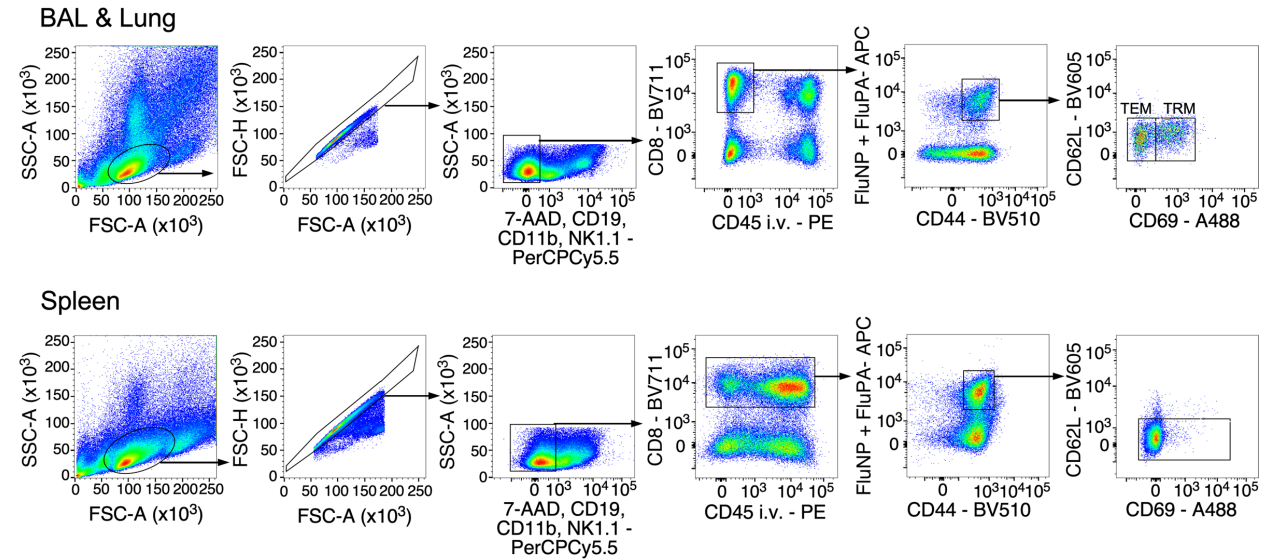
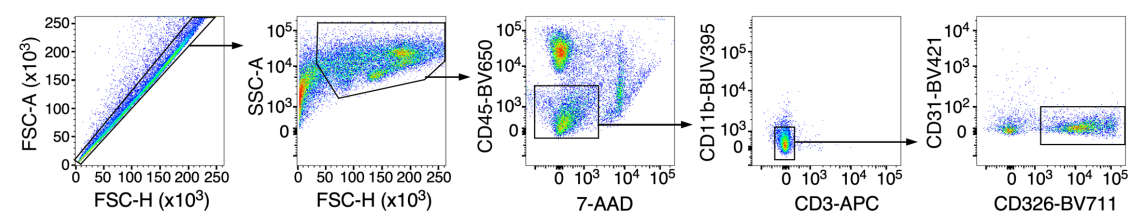


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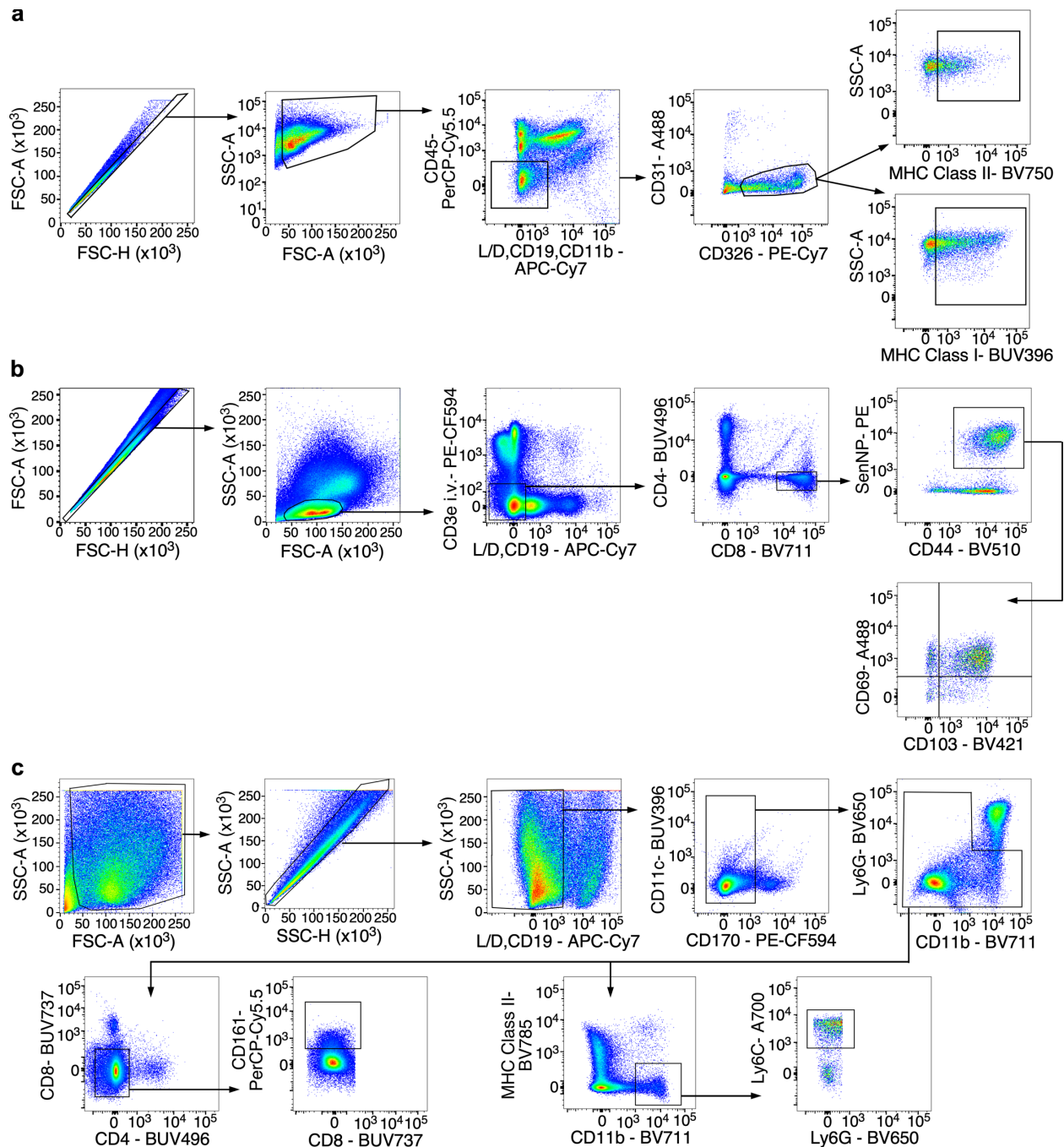
a



b



Supplementary Information Fig 1. Flow cytometry sorting gating strategies for RNA sequencing analysis. (a) Gating strategy used to sort antigen specific CD8 TRM from BAL and lung, and CD8 TEM from lung and spleen for transcriptional analysis (Fig. 2a-b). **(b)** Gating strategy used to sort nasal cavity epithelial cells (Fig. 4b-d).



Supplementary Information Fig 2. Flow cytometry gating strategies. (a) Gating strategy used to identify MHC-I^{hi} and MHC-II⁺ epithelial cells in the nasal cavity (Fig. 4e-f). (b) Gating strategy used to identify antigen-specific CD8 T cells and CD103⁺ CD69⁺ SenNP⁺ TRM in BAL, nasal cavity, lung, and spleen (Fig. 5e, Extended data Fig. 1 b-g, Extended data Fig. 3 b-d, Extended data Fig. 4b, Extended data Fig. 6b, Extended data Fig. 9b). (c) Gating strategy used to identify NK cells and inflammatory monocyte subsets (Extended data Fig. 4d, Extended data Fig. 5b-c).

Supplementary Information Table 1

Reagent	Fluorophore	Clone #	Catalogue #	Vendor
antiCCR2	BV605	SA203G11	150615	BioLegend
antiCD103	BV421	2E7	121421	BioLegend
	BB700	2E7	748240	BD Bioscience
	BB515	Ber-ACT8	564578	BD Bioscience
antiCD11b	BV711	M1/70	101241	BioLegend
	UV395	M1/70	563553	BD Bioscience
	APC-eFluor 780	M1/70	479112-82	eBioscience
antiCD11c	UV395	HL3	564080	BD Bioscience
	UV737	HL3	612797	BD Bioscience
antiCD19	APC-Cy7	1D3	152412	BioLegend
	APC-eFluor 780	1D3	470193-82	eBioscience
antiCD3	APC	17A2	100236	BioLegend
	APC-eFluor 780	17A2	47-0032-82	eBioscience
antiCD3 ϵ	PE-CF594	145-2C11	562286	BD Bioscience
antiCD31	APC-Cy7	390	102440	BioLegend
	BV421	390	102424	BioLegend
antiCD4	UV496	GK1.5	612952	BD Bioscience
antiCD44	BV510	IM7	103044	BioLegend
	BV480	IM7	566116	BD Bioscience
	A700	IM7	560567	BD Bioscience
antiCD45	BV650	30-F11	103151	BioLegend
	PerCPCy5.5	30-F11	103132	BioLegend
antiCD45.2	PE	104	109808	BioLegend
	A700	104	56-0454-82	eBioscience
antiCD49a	BV605	Ha31/8	740375	BD Bioscience
antiCD62L	PE-Cy7	MEL-14	104418	BioLegend
antiCD69	A488	H1.2F3	104506	BioLegend
	PE-Cy7	H1.2F3	104512	BioLegend
antiCD8 α	BV711	53-6.7	100759	BioLegend
	BV785	53-6.7	100750	BioLegend
	UV737	53-6.7	612759	BD Bioscience

antiCXCR3	UV395	CXCR3-173	745689	BD Bioscience
antiCXCR6	BV711	SA051D1	151111	BioLegend
antiEpCAM	PE-Cy7	G8.8	118216	BioLegend
	BV711	G8.8	118233	BioLegend
antiLy6C	A700	HK1.4	128024	BioLegend
	A488	HK1.4	128022	BioLegend
antiLy6G	BV650	1A8	127641	BioLegend
	BV510	1A8	127633	BioLegend
antiSiglecF	PE-Dazzle594	S17007L	155530	BioLegend
	PE-CF594	E50-2440	562757	BD Bioscience
antiMHC-I (H-2K(b)/H-2D(b))	UV395	28-8-6	745596	BD Bioscience
antiMHC-II (I-A/I-E)	BV785	M5/114.15.2	107645	BioLegend
antiNK1.1	PerCp-Cy5.5	PK136	108728	BioLegend
	BV711	PK136	108745	BioLegend
	APC-Cy7	PK136	108723	BioLegend
ZOMBIE-NIR	N/A	N/A	423106	BioLegend
7-AAD	N/A	N/A	420404	BioLegend

Supplementary Information Table 1. Specificities, conjugated fluorophores, clone numbers, catalogue numbers, and vendors for flow cytometry reagents used in this study.