Supplementary Materials for

Multiomic Analysis Reveals Decidual-specific Transcriptional Programing of MAIT cells

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This file includes:

Figure S1 Identification of MAIT cells in PBMCs. (A) Representative gating scheme showing the identification of CD3+ T cells. **(B)** Identification of MAIT cells in PBMCs.

Figure S2 Tetramer labeling of decidual MAIT cells. (A) Tetramer specific (5-OP+) identification of MAIT cells in the Decidua Basalis (top) and Decidua Parietalis (bottom). Non-specific tetramer (6-FP) shows no binding of presumptive MAIT cells. Plots are representative of two independent experiments. **(B)** 5-OP tetramer labeling of PBMC MAIT cells with little binding of unspecific tetramer binding.

Figure S3 Sorting gating scheme for CD3+ T cells. Representative plots showing the gating scheme used to sort CD3+ T cells. Subsequent plot showing > 95% purity of sorted populations.

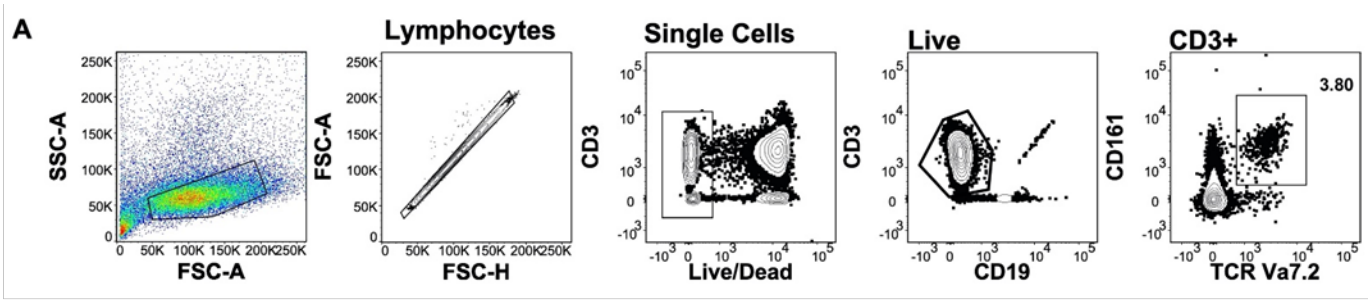
Figure S4 Transcription factor expression in MAIT cells. (A) Transcription factor expression in CD4+, CD8+, and MAIT cells from PBMCs. Flourescence minus one (FMO) control is shown with dotted line. **(B)** Transcription factor expression comparisons in MAIT cells isolated from decidua basalis, decidua parietalis, and PBMCs. Decidua Basalis, n = 14; Decidua Parietalis, n = 14; PBMCs, n = 9. Data represented as max/min, median, and 25 and 75th percentiles. Statistical significance was determined by One-way ANOVA, followed by Tukey post-hoc tests, were appropriate. *$p < 0.05$, **$p < 0.005$.

Figure S5 Expression of selected markers unique to decidual MAIT cells. Expression of selected genes in MAIT cells from decidua basalis and PBMCs.

Figure S6 MR1 expression by decidual antigen presenting cells (APCs) in term human decidua. **(A)** Gating scheme for decidual APCs. **(B)** MR1 expression on various APCs from human decidua basalis.

Table S1 Phenotypes of MR1-expression Antigen Presenting Cells (APCs).

Figure S1


A
Lymphocytes
Single Cells
Live
CD3+
SSC-A
FSC-A
FSC-A
FSC-H
CD3
Live/Dead
CD3
CD19
CD161
TCR Vα7.2
3.80

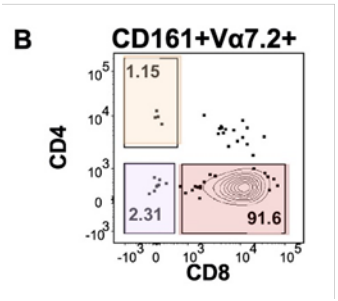

B
CD161+Vα7.2+
CD4
CD8
1.15
2.31
91.6

Figure S2

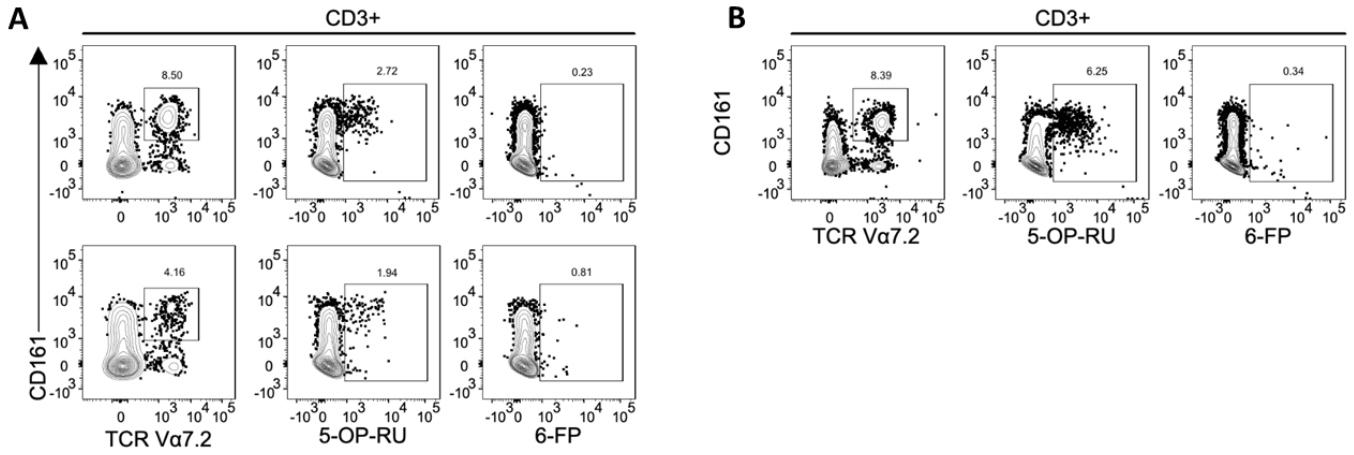

A
CD3+
8.50
2.72
0.23
4.16
1.94
0.81
CD161
TCR Vα7.2
5-OP-RU
6-FP
B
CD3+
8.39
6.25
0.34
CD161
TCR Vα7.2
5-OP-RU
6-FP

Figure S3

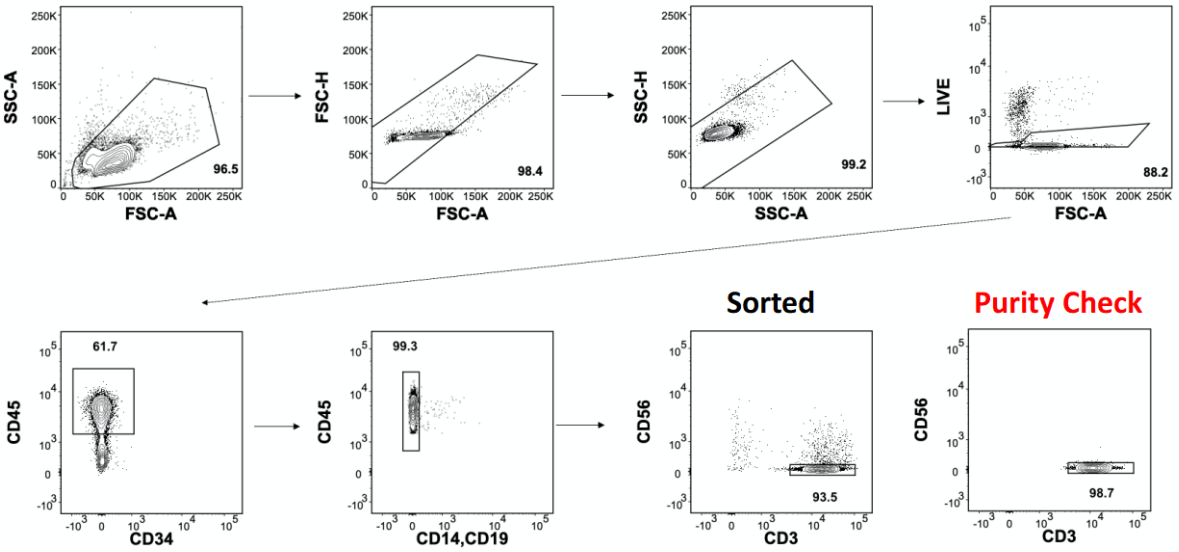

SSC-A
FSC-A
96.5
FSC-H
FSC-A
98.4
SSC-H
SSC-A
99.2
LIVE
FSC-A
88.2
CD45
CD34
61.7
CD45
CD14,CD19
99.3
Sorted
CD56
CD3
93.5
Purity Check
CD56
CD3
98.7

Figure S4

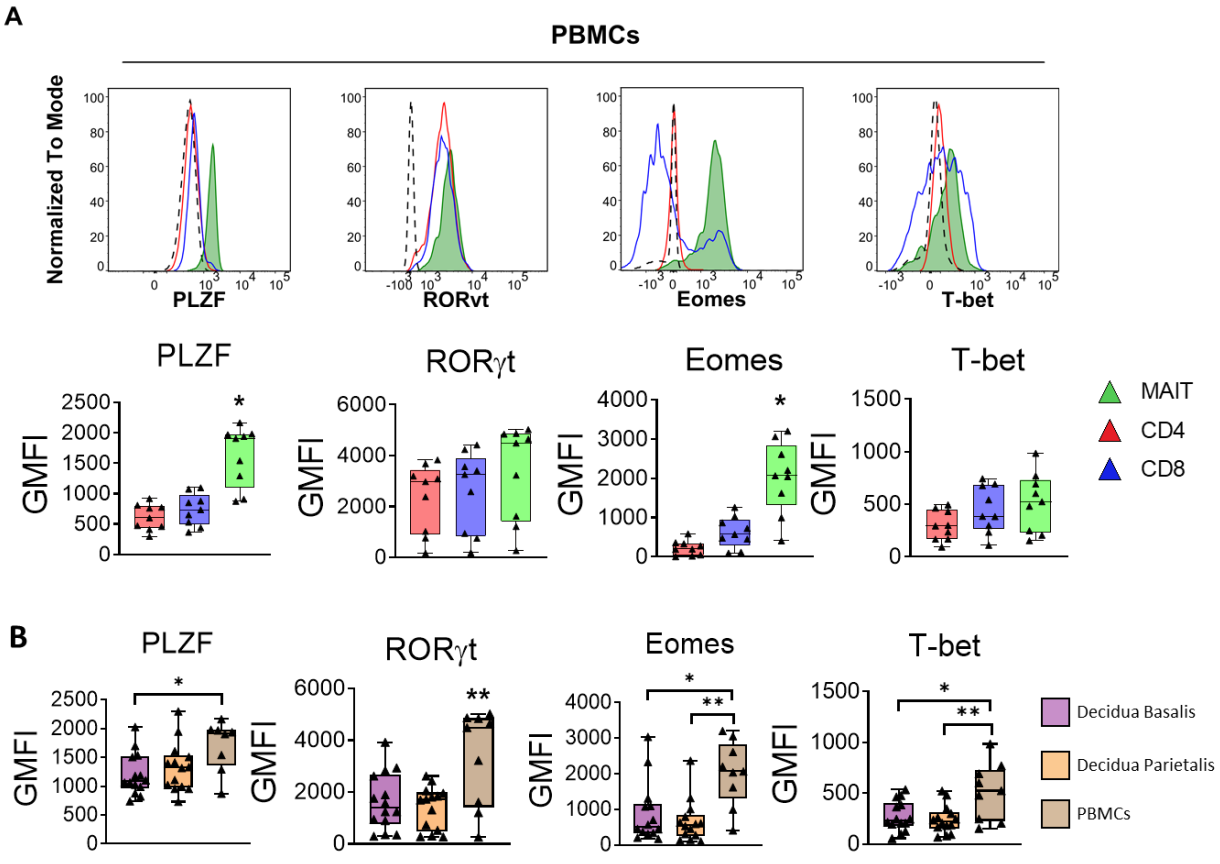

A
PBMCs
Normalized To Mode
PLZF
RORvt
Eomes
T-bet
GMFI
MAIT
CD4
CD8
B
Decidua Basalis
Decidua Parietalis
PBMCs

Figure S5

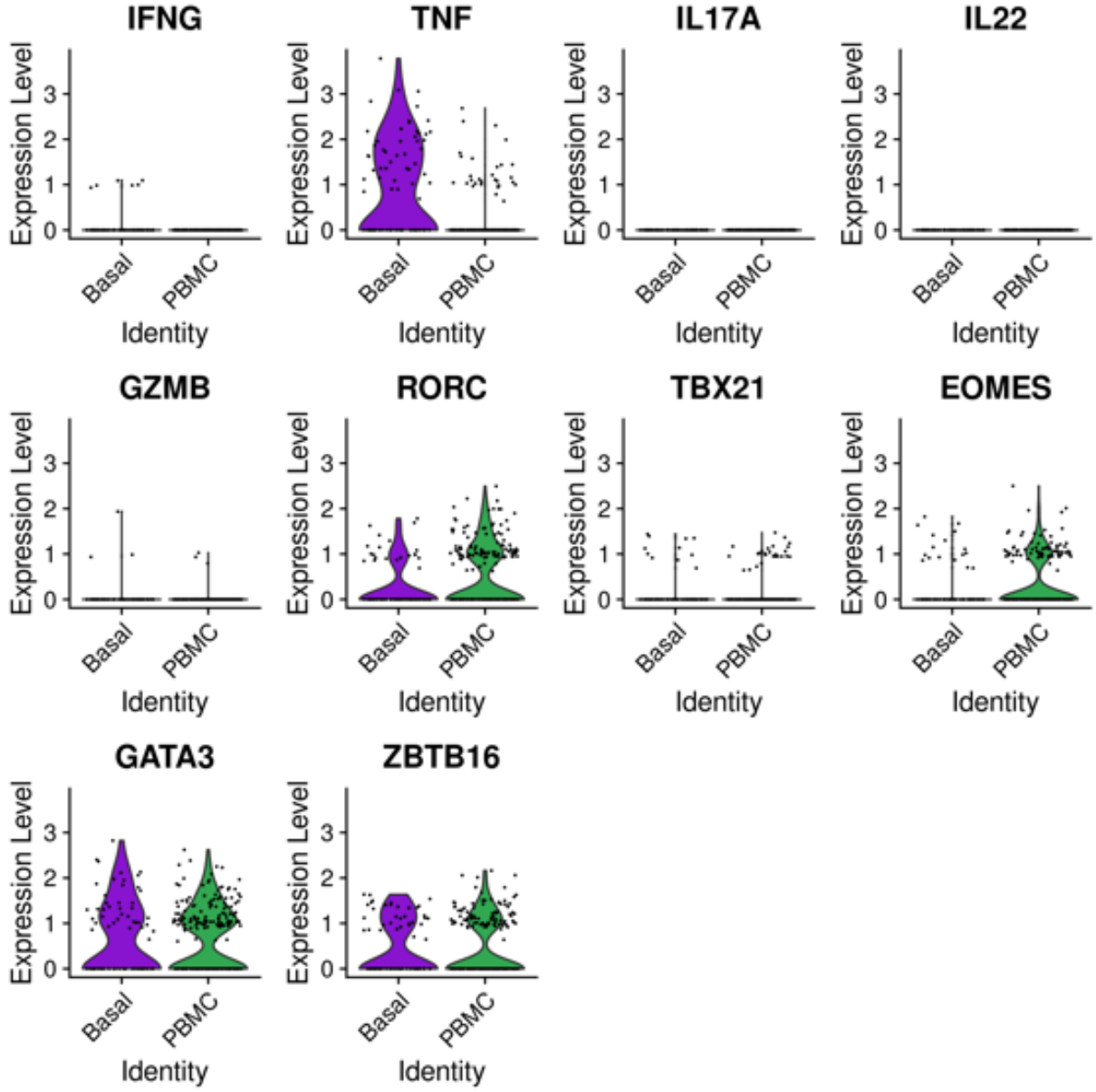

IFNG
TNF
IL17A
IL22
GZMB
RORC
TBX21
EOMES
GATA3
ZBTB16
Expression Level
0
1
2
3
Basal
PBMC
Identity

Figure S6

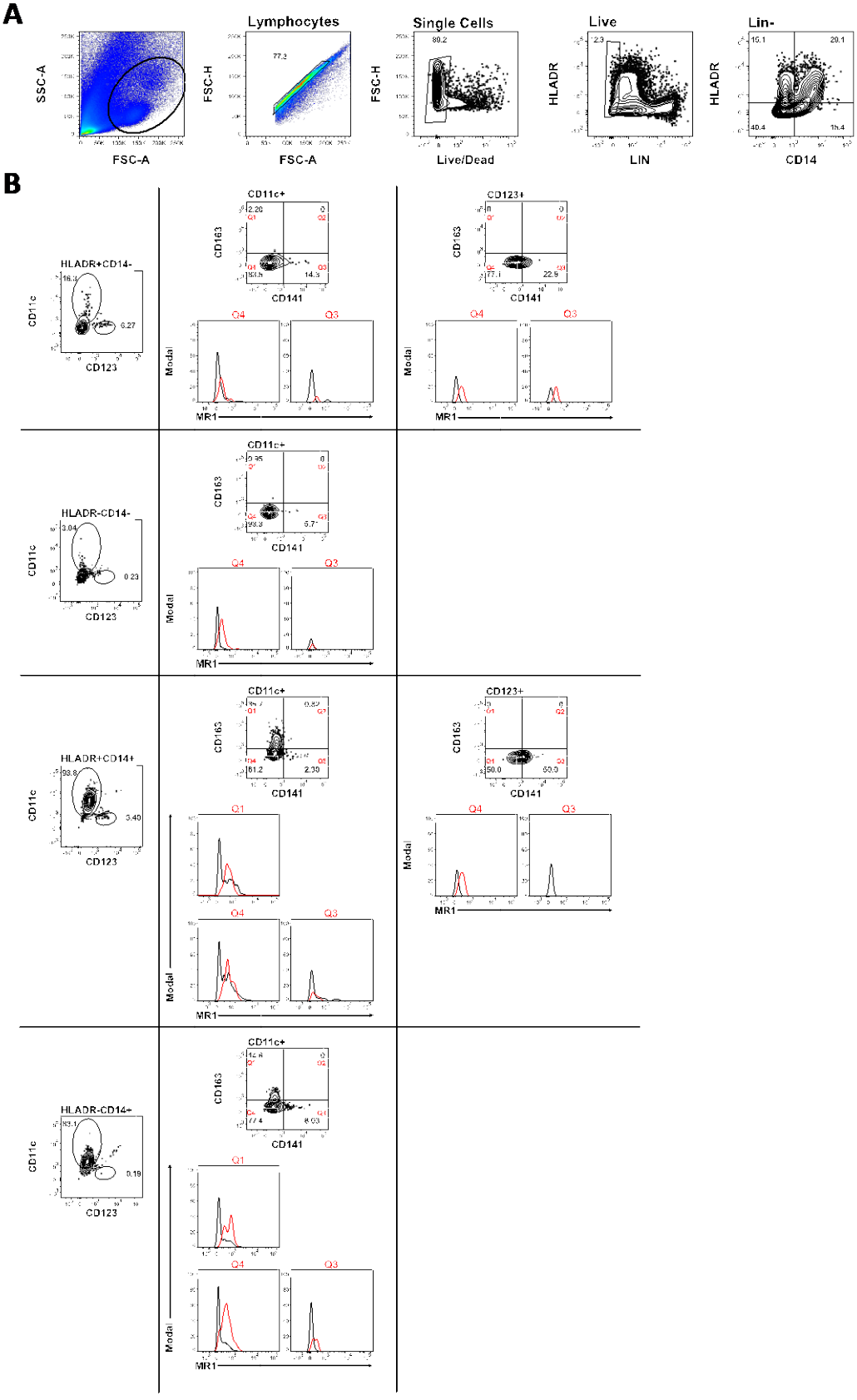

A
Lymphocytes
Single Cells
Live
Lin-
SSC-A
FSC-A
FSC-H
FSC-A
FSC-H
Live/Dead
HLADR
LIN
HLADR
CD14
B
HLADR+CD14-
HLADR-CD14-
HLADR+CD14+
HLADR-CD14+
CD11c
CD123
CD11c+
CD123+
CD163
CD141
Modal
MR1
Q1
Q2
Q3
Q4

Table S1

Subset	Phenotype
Classical type 1 DCs or cDC1s	HLADR+CD14-CD11c+CDC141+CD163-
Classical type 2 DCs or cDC2s	HLADR+CD14-CD11c+CDC141-CD163-
pre-cDC1	HLADR+CD14-CD123+CDC141+CD163-
Early pre-DCs	HLADR+CD14-CD123+CDC141-CD163-
PMN-MDSCs	HLADR-CD14-CD11c+CDC141+CD163-
PMN-MDSCs	HLADR-CD14-CD11c+CDC141-CD163-
Classical monocyte	HLADR+CD14+CD11c+CDC141-CD163+
Monocyte-derived DCs	HLADR+CD14+CD11c+CDC141+CD163-
Inflammatory DCs	HLADR+CD14+CD11c+CDC141-CD163-
DC-10	HLADR+CD14+CD123+CDC141+CD163-
Common DC progenitor	HLADR+CD14+CD123+CDC141-CD163-
Classical monocyte	HLADR-CD14+CD11c+CDC141-CD163+
Suppressive Monocytes	HLADR-CD14+CD11c+CDC141+CD163-
Mo-MDSCs	HLADR-CD14+CD11c+CDC141-CD163-