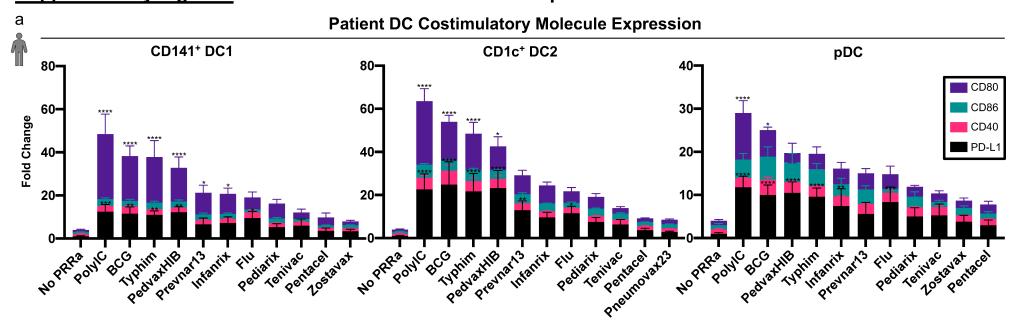
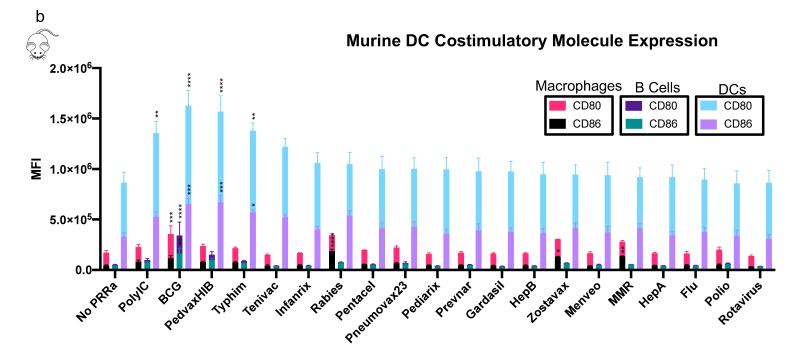
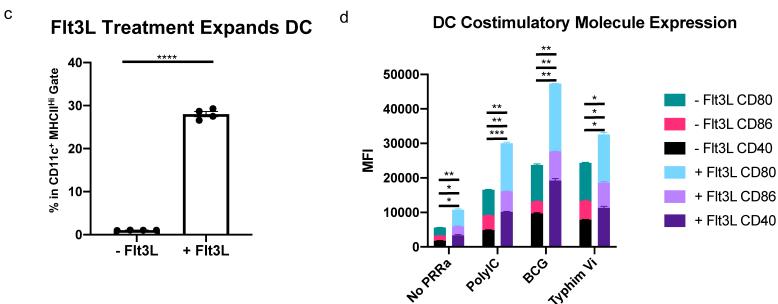
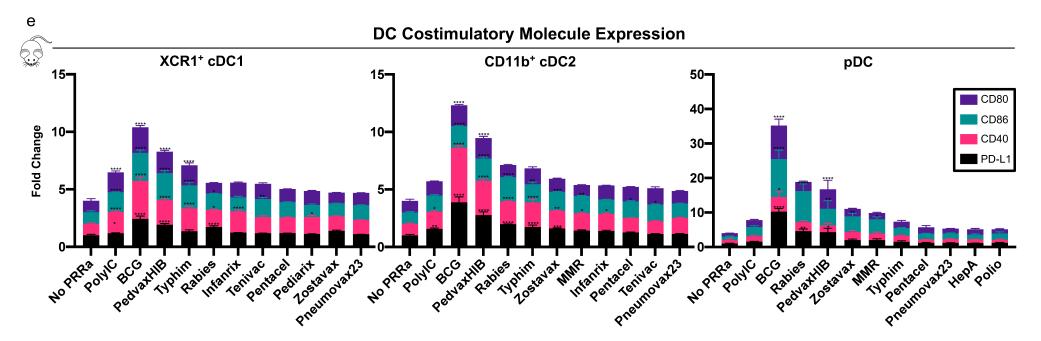
Supplementary Figure 1: Flt3L increases DC numbers and potentiates their activation.

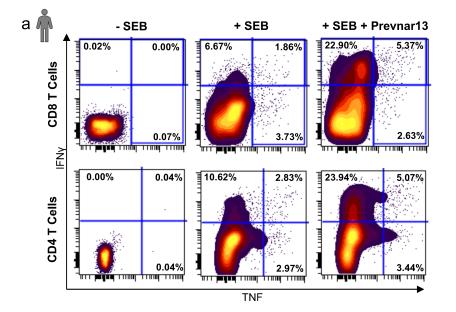


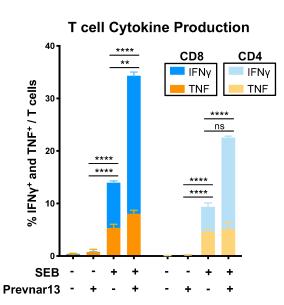




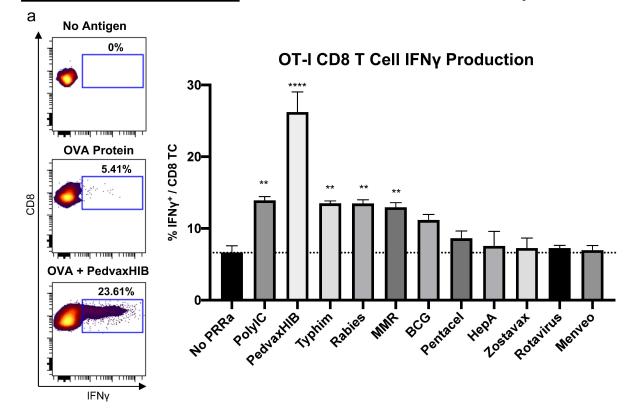


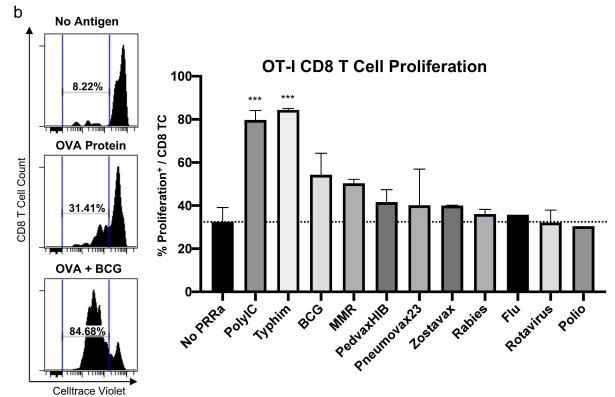
Supplementary Figure 2: naPRRa-activated DCs prime patient T cells.

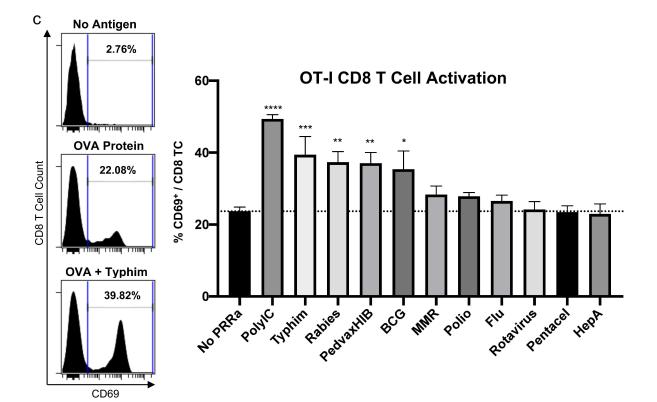




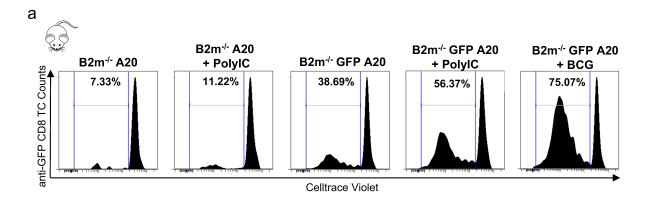
Supplementary Figure 3: naPRRa-activated DCs cross-prime OT-I T cells.

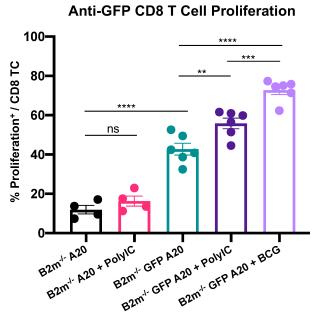






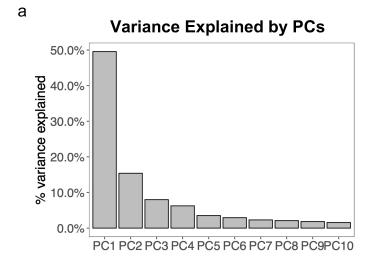
Supplementary Figure 4: naPRRa-activated DCs cross-present tumor-derived antigen to T cells.





Supplementary Figure 5: Identifying unique activation profiles of naPRRa.

b



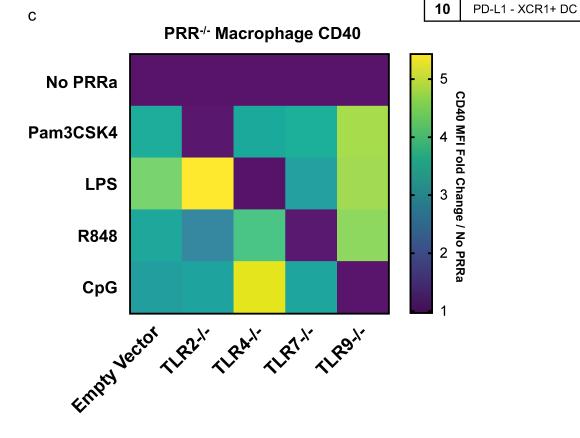
	PC1		PC2	
1	PD-L1 - B cells	0.11167442	CD317 - pDC	0.18631222
2	CD25 - Macrophages	0.11117589	CD132 - CD11b+ DC	0.17559494
3	PD-L1 - Monocytes	0.11095562	CD16.2 - Macrophages	-0.173966
4	PD-L1 - CD11b+ DC	0.11086326	CCR7 - XCR1+ DC	-0.171158
5	CD40 - CD11b+ DC	0.11050195	CCR7 - B cells	-0.1692147
6	CD86 - B cells	0.11042441	CD317 - Monocytes	0.1662212
7	CD317 - Granulocytes	0.11024338	CD86 - Macrophages	0.16387645
8	CD16.2 - B cells	-0.1100999	I-Ad - Macrophages	0.15884211
9	CD25 - CD11b+ DC	0.10938331	Sca-1 - CD11b+ DC	0.15829786

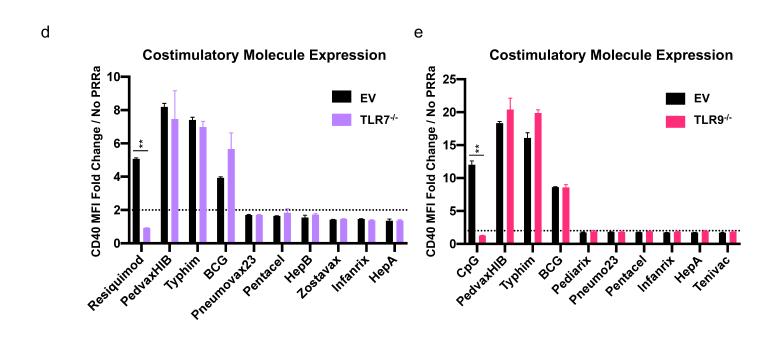
0.10888293

Sca-1 - Macrophages

0.14742205

Top Loading Metrics for PC1 and PC2





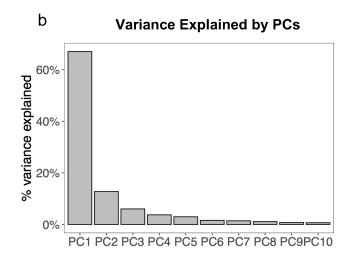
Supplementary Figure 6: Rational combination identifies the naPRRa triplet B/P/R that promotes anti-tumor immunity.

Metric	ρ	P Value
CD86 - Monocytes	0.79642339	5.12E-04
CD25 - Macrophages	0.79482116	5.12E-04
CD25 - T and NK	0.76137698	6.41E-04
CD86 - B cells	0.75970818	6.41E-04
PD-L1 - B cells	0.75928755	6.41E-04
PD-L1 - T and NK	0.75798939	6.41E-04
CD40 - T and NK	0.75104901	7.27E-04
ISG15	0.74706394	7.72E-04
MHC1b - CD11b+ DC	0.73685156	9.49E-04
CD40 - CD11b+ DC	0.7307462	1.06E-03
CD80 - pDC	0.72630724	1.06E-03
CD40 - Monocytes	0.72627885	1.06E-03
CD40 - Macrophages	0.72342874	1.10E-03
Sca-1 - B cells	0.71792551	1.17E-03
CD86 - T and NK	0.70941254	1.25E-03
CD25 - Monocytes	0.70770481	1.27E-03
CD40 - pDC	0.70324683	1.39E-03
PD-L1 - Granulocytes	0.69874873	1.49E-03
CD132 - XCR1+ DC	0.68289029	2.04E-03
IRF7	0.6809295	2.09E-03
I-Ad - T and NK	0.67789845	2.21E-03
CD132 - B cells	0.66056969	3.10E-03
CD25 - B cells	0.65727516	3.13E-03
CD317 - Macrophages	0.65065886	3.49E-03
CD317 - B cells	0.64541237	3.73E-03
CD86 - pDC	0.62985904	4.65E-03
CD80 - B cells	0.62755185	4.70E-03
MHC1b - Macrophages	0.61613726	5.36E-03
Sca-1 - XCR1+ DC	0.61573663	5.36E-03
Sca-1 - Macrophages	0.61488937	5.38E-03
MIP-1b	0.60645668	6.13E-03
MHC1b - B cells	0.58752014	8.46E-03
IL-10	0.57894703	9.58E-03
IL-2	0.55243218	1.45E-02
CD86 - Macrophages	0.54252102	1.68E-02
IL-6	0.5022889	2.84E-02
CD16.2 - Granulocytes	0.49992971	2.91E-02
IL-5	0.46226733	4.23E-02
CD16.2 - T and NK	-0.5257979	2.11E-02
CCR7 - Monocytes	-0.7134034	1.17E-03
CD16.2 - pDC	-0.7569266	6.41E-04
CD16.2 - B cells	-0.7754607	6.41E-04

CD16.2 - Monocytes

-0.800531

5.12E-04



Top Loading Metrics for PC1 and PC2

	PC1		PC2	
1	CD16.2 - B cells	-0.1813441	CD86 - Macrophages	0.28892217
2	CD86 - B cells	0.18062863	Sca-1 - Macrophages	0.25807474
3	CD25 - Macrophages	0.17964048	IRF7	0.24163333
4	CD86 - Monocytes	0.17963898	IL-6	-0.230543
5	Sca-1 - B cells	0.17893618	Sca-1 - XCR1+ DC	0.23025458
6	PD-L1 - B cells	0.175047	MHC1b - B cells	-0.218846
7	CD40 - T and NK	0.17485539	MIP-1b	-0.218108
8	MHC1b - CD11b+ DC	0.17459584	CD80 - B cells	-0.2154374
9	CD16.2 - Monocytes	-0.1683323	IL-10	-0.2152098
10	CD40 - pDC	0.1682002	CD25 - B cells	-0.1981826

d

С

 x_i , where i = 1, ..., 155; ranked by Spearman r between x_i and k_i

$$x_i = x_i$$
, where $i \le 43$

$$Y_i = \Sigma F_{1,j} X,$$

where $\Sigma F_{1,j}$ is the PC1 eigenvector of the covariance matrix of X

$$Y_c = Y_{Pneumovax23}$$

$$f(x) = \{1 \text{ if } Y_i \ge Y_c | 0 \text{ if } Y_i < Y_c \}$$

<u>Supplementary Figure 7</u>: The naPRRa triplet B/P/R that promotes anti-tumor immunity in ISV against 4T1 mammary carcinoma.

