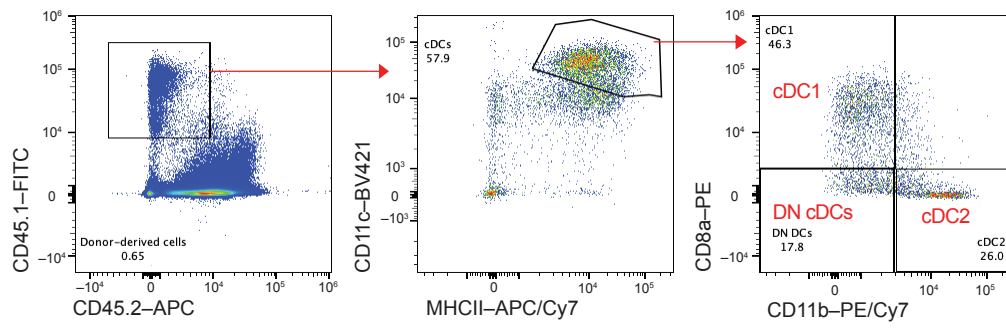


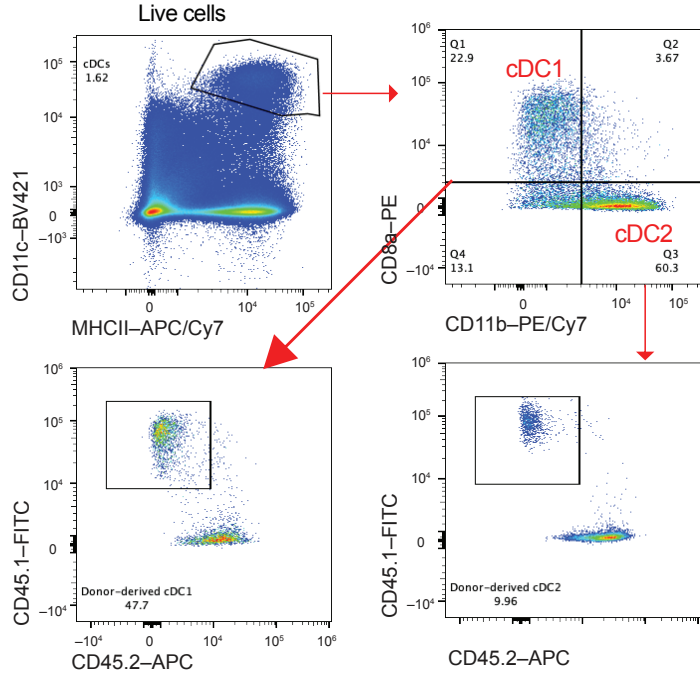


Cytokine-armed dendritic cell progenitors for antigen-agnostic cancer immunotherapy

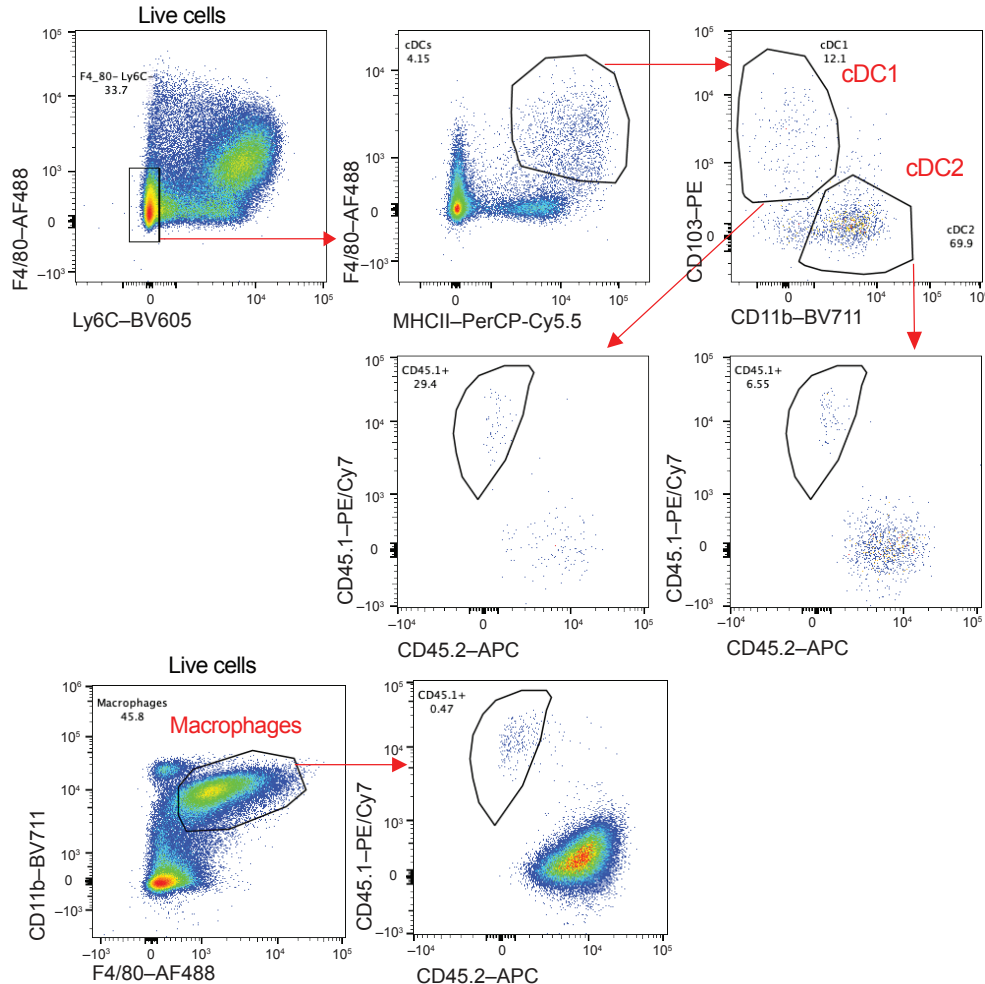
Contribution of donor-derived (CD45.1+) cells to cDC1, cDC2 and DN cDCs in spleen



Donor chimerism in cDC1 and cDC2 in spleen

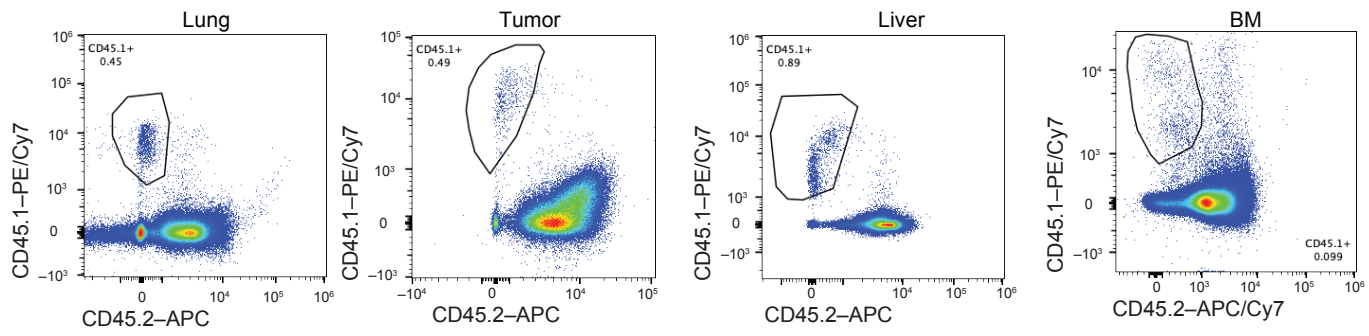


Donor chimerism in cDC1, cDC2, and macrophages in tumor

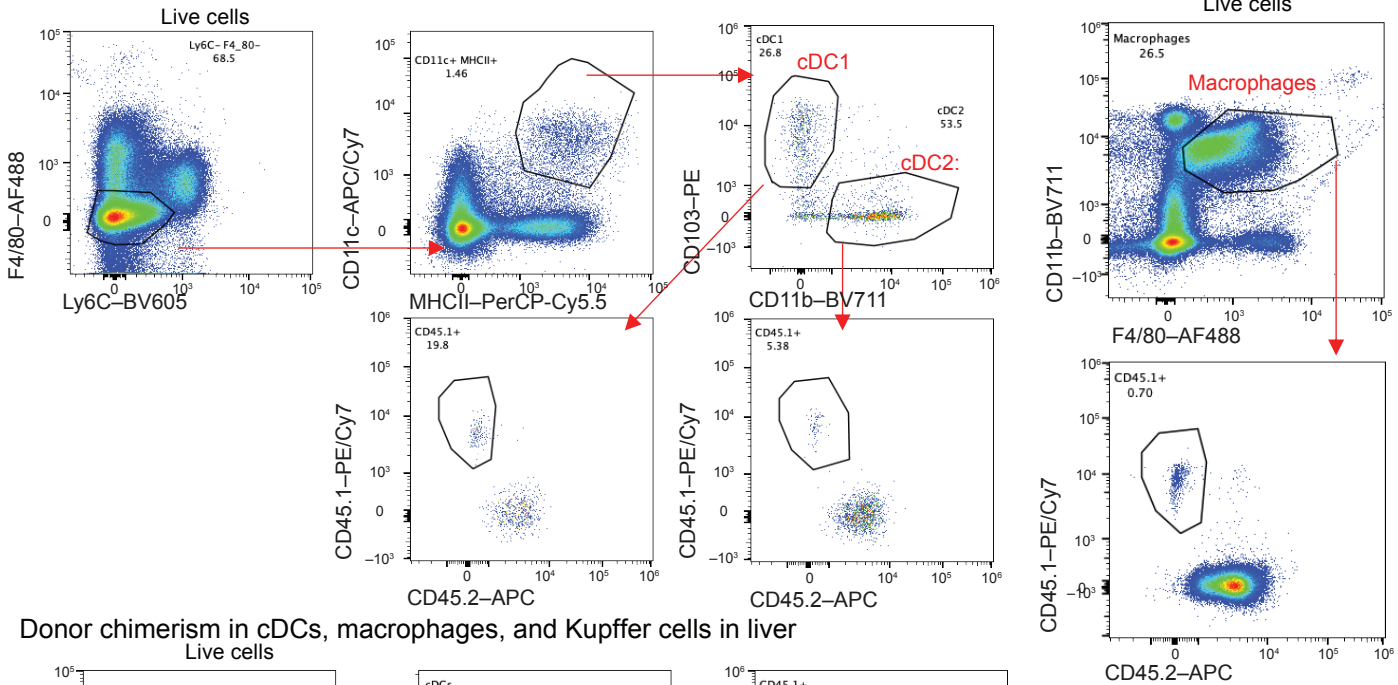


Supplementary Fig. 1: Gating strategy to identify donor chimerism in spleen and tumor.

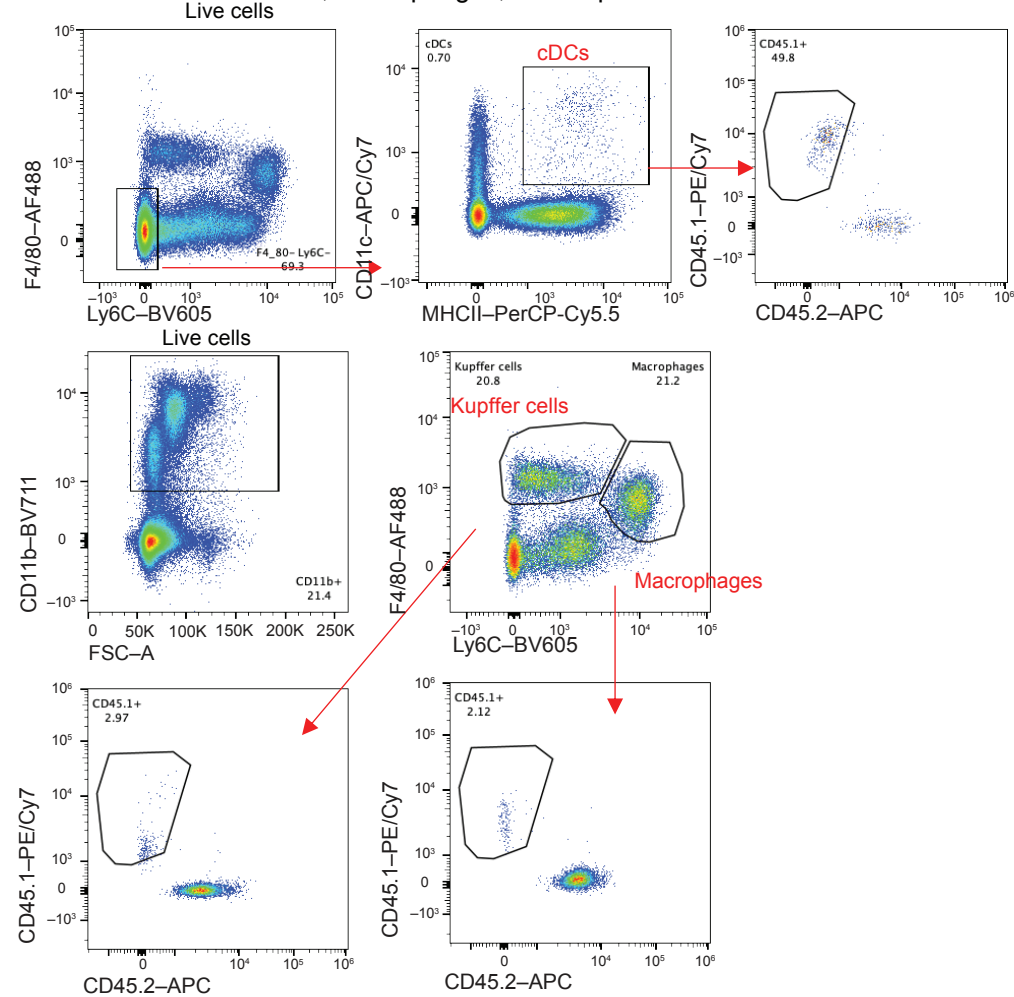
Donor-derived (CD45.1+) cells in lung, tumor, liver, and BM



Donor chimerism in cDC1, cDC2, and macrophages in lung

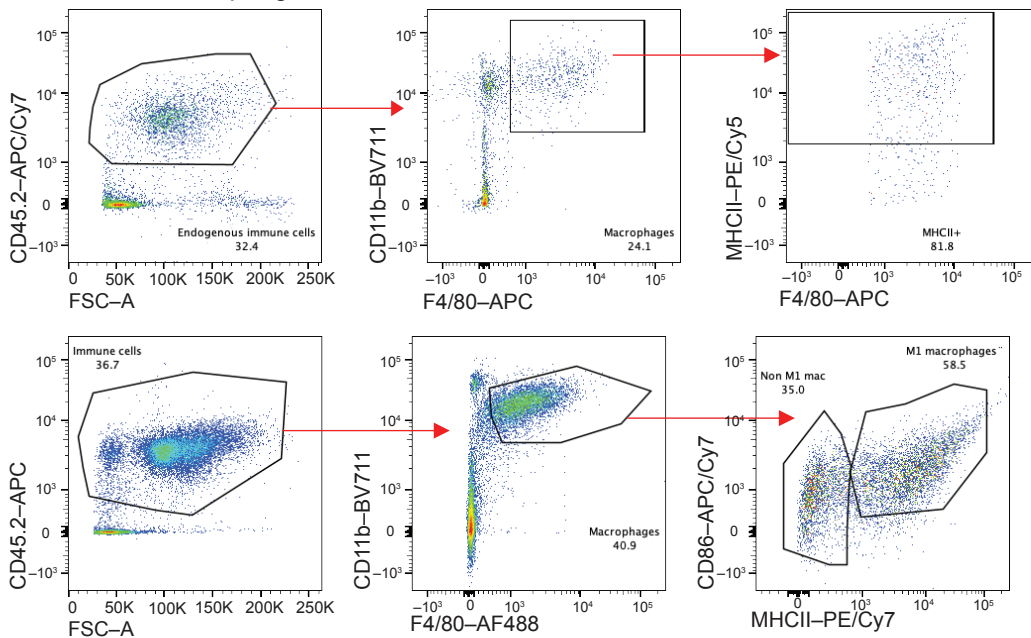


Donor chimerism in cDCs, macrophages, and Kupffer cells in liver

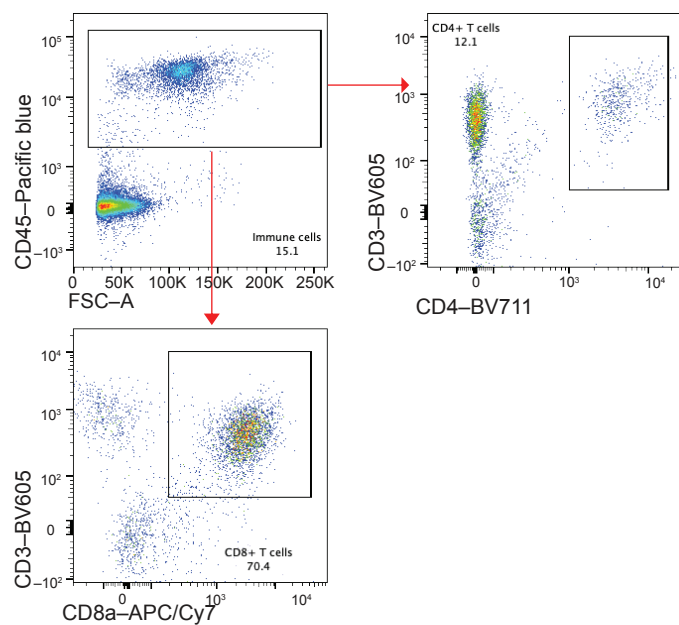


Supplementary Fig. 2: Gating strategy to identify donor chimerism in lung and liver.

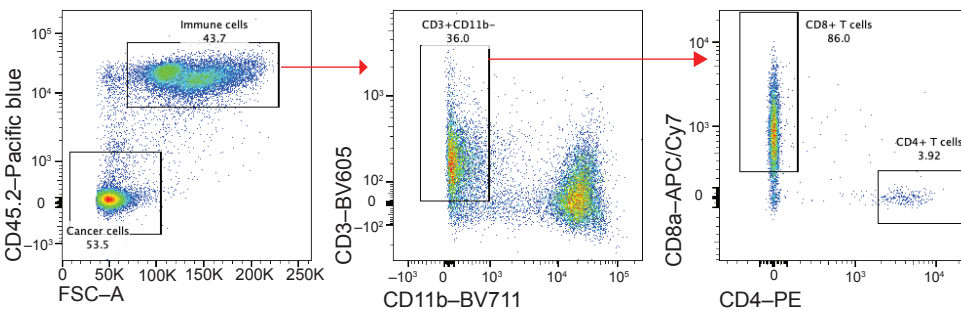
M1-like macrophages in tumor



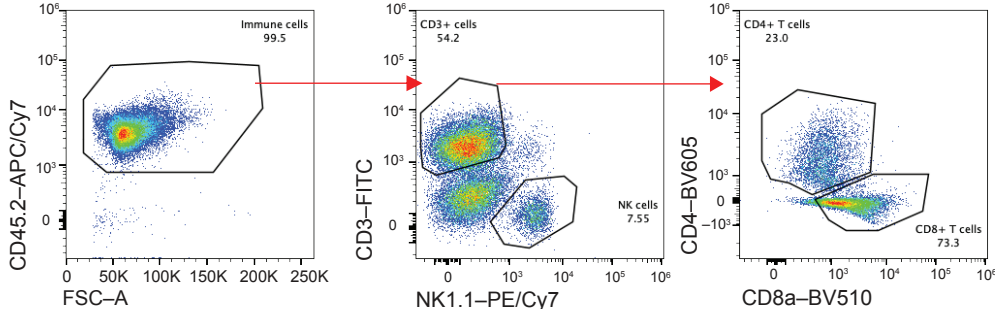
CD4+ or CD8+, CD3+ T cells in CD45+ cells in tumor



CD4+ or CD8+, CD3+ T cells in CD45+/CD11b- cells in tumor

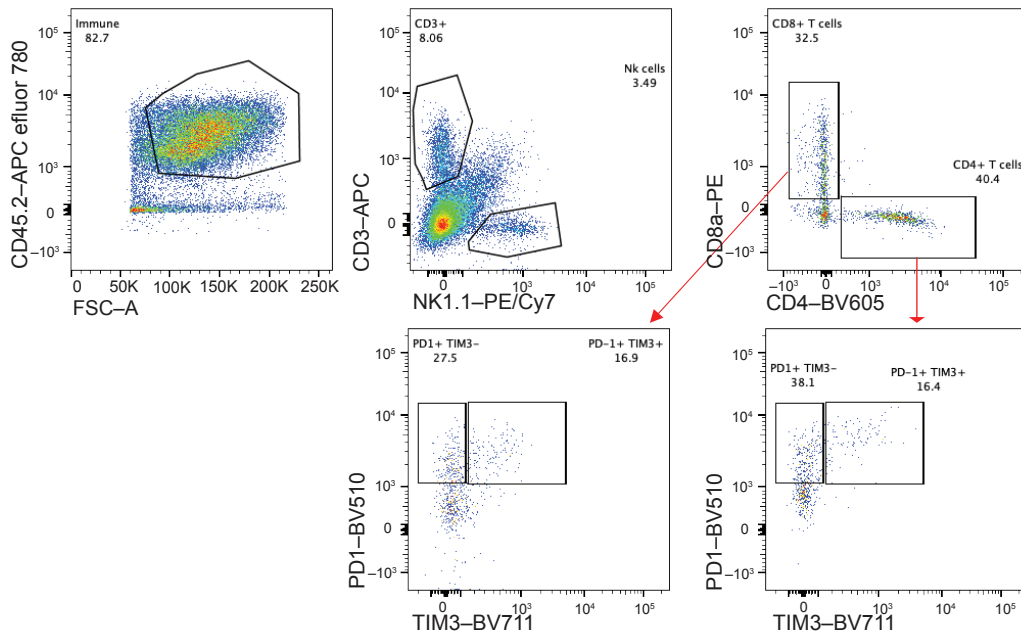


CD4+ or CD8+, CD3+ T cells in CD45+/NK1.1- cells in tumor

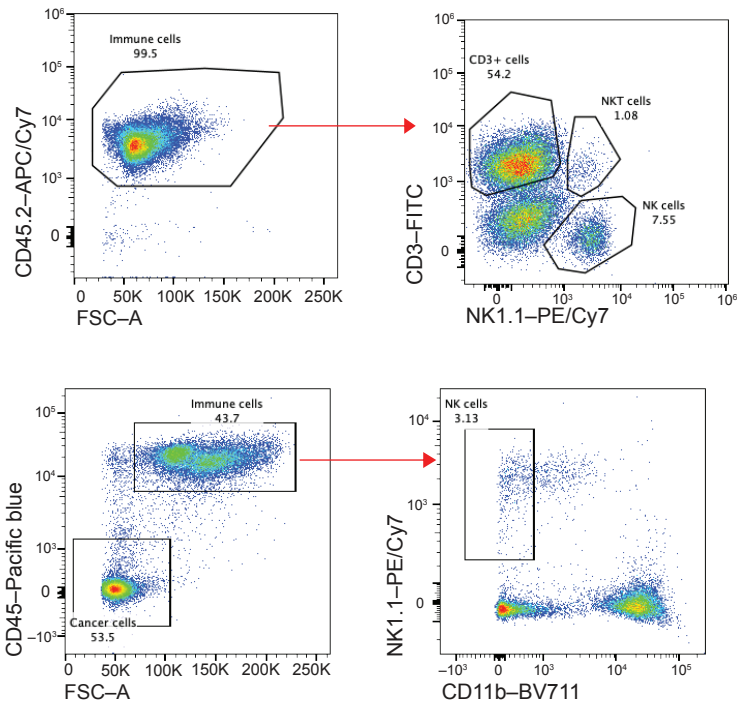


Supplementary Fig. 3: Gating strategy to identify T cells and macrophages in tumor.

Activated or exhausted CD8+ T cells in tumor

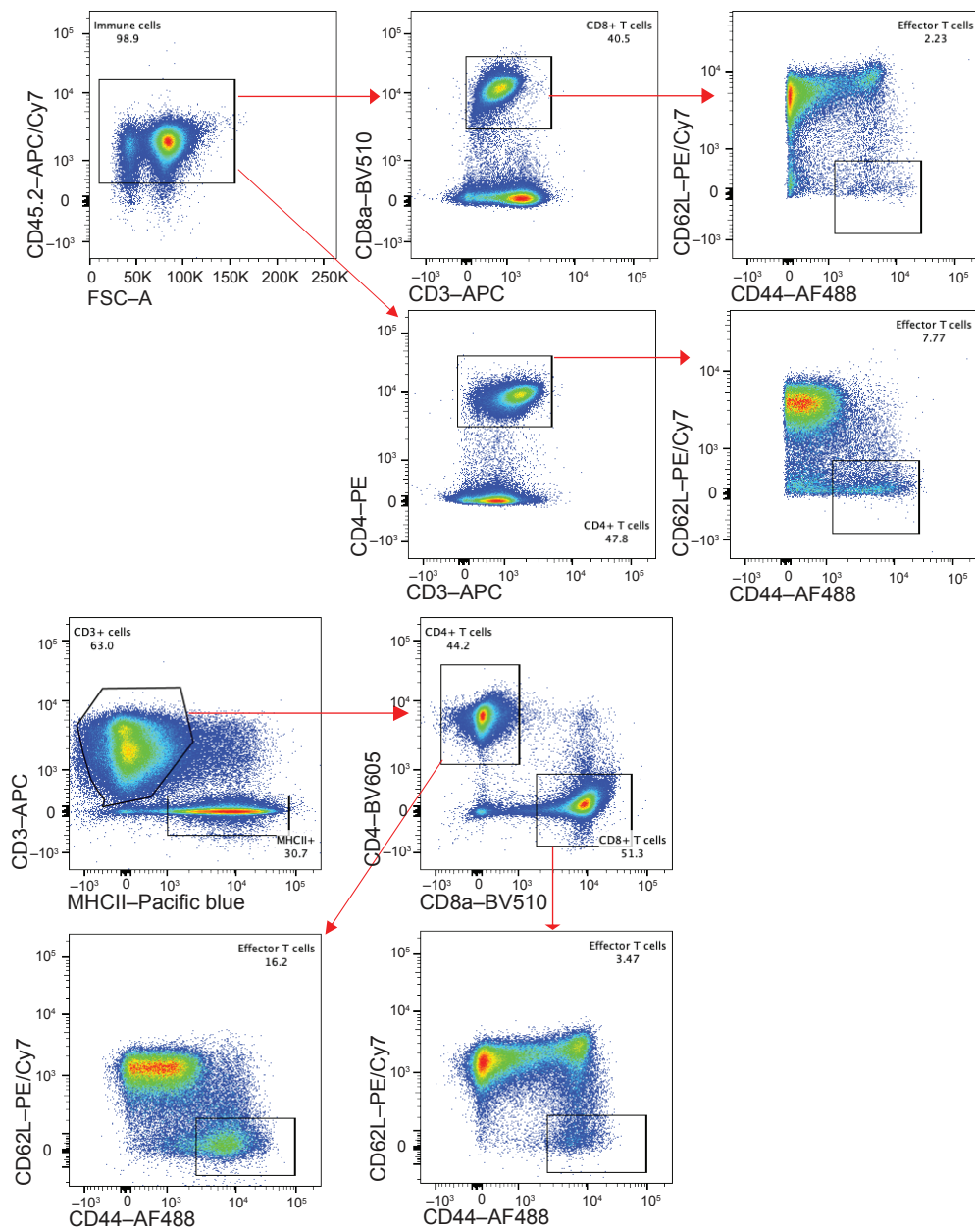


NK1.1+/CD3- or NK1.1+/CD11b- NK cells or NKT cells in CD45+ cells

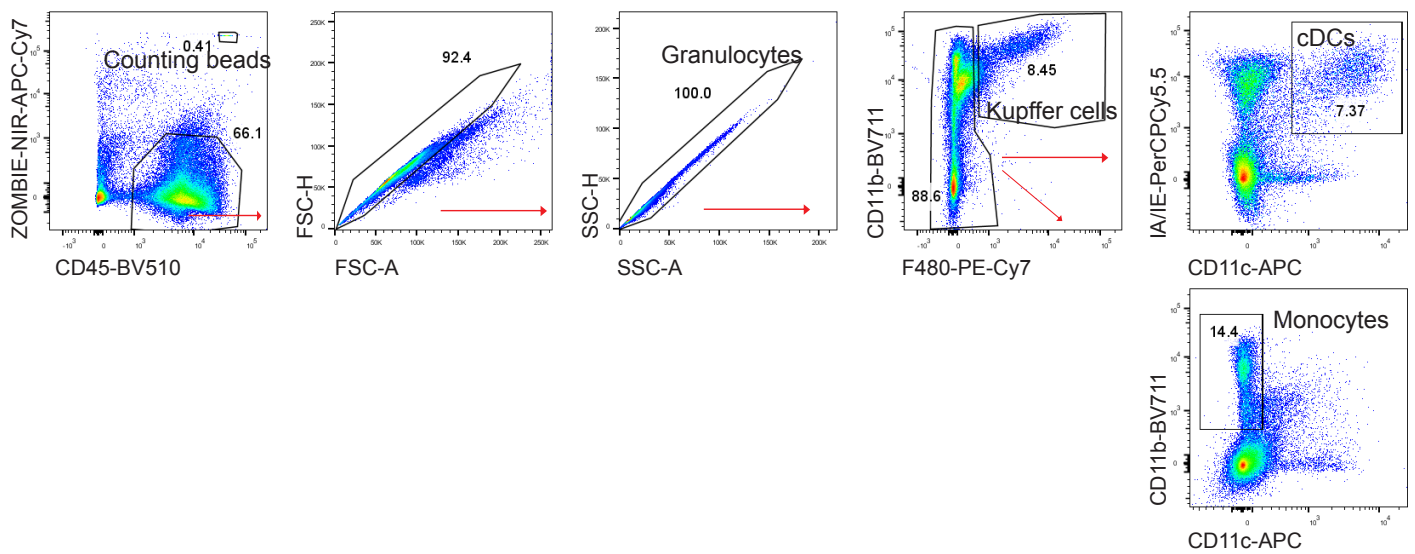


Supplementary Fig. 4: Gating strategy to identify T cell activation/exhaustion and NK/NKT cells in tumor.

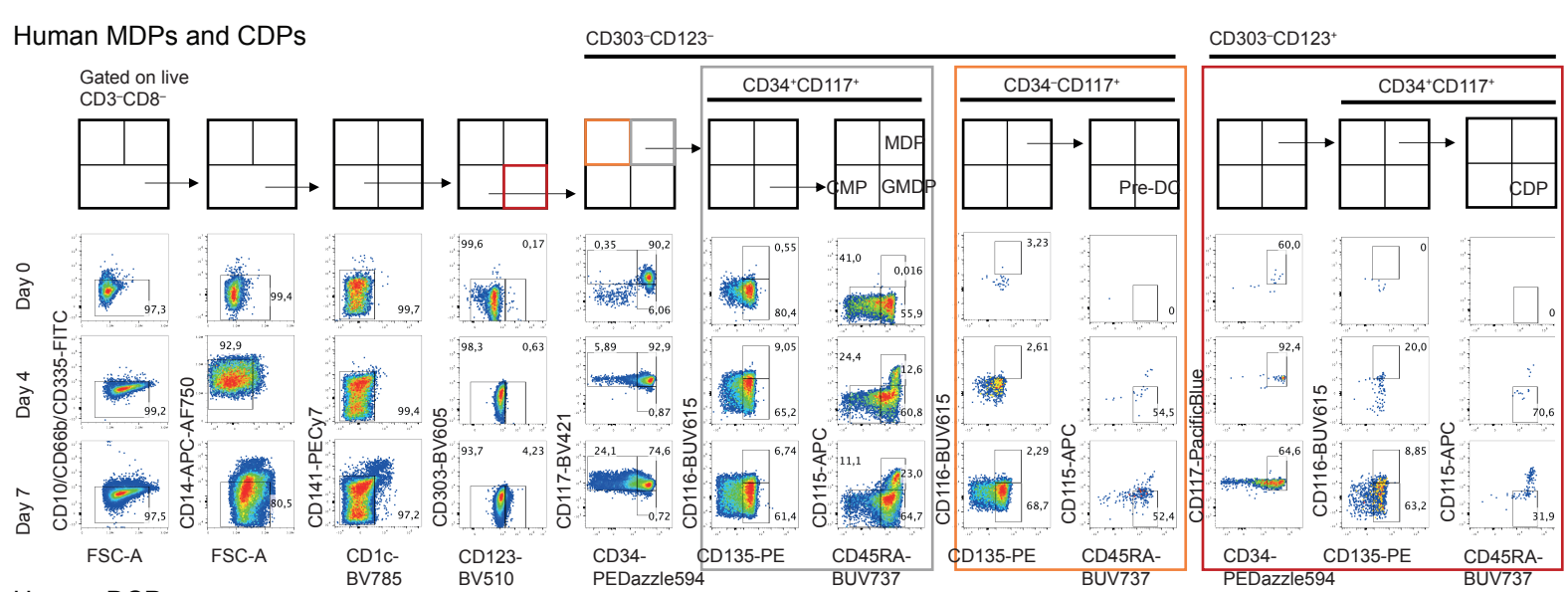
CD8+ or CD4+ T effector cells in tdLN



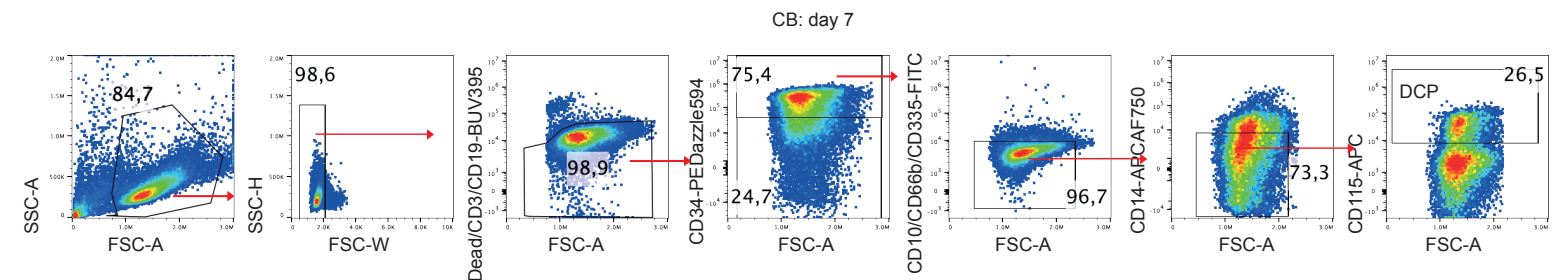
Myeloid cells in liver



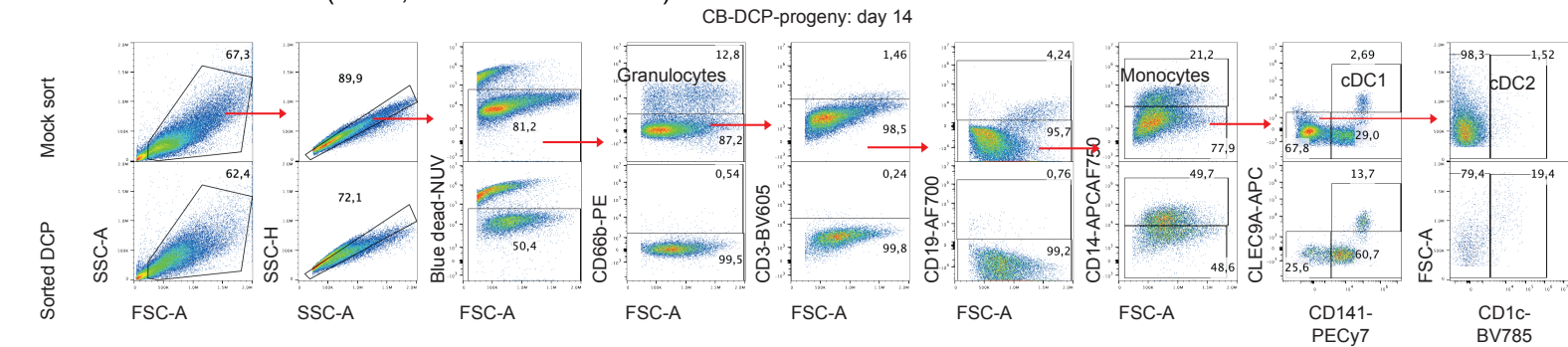
Supplementary Fig. 5: Gating strategy to identify T cells with effector phenotype in tdLN and Myeloid cells in liver.



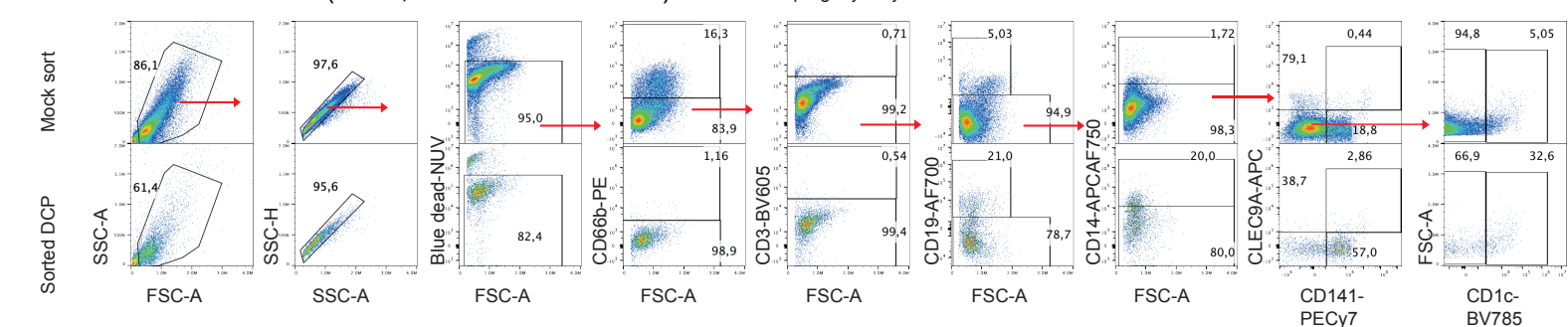
Human DCPs



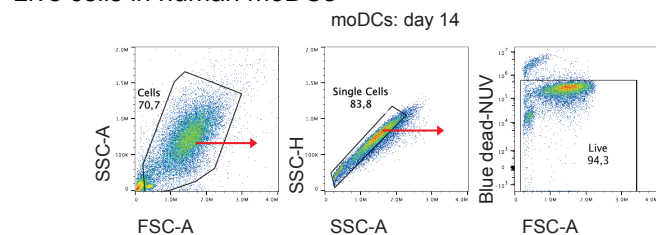
Human DCP-derived cells (cDC1, cDC2 and other cells)

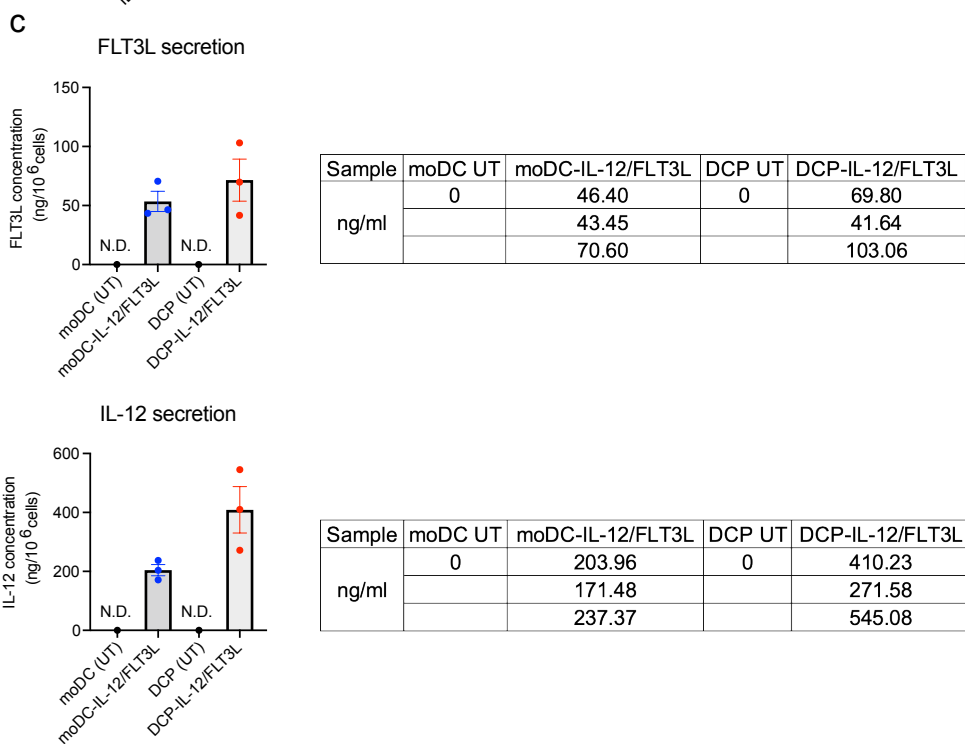
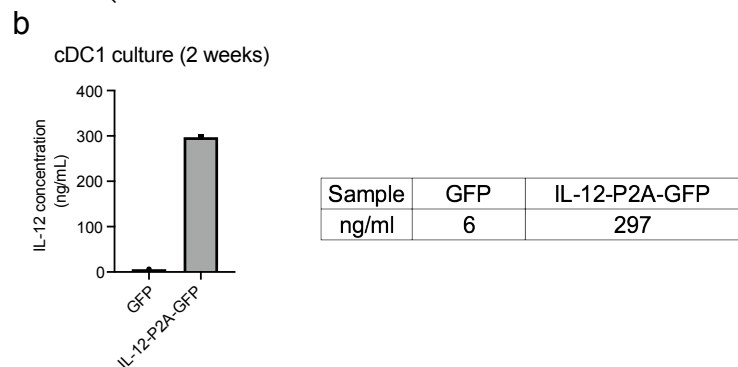
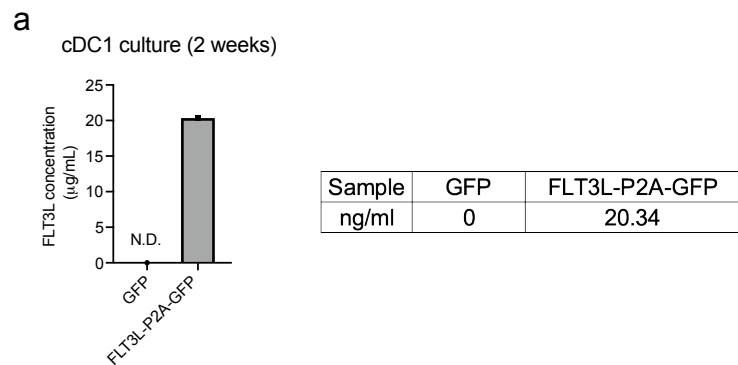


Human DCP-derived cells (cDC1, cDC2 and other cells)



Live cells in human moDCs





Supplementary Fig. 7: Quantification of FLT3L and IL-12 in medium conditioned by transduced DCPs or moDCs, according to ELISA. **a**, ELISA of FLT3L secreted by transduced HSPC-derived cells. **b**, ELISA of IL-12 secreted by transduced HSPC-derived cells. **c**, ELISA of FLT3L and IL-12 secreted by DCP-IL-12/FLT3L and moDC-IL-12/FLT3L. Data indicate mean values +/- SEM. Individual dots indicate independent cell cultures transduced at the same time.

Supplementary Table 1

FLOW CYTOMETRY							
Antigen	Fluorochrome	Reactivity	Clone	Provider	Reference	Dilution used	Validation
BDCA3/CD303	Bright Violet 605	Human	201A	BD Biosciences	354223	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-human-cd303-bdca-2-antibody-13062
BDCA3/CD141	PE-Cy7	Human	M60	BD Biosciences	344109	1:400	https://www.bdbiosciences.com/en-us/products/pe-cy7-anti-human-cd141-brn10monoclonal-antibody-8521
BDCA3/CD10c	Bright Violet 785	Human	H1420	BD Biosciences	3311643	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-785-anti-human-cd10c-antibody-7137
CD10	FITC	Human	H110a	BD Biosciences	982204	1:100	https://www.bdbiosciences.com/en-us/products/fic-anti-human-cd10-antibody-14046
CD103	Bright Violet 605	Mouse	2E7	BD Biosciences	121433	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-mouse-cd103-antibody-13558
CD103	Bright Violet 711	Mouse	2E7	BD Biosciences	121436	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-711-anti-mouse-cd103-antibody-144117GroupD-BLG4646
CD103	FITC	Mouse	2E7	BD Biosciences	121420	1:200	https://www.bdbiosciences.com/en-us/products/fic-anti-mouse-cd103-antibody-7053GroupD-GROUP20
CD103	PE	Mouse	2E7	BD Biosciences	121406	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-mouse-cd103-antibody-3574GroupD-GROUP20
CD115	APC	Human	A1528	ThermoFisher Scientific	171110	1:100	https://www.thermofisher.com/antibody/product/CD115-Antibody-clone-A1528-Monoclonal-17-1152-82
CD115	APC	Human	9-4D2-1E4	BD Biosciences	347306	1:50	https://www.bdbiosciences.com/en-us/products/pe-anti-human-cd115-cl-1f-1-antibody-8783
CD117	Bright Violet 421	Human	104D2	BD Biosciences	313215	1:50	https://www.bdbiosciences.com/en-us/products/bright-violet-421-anti-human-cd117-c-4k-antibody-7348
CD118	Bright Violet 510	Mouse	M170	BD Biosciences	101263	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-510-anti-mouse-human-cd118-antibody-7693
CD118	Bright Violet 605	Human/Mouse	M170	BD Biosciences	101239	1:400	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-mouse-human-cd118-antibody-7638
CD118	Bright Violet 711	Human/Mouse	M170	BD Biosciences	101241	1:200	https://www.bdbiosciences.com/en-us/products/bright-violet-711-anti-mouse-human-cd118-antibody-7697
CD118	PE-Cy7	Human	M170	BD Biosciences	25-0112-82	1:400	https://www.thermofisher.com/antibody/product/CD118-Antibody-clone-M170-Monoclonal-25-0112-82
CD11c	APC	Mouse	N418	BD Biosciences	117309	1:200	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-cd11c-antibody-1813
CD11c	APC-Cy7	Mouse	N418	BD Biosciences	117324	1:100	https://www.bdbiosciences.com/en-us/products/apc-cy7-anti-mouse-cd11c-antibody-3931GroupD-BLG11937
CD11c	Bright Violet 421	Mouse	N418	BD Biosciences	117330	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-421-anti-mouse-cd11c-antibody-7497GroupD-BLG11937
CD11c	Bright Violet 605	Mouse	N418	BD Biosciences	117333	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-mouse-cd11c-antibody-8840GroupD-BLG11937
CD11c	Bright Violet 711	Mouse	N418	BD Biosciences	301637	1:50	https://www.bdbiosciences.com/en-us/products/bright-violet-711-anti-mouse-cd11c-antibody-8642
CD11c	PE-Dazzle594	Human	S-9	BD Biosciences	301641	1:100	https://www.bdbiosciences.com/en-us/products/pe-dazzle-594-anti-human-cd11c-antibody-10234
CD11c	PE-Dazzle594	Human	3-9	BD Biosciences	301641	1:100	https://www.bdbiosciences.com/en-us/products/pe-dazzle-594-anti-human-cd11c-antibody-10234
CD11c	PE	Human	HM3-SFR-M1	BD Biosciences	731335	1:200	https://www.bdbiosciences.com/en-us/products/reagents/flow-cytometry-reagents/research-reagents/single-color-antibodies-ruo/bv615-mouse-anti-human-cd11c-16.751535
CD123	Bright Violet 510	Human	6H6	BD Biosciences	306021	1:200	https://www.bdbiosciences.com/en-us/products/bright-violet-510-anti-human-cd123-antibody-8524
CD135	PE	Human	4G8	BD Biosciences	589896	1:50	https://www.bdbiosciences.com/en-us/products/reagents/flow-cytometry-reagents/research-reagents/single-color-antibodies-ruo/pe-mouse-anti-human-cd135-558996
CD14	APC-F470	Human	TuK4	ThermoFisher Scientific	MHC1427	1:400	https://www.thermofisher.com/antibody/product/CD14-Antibody-clone-TuK4-Monoclonal-MHC1427
CD14	AF70	Human	SJ26C1	Invitrogen	56019842	1:50	https://www.thermofisher.com/antibody/product/CD14-Antibody-clone-SJ26C1-Monoclonal-56-0198-42
CD19	APC	Human	5D5	BD Biosciences	301919	1:100	https://www.bdbiosciences.com/en-us/products/apc-cy7-anti-human-cd19-antibody-3293
CD271 (LNFR)	APC	Human	ME20.4-1.H4	MACS	130-113-418	1:200	https://www.miltenyibiotec.com/CH/en/products/cd271-1ngfr-antibody-anti-human-me20-4-1-h4.html?conjugate=pc-ize-100-tests-in-20ul
CD271 (LNFR)	AF70	Human	ME20.4	BD Biosciences	345117	1:100	https://www.bdbiosciences.com/en-us/products/af70-anti-human-cd271-1ngfr-antibody-16283
CD271 (LNFR)	APC	Human	ME20.4-1.H4	MACS	130-113-418	1:200	https://www.miltenyibiotec.com/CH/en/products/cd271-1ngfr-antibody-anti-human-me20-4-1-h4.html?conjugate=pc-ize-100-tests-in-20ul
CD271 (LNFR)	PE	Human	ME20.4-1.H4	MACS	130-113-421	1:200	https://www.miltenyibiotec.com/CH/en/products/cd271-1ngfr-antibody-anti-human-me20-4-1-h4.html?conjugate=pc-ize-100-tests-in-20ul
CD279	Bright Violet 510	Mouse	29F.142	BD Biosciences	135241	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-510-anti-mouse-cd279-pd-1-antibody-14923GroupD-BLG7928
CD279	APC	Mouse	RMP130	BD Biosciences	109104	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-cd279-pd-1-antibody-4847GroupD-BLG7470
CD279	PE	Mouse	H43	BD Biosciences	25-9985-82	1:100	https://www.thermofisher.com/antibody/product/CD279-PD-1-Antibody-clone-H43-Monoclonal-25-9985-82
CD3	APC	Mouse	17A2	BD Biosciences	100236	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-cd3-antibody-8055
CD3	Bright Violet 605	Mouse	17A2	BD Biosciences	100237	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-mouse-cd3-antibody-85037GroupD-BLG6740
CD3	Bright Violet 711	Mouse	17A2	BD Biosciences	100229	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-711-anti-mouse-cd3-antibody-7847GroupD-BLG6242
CD3	FITC	Mouse	17A2	BD Biosciences	100204	1:100	https://www.bdbiosciences.com/en-us/products/fic-anti-mouse-cd3-antibody-457GroupD-BLG732
CD3	Bright Violet 605	Human	OKT3	BD Biosciences	317421	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-human-cd3-antibody-7666
CD3	PE	Human	SK7	BD Biosciences	300329	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-human-cd3-antibody-3417
CD3	PE	Human	SK7	BD Biosciences	344805	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-human-cd3-antibody-8511
CD3	APC-F470	Human	SK7	BD Biosciences	47-0036-41	1:100	https://www.thermofisher.com/antibody/product/CD3-Antibody-clone-SK7-Monoclonal-47-0036-41
CD3	FITC	Human	UCHL1	BD Biosciences	353544	1:100	https://www.bdbiosciences.com/en-us/products/fic-anti-human-cd3-antibody-reagents/research-reagents/single-color-antibodies-ruo/bv395-mouse-anti-human-cd3-563548
CD335	FITC	Human	SE2	BD Biosciences	331922	1:200	https://www.bdbiosciences.com/en-us/products/fic-anti-human-cd335-anti-antibody-8484
CD335	PE	Human	SE2	BD Biosciences	331907	1:200	https://www.bdbiosciences.com/en-us/products/pe-anti-human-cd335-anti-antibody-4577
CD34	PE-Dazzle594	Human	344833	BD Biosciences	344833	1:100	https://www.bdbiosciences.com/en-us/products/pe-dazzle-594-anti-human-cd34-antibody-10277
CD366	Bright Violet 711	Mouse	RMT-23	BD Biosciences	119727	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-711-anti-mouse-cd366-anti-antibody-149187GroupD-BLG10656
CD4	AF70	Mouse	RM-5	BD Biosciences	100536	1:400	https://www.bdbiosciences.com/en-us/products/af70-anti-mouse-cd4-antibody-33667GroupD-BLG4211
CD4	Alexa Fluor 488	Mouse	RM-5	BD Biosciences	100536	1:100	https://www.bdbiosciences.com/en-us/products/alexa-fluor-488-anti-mouse-cd4-antibody-33667GroupD-BLG4211
CD4	AF70	Mouse	OK1.5	BD Biosciences	100430	1:100	https://www.bdbiosciences.com/en-us/products/af70-anti-mouse-cd4-antibody-33857GroupD-BLG4745
CD4	Bright Violet 605	Mouse	RM-5	BD Biosciences	100548	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-mouse-cd4-antibody-7627GroupD-BLG4745
CD4	Bright Violet 711	Mouse	RM-5	BD Biosciences	100552	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-711-anti-mouse-cd4-antibody-78257GroupD-BLG4211
CD4	PE	Human/Mouse	RM-5	BD Biosciences	100512	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-mouse-cd4-antibody-482
CD44	Alexa Fluor 488	Human/Mouse	IM7	BD Biosciences	103016	1:100	https://www.bdbiosciences.com/en-us/products/alexa-fluor-488-anti-mouse-human-cd44-antibody-30977GroupD-BLG10248
CD44	APC	Human/Mouse	IM7	BD Biosciences	103016	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-human-cd44-antibody-312
CD44	PerCP-Cy5.5	Mouse	IM7	BD Biosciences	103032	1:100	https://www.bdbiosciences.com/en-us/products/percp-cy5-5-anti-mouse-cd44-antibody-56057GroupD-BLG10248
CD45	APC	Mouse	30-F11	eBioscience	17-0451-82	1:100	https://www.thermofisher.com/antibody/product/CD45-Antibody-clone-30-F11-Monoclonal-17-0451-82
CD45	APC	Mouse	30-F11	eBioscience	103112	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-cd45-antibody-97
CD45	Bright Violet 510	Mouse	30-F11	BD Biosciences	103138	1:400	https://www.bdbiosciences.com/en-us/products/bright-violet-510-anti-mouse-cd45-antibody-7395
CD45	Pacific Blue	Mouse	30-F11	BD Biosciences	103126	1:100	https://www.bdbiosciences.com/en-us/products/pacific-blue-anti-mouse-cd45-antibody-31027GroupD-BLG6841
CD45	PE	Mouse	30-F11	BD Biosciences	103106	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-mouse-cd45-antibody-100
CD45-1	FITC	Mouse	A20	Invitrogen	11-0453-82	1:100	https://www.thermofisher.com/antibody/product/CD45-1-Antibody-clone-A20-Monoclonal-11-0453-82
CD45-1	PE	Mouse	A20	Invitrogen	12-0453-82	1:100	https://www.thermofisher.com/antibody/product/CD45-1-Antibody-clone-A20-Monoclonal-12-0453-82
CD45-1	PE-Cy7	Mouse	104	BD Biosciences	110730	1:100	https://www.bdbiosciences.com/en-us/products/pe-cy7-anti-mouse-cd45-1-antibody-45177GroupD-BLG1933
CD45-2	APC	Mouse	104	eBioscience	17-0454-82	1:100	https://www.thermofisher.com/antibody/product/CD45-2-Antibody-clone-104-Monoclonal-17-0454-82
CD45-2	APC-Cy7	Mouse	104	BD Biosciences	100624	1:100	https://www.bdbiosciences.com/en-us/products/apc-cy7-anti-mouse-cd45-2-antibody-3906
CD45-2	APC-F470	Mouse	104	eBioscience	47-0454-82	1:100	https://www.thermofisher.com/antibody/product/CD45-2-Antibody-clone-104-Monoclonal-47-0454-82
CD45-2	Pacific Blue	Mouse	104	eBioscience	100620	1:100	https://www.bdbiosciences.com/en-us/products/pacific-blue-anti-mouse-cd45-2-antibody-31087GroupD-BLG1934
CD45-2	PE	Mouse	104	Invitrogen	12-0454-82	1:100	https://www.thermofisher.com/antibody/product/CD45-2-Antibody-clone-104-Monoclonal-12-0454-82
CD45R	Bright Violet 605	Human	R43482	BD Biosciences	612344	1:150	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-human-cd45r-antibody-7870GroupD-GROUP20
CD45RA	BV173	Human	H1100	BD Biosciences	612846	1:400	https://www.bdbiosciences.com/en-us/products/bv173-anti-human-cd45ra-antibody-research-reagents/single-color-antibodies-ruo/bv737-mouse-anti-human-cd45ra-612846
CD62L	Alexa Fluor 488	Human	MEL-14	BD Biosciences	104420	1:100	https://www.bdbiosciences.com/en-us/products/alexa-fluor-488-anti-human-cd62l-antibody-31157GroupD-GROUP20
CD62L	PE	Human	MEL-14	BD Biosciences	104418	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-human-cd62l-antibody-19227GroupD-BLG10870
CD62L	PE-Dazzle594	Mouse	MEL-14	BD Biosciences	104446	1:200	https://www.bdbiosciences.com/en-us/products/pe-dazzle-594-anti-mouse-cd62l-antibody-12137
CD66	Bright Violet 711	Human	X54-577	BD Biosciences	139311	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-711-anti-human-cd66-antibody-99207GroupD-BLG8805
CD66	FITC	Human	GL105	BD Biosciences	305103	1:400	https://www.bdbiosciences.com/en-us/products/fic-anti-human-cd66-antibody-666
CD66	PE	Human	GL105	BD Biosciences	305103	1:400	https://www.bdbiosciences.com/en-us/products/pe-anti-human-cd66-antibody-6529
CD68	APC-Cy7	Mouse	GL-1	BD Biosciences	553030	1:100	https://www.bdbiosciences.com/en-us/products/apc-cy7-anti-mouse-cd68-antibody-65547GroupD-BLG11928
CD68	Pacific Blue	Human	T12.2	BD Biosciences	306417	1:100	https://www.bdbiosciences.com/en-us/products/pacific-blue-anti-human-cd68-antibody-3387
CD68	PE	Human	GL-1	BD Biosciences	100922	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-human-cd68-antibody-3122
CD68	PerCP-Cy5.5	Mouse	53-6.7	BD Biosciences	100734	1:400	https://www.bdbiosciences.com/en-us/products/percp-cy5-5-anti-mouse-cd68-antibody-4255
CD68	Alexa Fluor 700	Mouse	53-6.7	eBioscience	56-0081-82	1:100	https://www.thermofisher.com/antibody/product/CD68-Antibody-clone-53-6.7-Monoclonal-56-0081-82
CD68	APC	Mouse	53-6.7	BD Biosciences	100774	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-cd68-antibody-2089
CD68	Bright Violet 605	Mouse	53-6.7	BD Biosciences	100744	1:100	https://www.bdbiosciences.com/en-us/products/bright-violet-605-anti-mouse-cd68-antibody-7636
CD68	PE	Mouse	53-6.7	BD Biosciences	100752	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-mouse-cd68-antibody-7992
CD68	PE	Mouse	53-6.7	Invitrogen	553030	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-mouse-cd68-antibody-reagents/research-reagents/single-color-antibodies-ruo/rat-anti-mouse-cd68-553030
CD68	PerCP-Cy5.5	Human	SMB	BD Biosciences	353803	1:400	https://www.bdbiosciences.com/en-us/products/percp-cy5-5-anti-human-cd68-antibody-6389
CD68	Alexa Fluor 488	Human	BFB	BD Biosciences	353808	1:200	https://www.bdbiosciences.com/en-us/products/alexa-fluor-488-anti-human-cd68-antibody-6389
CD68	APC	Mouse	BMB	BD Biosciences	123120	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-cd68-antibody-4073
CD68	PE	Mouse	BMB	BD Biosciences	123116	1:100	https://www.bdbiosciences.com/en-us/products/pe-anti-mouse-cd68-antibody-4071
CD68	PE-Cy7	Mouse	BMB	BD Biosciences	123118	1:100	https://www.bdbiosciences.com/en-us/products/pe-cy7-anti-mouse-cd68-antibody-4072
CD68	PE-Cy7	Mouse	BMB	BD Biosciences	123114	1:200	https://www.bdbiosciences.com/en-us/products/pe-cy7-anti-mouse-cd68-antibody-4070GroupD-BLG5319
Granzyme B	PE-Teas Red	Human/Mouse	GB11	ThermoFisher Scientific	GRB17	1:100	https://www.thermofisher.com/antibody/product/Granzyme-B-Antibody-clone-GB11-Monoclonal-GRB17
G2D	APC	Human/Mouse	APC	BD Biosciences	561209	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-human-granzyme-b-antibody-298
HLA-ABC	PerCP-Cy5.5	Human	WB62	BD Biosciences	311419	1:400	https://www.bdbiosciences.com/en-us/products/percp-cy5-5-anti-human-hla-a-b-c-antibody-7057
HLA-A2	PE-Cy7	Human	B87.2	BD Biosciences	343313	1:100	https://www.bdbiosciences.com/en-us/products/pe-cy7-anti-human-hla-a2-antibody-3184
HLA-DR	Pacific Blue	Human	L243	BD Biosciences	301763	1:200	https://www.bdbiosciences.com/en-us/products/pacific-blue-anti-human-hla-dr-antibody-4246
IFN-γ	APC	Mouse	XMG.12	BD Biosciences	562018	1:100	https://www.bdbiosciences.com/en-us/products/apc-anti-mouse-ifn-gamma-antibody-research-reagents/single-color-antibodies-ru