il15ra	ENSMUST00000138349.7	chr2:11733960	—	Interleukin	—	U; M
Il17a	ENSMUST00000027061.4	chr1:20734496	—	Interleukin	Th17	M
Il17f	ENSMUST00000039046.9	chr1:20777146	—	Interleukin	Th17	U; M
Il18	ENSMUST00000180021.1	chr9:50581745	—	Interleukin	—	U; M
Il18r1	ENSMUST00000108044.3	chr1:40500832	—	Interleukin	—	M
Il18rap	ENSMUST00000027237.11	chr1:40551704	—	Interleukin	—	U; M
Il1a	ENSMUST00000028882.1	chr2:129299610	—	Interleukin	—	U; M
Il1b	ENSMUST00000028881.13	chr2:129364658	—	Interleukin	Monocyte	U; M
Il1r2	ENSMUST00000027243.12	chr1:40125225	—	Interleukin	—	U; M
Il1r1	ENSMUST00000097772.9	chr1:40465415	—	Interleukin	—	U; M
Il1rn	ENSMUST00000114487.8	chr2:24350935	—	Interleukin	Monocyte	U; M
Il2	ENSMUST00000029275.5	chr3:37120523	—	Interleukin	Activated T	M
Il21	ENSMUST00000029273.7	chr3:37222759	—	Interleukin	Activated CD4 T	U; M
Il22	ENSMUST00000096691.4	chr10:118210047	—	Interleukin	Th17	U; M
Il23r	ENSMUST00000118364.1	chr6:67422932	—	Interleukin	Th17	M
Il25	ENSMUST00000037863.5	chr14:54935837	—	Interleukin	Th2	—
Il2ra	ENSMUST00000028111.5	chr2:11692178	CD25	Interleukin	—	M
Il2rb	ENSMUST00000089398.7	chr15:78480547	—	Interleukin	Cytotoxic T; NK	U; M
Il33	ENSMUST00000120388.8	chr19:29960718	—	Interleukin	—	U
Il3ra	ENSMUST00000090591.2	chr14:14355493	CD123	Interleukin	—	U; M
Il4	ENSMUST00000000889.6	chr11:53612460	—	Interleukin	Th2; macrophage	M
Il4ra	ENSMUST00000033004.7	chr7:125577966	—	Interleukin	—	U; M
Il5	ENSMUST00000048605.2	chr11:53725106	—	Interleukin	Th2	—
Il6	ENSMUST00000199183.4	chr5:30019981	—	Interleukin	Macrophage	U; M
Il6ra	ENSMUST00000197679.4	chr3:89867504	—	Interleukin	—	U; M
Il7r	ENSMUST0000003981.4	chr15:9506158	CD127	Interleukin	Resting T	U; M
Il9	ENSMUST00000022019.3	chr13:56479277	—	Interleukin	—	—
Irak1	ENSMUST00000114352.7	chrX:74014289	—	Kinase	—	U; M
Irf3	ENSMUST00000209066.1	chr7:45002390	—	Transcription factor	—	U; M
Irf4	ENSMUST00000021784.8	chr13:30764702	—	Transcription factor	—	U; M
Irf7	ENSMUST00000106023.7	chr7:141263182	—	Transcription factor	—	U; M



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Irf8	ENSMUST00000047737.9	chr8:120756694	—	Transcription factor	—	U; M
Itga4	ENSMUST00000099972.4	chr2:79333123	—	Integrin	—	U; M
Itgae	ENSMUST00000006101.3	chr11:73147351	—	Integrin	—	U; M
Itgam	ENSMUST00000106242.9	chr7:128118491	—	Integrin	Macrophage	U; M
Itgax	ENSMUST00000033053.7	chr7:128150657	CD11c	Integrin	Monocyte	U; M
Itgb2	ENSMUST00000000299.13	chr10:77565491	—	Integrin	Monocyte; NK; T	U; M
Itk	ENSMUST00000020664.12	chr11:46325149	—	Kinase	—	U; M
Jak2	ENSMUST00000065796.9	chr19:29313064	—	Kinase	—	U; M
Jchain	ENSMUST00000087033.5	chr5:88520598	—	Immunoglobulin	Plasma	U; M
Jun	ENSMUST00000107094.1	chr4:95049040	—	Stress response	—	U; M
Junb	ENSMUST00000064922.6	chr8:84976909	—	Stress response	—	U; M
Kcne3	ENSMUST00000208260.1	chr7:100184734	—	Miscellaneous	Monocyte	U; M
Kdelr1	ENSMUST00000002855.13	chr7:45883611	—	Miscellaneous	—	U; M
Kit	ENSMUST00000005815.6	chr5:75656694	c-kit; CD117	CD marker	—	U; M
Klra1	ENSMUST00000032288.5	chr6:130363915	—	NK cell receptor	NK	U; M
Klra17	ENSMUST00000122219.1	chr6:129831157	—	NK cell receptor	NK	U; M
Klra21	NM_053151.1	Reference_end	—	NK cell receptor	NK	U; M
Klra3	ENSMUST00000111998.8	chr6:130323289	—	NK cell receptor	NK	M
Klra5	ENSMUST00000118060.7	chr6:129898996	—	NK cell receptor	NK	U; M
Klra6	ENSMUST00000074056.2	chr6:130013033	—	NK cell receptor	NK	U; M
Klra7	ENSMUST00000049304.13	chr6:130218604	—	NK cell receptor	NK	U; M
Klrb1	ENSMUST00000112110.3	chr6:128706442	—	NK cell receptor	NK	M
Klrc1	ENSMUST00000032270.12	chr6:129666015	NKG2A	NK cell receptor	NK	M
Klrc3	ENSMUST00000071149.6	chr6:129639085	—	NK cell receptor	NK	—
Klrg1	ENSMUST00000032207.8	chr6:122270596	—	NK cell receptor	NK	U; M
Klrk1	ENSMUST00000168919.7	chr6:129612408	NKG2D	NK cell receptor	NK; T subset	U; M
Lag3	ENSMUST00000032217.1	chr6:124904363	—	Cell type marker	Exhausted T	U; M
Lamp1	ENSMUST00000033824.7	chr8:13175330	CD107a	CD marker	—	U; M
Lamp3	ENSMUST00000081880.5	chr16:19653512	—	Cell type marker	—	U; M
Lap3	ENSMUST00000046122.10	chr5:45512159	—	Enzyme	T subset	U; M
Lat	ENSMUST00000032997.7	chr7:126363826	—	Miscellaneous	T subset	U; M
Lat2	ENSMUST00000200998.3	chr5:134600342	—	Miscellaneous	—	U; M
Lck	ENSMUST00000102596.7	chr4:129548355	—	Cell type marker	T subset	U; M
Lef1	ENSMUST00000029611.13	chr3:131224204	—	Cell type marker	T subset	U; M

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Lgals1	ENSMUST00000089377.5	chr15:78930196	galectin 1	Cell adhesion	NK (high in cytokine producing); upregulated in activated NK; low in regulatory T	U; M
Lgals3	ENSMUST00000142734.7	chr14:47385799	galectin 3	Cell adhesion	Monocyte; regulatory T	U; M
Lgals9	ENSMUST00000108269.9	chr11:78963005	galectin 9	Cell adhesion	T subset; monocyte	U; M
Lilrb4a	ENSMUST00000078778.3	chr10:51496601	—	Immune receptor	—	U; M
Lipa	ENSMUST00000178114.1	chr19:34492315	—	Enzyme	Monocyte	U; M
Lmna	ENSMUST00000029699.12	chr3:88481148	—	Miscellaneous	—	U; M
Lrrc32	ENSMUST00000205956.1	chr7:98501826	GARP	Miscellaneous	—	U; M
Lta	ENSMUST00000025266.5	chr17:35203162	TNF beta; lymphotoxin alpha	Cytokine	—	U; M
Ltb	ENSMUST00000025262.5	chr17:35196260	lymphotoxin beta	Cytokine	—	U; M
Ly86	ENSMUST00000021860.5	chr13:37419031	—	Miscellaneous	B; monocyte	U; M
Ly96	ENSMUST00000026881.10	chr1:16709604	MD2	Miscellaneous	—	U; M
Lyn	ENSMUST00000103010.3	chr4:3791077	—	Miscellaneous	—	U; M
Lyz2	ENSMUST00000092163.7	chr10:117277391	—	Enzyme	Macrophage	U; M
Maf	ENSMUST00000109104.1	chr8:115701435	—	Transcription factor	—	U; M
Mapk1	ENSMUST00000069107.13	chr16:17045126	—	Kinase	—	U; M
Mapk8	ENSMUST00000111945.8	chr14:33380791	—	Kinase	—	U; M
Mbp	ENSMUST00000091789.10	chr18:82558686	—	Miscellaneous	—	U; M
Mcm2	ENSMUST00000058011.7	chr6:88883473	—	Cell cycle (S phase)	—	U; M
Mcm4	ENSMUST00000023353.3	chr16:15624112	—	Cell cycle (S phase)	—	U; M
Mgst1	ENSMUST00000008684.10	chr6:138156734	—	Miscellaneous	—	U; M
Mki67	ENSMUST00000033310.8	chr7:135689783	Ki67	Proliferation marker	Proliferating	U; M
Mmp12	ENSMUST00000005950.11	chr9:7358683	—	Miscellaneous	—	U; M
Mmp9	ENSMUST00000017881.2	chr2:164955836	—	Miscellaneous	—	U; M
Ms4a1	ENSMUST00000169159.2	chr19:11250601	CD20	Cell type marker	B	U; M
Myc	ENSMUST00000188482.6	chr15:61990253	—	Proliferation marker	—	U; M
Myd88	ENSMUST00000035092.6	chr9:119335938	—	Miscellaneous	—	U; M
Mzb1	ENSMUST00000025211.4	chr18:35647322	—	Cell type marker	Plasma	U; M
Ncam1	ENSMUST00000194252.5	chr9:49502136	—	CD marker	—	U; M
Nfkb1	ENSMUST00000029812.13	chr3:135584888	—	Transcription factor	—	U; M

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Nfkb2	ENSMUST00000111881.2	chr19:46312014	—	Transcription factor	NK	U; M
Nkg7	ENSMUST00000070518.3	chr7:43438249	—	Cell type marker	NK; cytotoxic T	U; M
Nlrp3	ENSMUST00000101148.8	chr11:59566956	—	Transcription factor	—	U; M
Nod1	ENSMUST00000168172.3	chr6:54923948	—	Transcription factor	—	U; M
Nod2	ENSMUST00000118370.7	chr8:88688479	—	Transcription factor	—	U; M
Nrp1	ENSMUST00000026917.9	chr8:128503363	BDCA-4; CD304	CD marker	—	U; M
Nt5e	ENSMUST00000034992.7	chr9:88372085	CD73	CD marker	—	U; M
Oas2	ENSMUST00000053909.12	chr5:120730332	—	Miscellaneous	—	U; M
Pask	ENSMUST00000027493.3	chr1:93309837	—	Kinase	T subset	U; M
Pax5	ENSMUST00000014174.13	chr4:44524756	—	Transcription factor	B subset	U; M
Pcna	ENSMUST00000028817.6	chr2:132249161	—	Cell cycle (S phase)	—	U; M
Pdcd1	ENSMUST00000027507.7	chr1:94038307	PD-1	Immune checkpoint	T subset	U; M
Pdia4	ENSMUST00000077290.8	chr6:47796143	—	Enzyme	—	U; M
Pik3ip1	ENSMUST00000045153.10	chr11:3342971	HGFL gene	Miscellaneous	T subset	U; M
Pou2af1	ENSMUST00000034554.7	chr9:51240079	—	Transcription factor	B; plasma	U; M
Prdm1	ENSMUST00000039174.10	chr10:44437171	—	Transcription factor	Plasma	U; M
Prf1	ENSMUST00000035419.5	chr10:61304263	perforin	Effector molecule	T subset	M
Psen1	ENSMUST00000101225.1	chr12:83735095	—	Enzyme	—	U; M
Ptpnc	ENSMUST00000183301.7	chr1:138063419	B220; CD45R	CD marker	—	U; M
Qpct	ENSMUST00000040789.4	chr17:79090160	—	Enzyme	—	U; M
Rgs1	NM_015811.2	chr1:144244669	—	Miscellaneous	—	U; M
Rora	ENSMUST00000034766.13	chr9:69388246	—	Nuclear receptor; transcription factor	T subset	U; M
Rorc	ENSMUST00000029795.9	chr3:94397840	—	Nuclear receptor; transcription factor	T subset	U; M
Rpn2	ENSMUST00000116380.8	chr2:157326057	—	Enzyme	—	U; M
Runx3	ENSMUST00000056977.13	chr4:135177979	—	Transcription factor	T subset	U; M
S100a10	ENSMUST00000045756.13	chr3:93564637	—	Miscellaneous	Monocyte; T subset (regulatory T)	U; M
S100a8	ENSMUST00000069927.9	chr3:90669983	—	Miscellaneous	—	U; M
S100a9	ENSMUST00000117167.1	chr3:90692631	—	Cell type marker	Monocyte	M
Sell	ENSMUST00000192047.5	chr1:164080672	selectin	Cell type marker	T subset	U; M

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Selplg	ENSMUST00000100874.5	chr5:113818550	CD162	CD marker	—	U; M
Slamf1	ENSMUST00000015460.4	chr1:171800583	—	Cell adhesion	—	U; M
Slc11a1	ENSMUST00000027368.5	chr1:74386062	—	Transporter	—	U; M
Slc25a37	ENSMUST00000037064.4	chr14:69241880	—	Transporter	—	U; M
Slc7a7	ENSMUST00000197440.4	chr14:54369477	—	Transporter	—	U; M
Socs1	ENSMUST00000038099.4	chr16:10783833	—	Cytokine	—	U; M
Spp1	ENSMUST00000112748.7	chr5:104441047	—	Cytokine	—	U; M
Stat1	ENSMUST00000070968.13	chr1:52160037	—	Transcription factor	—	U; M
Stat3	ENSMUST00000103114.7	chr11:100886814	—	Transcription factor	—	U; M
Stat4	ENSMUST00000027277.6	chr1:52107187	—	Transcription factor	—	U; M
Stat5a	ENSMUST00000107356.7	chr11:100885161	—	Transcription factor	—	U; M
Stat6	ENSMUST00000092074.11	chr10:127660727	—	Transcription factor	—	U; M
Tbx21	ENSMUST00000001484.2	chr11:97098070	T-bet	Transcription factor	T subset	U; M
Tcf4	ENSMUST00000114985.9	chr18:69687925	—	Transcription factor	—	U; M
Tcf7	ENSMUST00000086844.9	chr11:52252371	—	Transcription factor	—	U; M
Tfrc	ENSMUST00000023486.14	chr16:32632790	CD71	CD marker	—	U; M
Tgfb1	ENSMUST00000002678.9	chr7:25705077	—	Growth factor	—	U; M
Tgfb3	ENSMUST00000003687.6	chr12:86056845	—	Growth factor	—	U; M
Thbd	ENSMUST00000099270.4	chr2:148404508	CD141	CD marker	—	U; M
Thbs1	ENSMUST00000039559.8	chr2:118127129	—	Cell adhesion	—	U; M
Thy1	ENSMUST00000114840.1	chr9:44048579	—	Miscellaneous	—	U; M
Ticam1	ENSMUST00000058136.8	chr17:56269461	—	Miscellaneous	—	U; M
Tigit	BD_custom	chr16:43648113	—	Immune receptor	T; NK	U; M
Tigit	ENSMUST00000096065.4	chr16:43648861	—	Immune receptor	T; NK	U; M
Tlr1	ENSMUST00000059349.5	chr5:64924681	—	Toll like receptor	—	U; M
Tlr2	ENSMUST00000029623.10	chr3:83836271	CD282	Toll like receptor	Monocyte	U; M
Tlr3	ENSMUST00000209772.1	chr8:45395873	—	Toll like receptor	—	U; M
Tlr4	ENSMUST00000048096.11	chr4:66841908	—	Toll like receptor	—	U; M
Tlr7	ENSMUST00000112161.7	chrX:167304930	CD287	Toll like receptor	—	U; M
Tlr8	ENSMUST00000112170.1	chrX:167242696	—	Toll like receptor	—	—
Tlr9	ENSMUST00000062241.10	chr9:106226883	—	Toll like receptor	—	M
Tmem173	ENSMUST00000115728.3	chr18:35734023	—	Miscellaneous	—	U; M
Tmem97	ENSMUST00000103242.4	chr11:78541827	—	Miscellaneous	—	U; M
Tnf	ENSMUST00000025263.14	chr17:35199380	TNF alpha	Cytokine	—	U; M
Tnfrsf13b	ENSMUST00000010286.7	chr11:61149367	TACI	Cytokine receptor	—	U; M

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Tnfrsf13c	ENSMUST00000089161.8	chr15:82221832	BAFFR	Cytokine receptor	—	U; M
Tnfrsf17	ENSMUST00000023140.5	chr16:11320074	—	Cytokine receptor	Plasma	U; M
Tnfrsf18	ENSMUST00000103173.9	chr4:156028891	GITR	Cytokine receptor	—	U; M
Tnfrsf1b	ENSMUST00000030336.10	chr4:145213472	TNFR2	Cytokine receptor	—	U; M
Tnfrsf25	ENSMUST00000035275.7	chr4:152120101	DR3	Cytokine receptor	—	U; M
Tnfrsf4	ENSMUST00000030952.5	chr4:156016597	OX-40	Cytokine receptor	—	U; M
Tnfrsf8	ENSMUST00000030339.12	chr4:145267139	CD30	Cytokine receptor	—	U; M
Tnfrsf9	ENSMUST00000030808.9	chr4:150946099	CD137; 4-1BB	Cytokine receptor	—	U; M
Tnfsf10	ENSMUST00000046383.11	chr3:27339644	TRAIL	Cytokine	—	U; M
Tnfsf13	ENSMUST00000018896.13	chr11:69683047	CD256; APRIL	Cytokine	Monocyte	U; M
Tnfsf13b	ENSMUST000000207792.1	chr8:10035996	BAFF	Cytokine	—	U; M
Tnfsf14	ENSMUST00000005976.6	chr17:57189471	LIGHT; CD258	Cytokine	—	U; M
Tnfsf8	ENSMUST00000030047.2	chr4:63831308	CD30L	Cytokine	—	U; M
Top2a	ENSMUST00000068031.7	chr11:98992946	—	Cell cycle (M phase)	—	U; M
Trac	ENSMUST000000198398.4	chr14:54224185	—	Cell type marker	Alpha beta T	U; M
Traf6	ENSMUST00000004949.7	chr2:101701537	—	Miscellaneous	—	U; M
Trat1	ENSMUST00000170861.1	chr16:48734690	TCRIM	Immune receptor	T	U; M
Trbc1	ENSMUST000000192856.5	chr6:41539879	—	Immune receptor	—	M
Trbc2	ENSMUST000000103299.2	chr6:41548352	—	Cell type marker	Alpha beta T	U; M
Trdc	ENSMUST000000196323.1	chr14:54146106	—	Cell type marker	Gamma delta T	U; M
Trem1	ENSMUST00000048782.6	chr17:48246915	—	CD marker	Neutrophil; monocyte	U; M
Trem2	ENSMUST00000024791.14	chr17:48352270	—	Miscellaneous	—	U; M
Trib2	ENSMUST00000020922.7	chr12:15791724	—	Kinase	T	U; M
Tspan32	ENSMUST00000009396.12	chr7:143019486	—	Miscellaneous	—	U; M
Txk	ENSMUST000000198464.2	chr5:72695975	—	Cell cycle (M phase)	—	U; M
Tyk2	ENSMUST00000001036.10	chr9:21104073	—	Miscellaneous	—	U; M
Tyms	ENSMUST00000026846.10	chr5:30060996	—	Cell cycle (S phase)	—	U; M
Ube2c	ENSMUST00000088248.12	chr2:164772907	—	Cell cycle (M phase)	—	U; M
Vegfa	ENSMUST000000167860.7	chr17:46017261	—	Growth factor	—	U; M
Vpreb3	ENSMUST00000000926.2	chr10:75949648	—	Immunoglobulin	B	U; M
Vps28	NM_025842.4	chr15:76622108	—	Miscellaneous	B	U; M
Xbp1	ENSMUST00000063084.15	chr11:5525891	—	Transcription factor	—	U; M
Xcl1	ENSMUST00000027860.7	chr1:164931649	—	Chemokine	—	M

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Ybx3	ENSMUST00000032309.12	chr6:131364950	—	Transcription factor	Monocyte; granulocyte	U; M
Zap70	ENSMUST00000027291.6	chr1:36782816	—	Immune receptor; kinase	T; NK	U; M
Zbtb16	ENSMUST00000093852.3	chr9:48654311	PLLZF	Transcription factor	—	U; M

## Handling

Store the reagents at the specified storage temperature. Before using reagents, see the *BD Rhapsody™ Single-Cell Analysis System User Guide* (Doc ID: 47395).

## Safety

Use standard laboratory safety protocols. Read and understand the safety data sheets (SDSs) before handling chemicals. To obtain SDSs for chemicals ordered from BD Biosciences, go to [regdocs.bd.com](http://regdocs.bd.com) or contact BD Biosciences technical support at [researchapplications@bd.com](mailto:researchapplications@bd.com).

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1.877.232.8995, prompt 2, 2 | [researchapplications@bd.com](mailto:researchapplications@bd.com) | 2350 Qume Drive, San Jose, CA 95131 USA

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