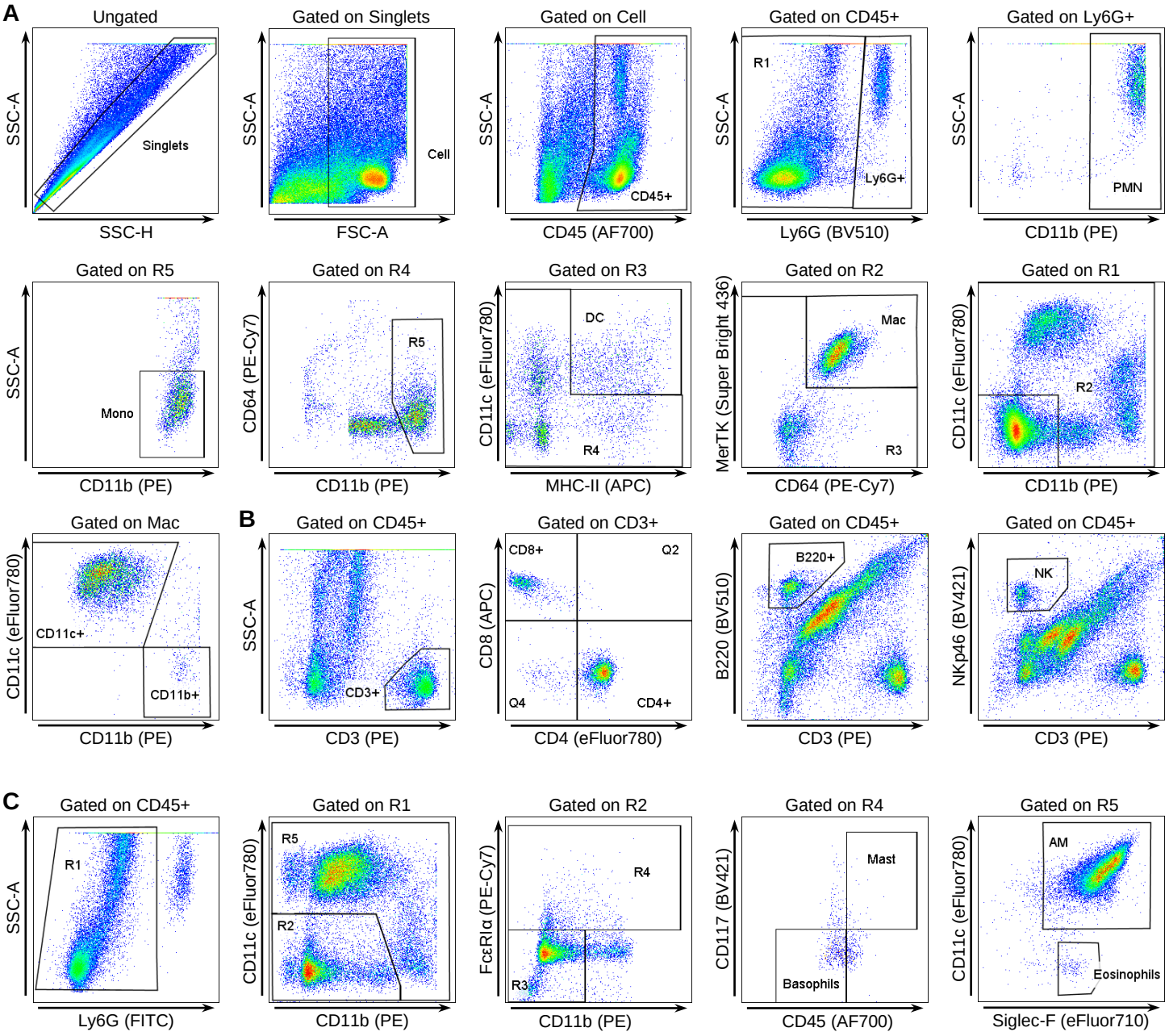
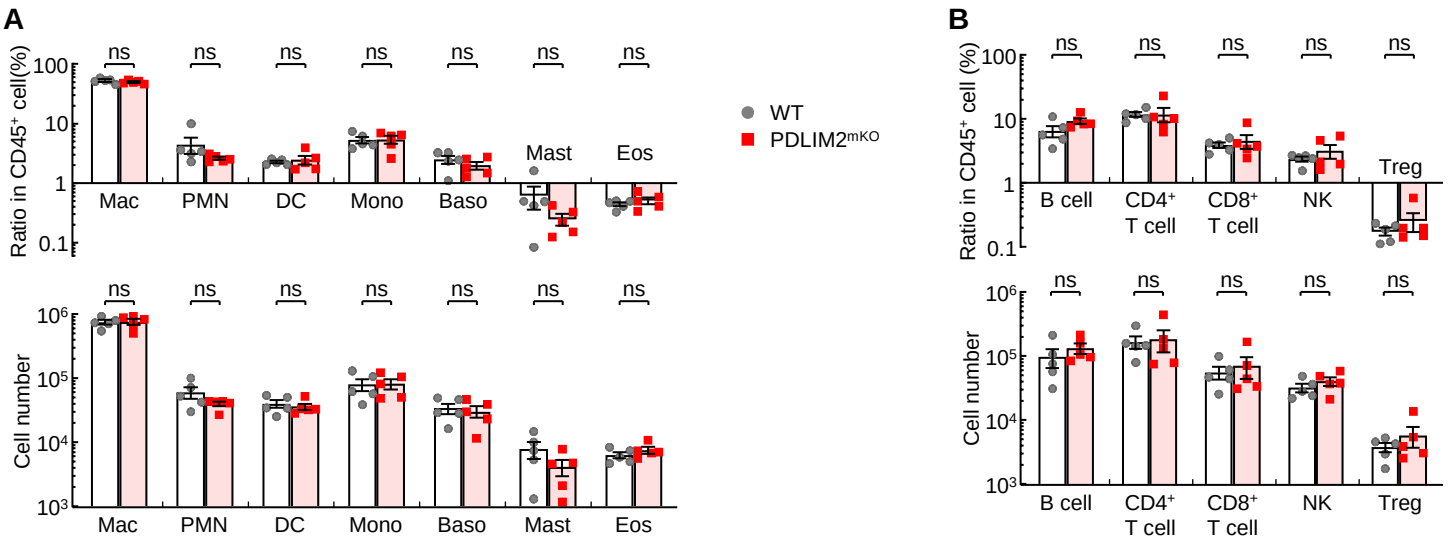
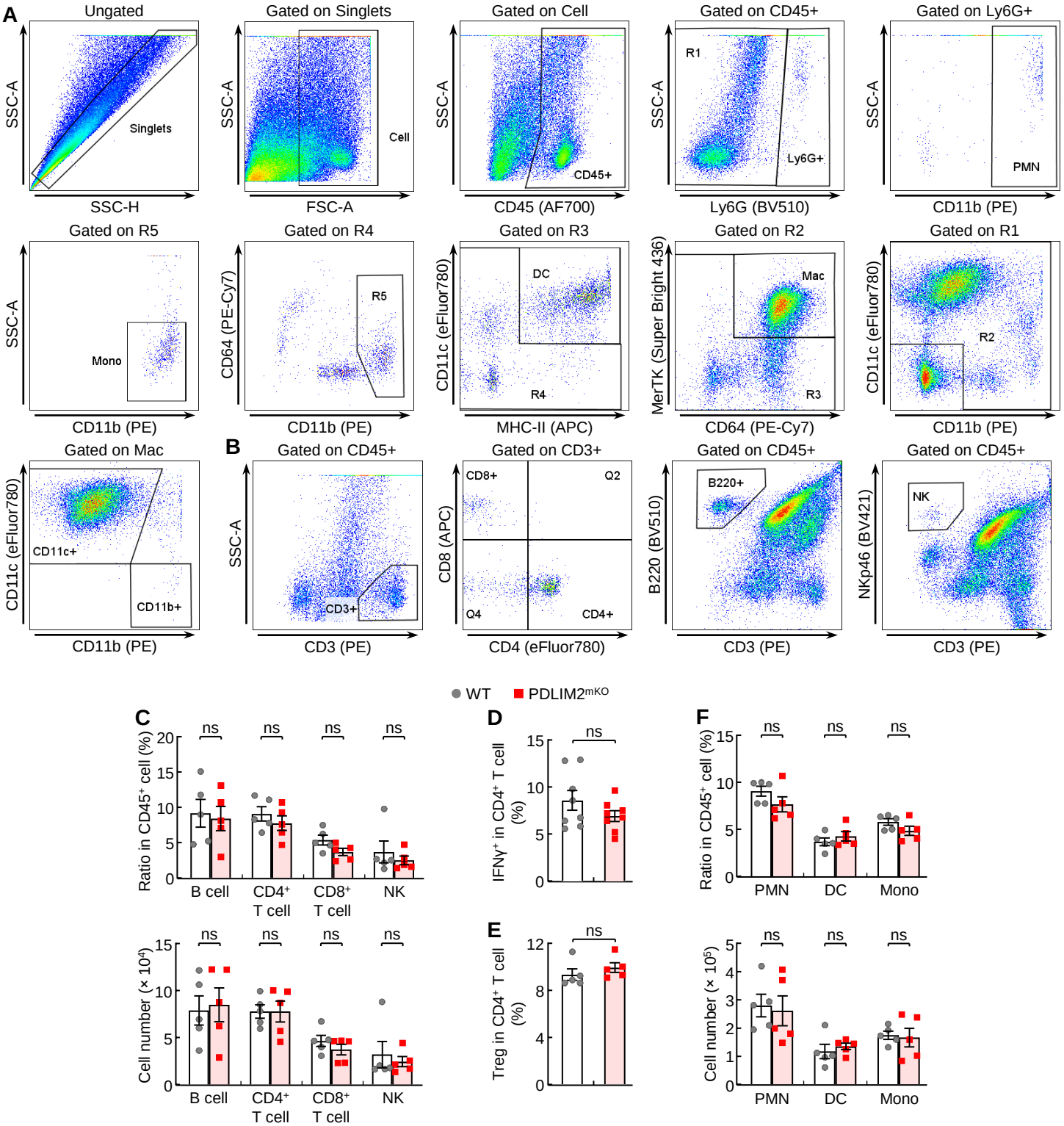


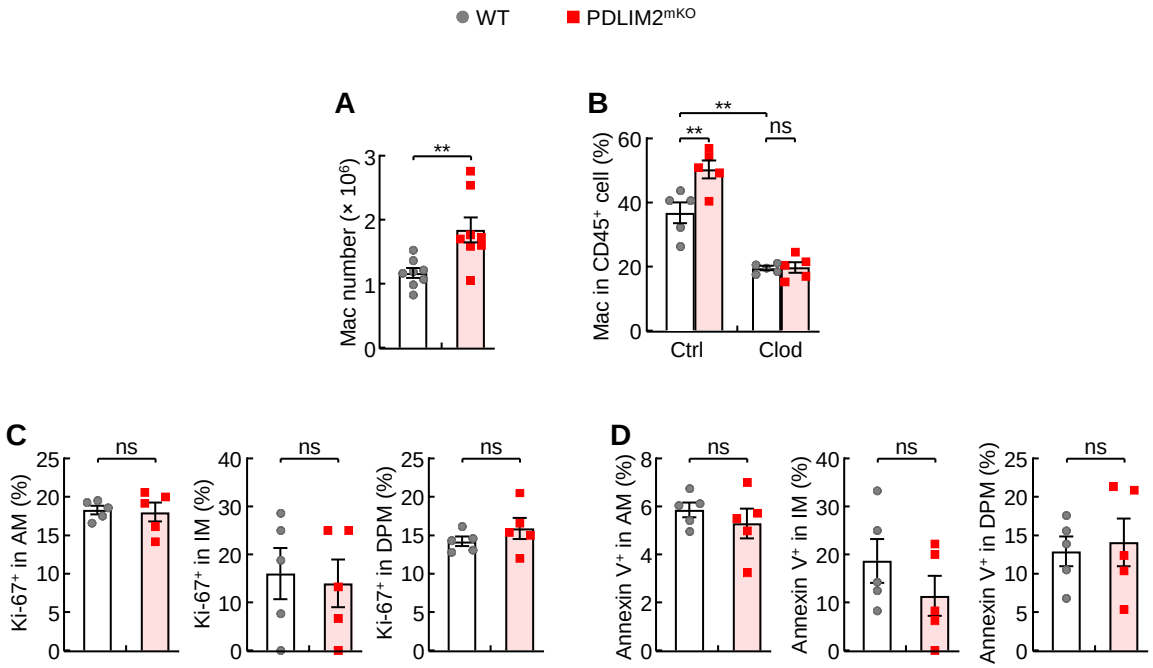
Supplemental Figure 1. FACS gating strategy for immune cells in normal lung tissue of mice. (**A**) Gating strategy for neutrophils (PMN), dendritic cells (DC), monocytes (Mono), macrophages (Mac) and their sub-types AMs (CD11c+) and IMs (CD11b+). (**B**) Gating strategy for $CD4^+$ T cells (CD4+), $CD8^+$ T cells (CD8+), B cells (B220+) and natural killer (NK) cells. (**C**) Gating strategy for basophils, mast cells (Mast) and eosinophils.



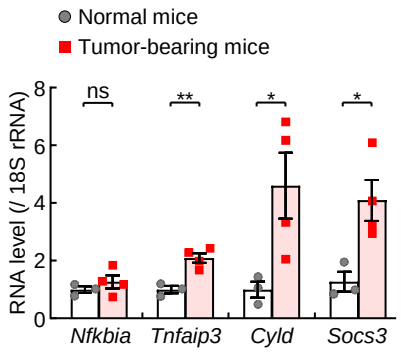
Supplemental Figure 2. No obvious effect of myeloid PDLIM2 deletion on lung immune cells under normal conditions. FACS assays showing no significant difference between WT and PDLIM2^{mKO} mice in their lung myeloid (**A**) and lymphocyte (**B**) populations (n = 5). Student's t test was performed (two tailed, unpaired) and data represent means ± SEM. ns, not statistically significant.



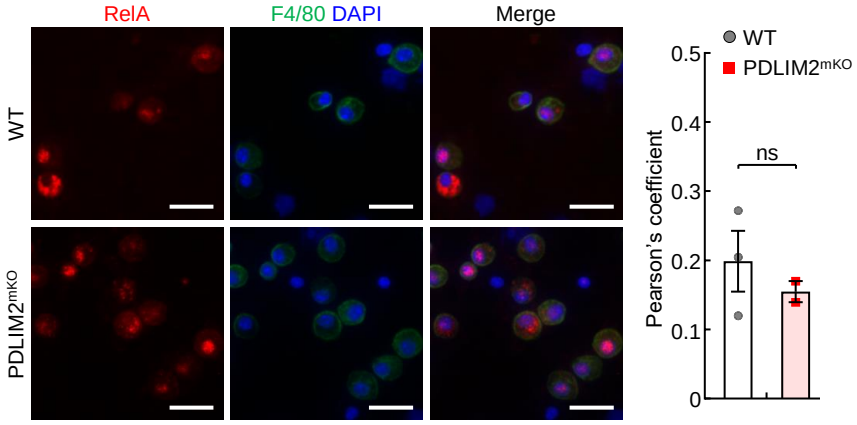
Supplemental Figure 3. Lung immune profiles of WT and PDLIM2^{mKO} mice treated with urethane. (**A** and **B**) FACS gating strategy for (A) myeloid cells and (B) lymphoid cells in the lung of urethane-treated mice. PMN, neutrophil; Mac, macrophage; CD11c+, AM; CD11b+, IM; DC, dendritic cells; Mono, monocytes; NK, natural killer cells. (**C**) FACS assays showing no significant difference between urethane-treated WT and PDLIM2^{mKO} mice in their lung lymphocyte populations (n = 5). (**D** and **E**) FACS analysis showing comparable CD4$^+$ T-cell activation (E, n = 8) and Treg differentiation (F, n = 5) in the lung of WT and PDLIM2^{mKO} mice treated with urethane. (**F**) FACS assays showing no significant difference between urethane-treated WT and PDLIM2^{mKO} mice in the indicated myeloid cell types (n = 5). Student's t test (two tailed, unpaired) was performed, and data represent means ± SEM in (C-F). ns, not statistically significant.



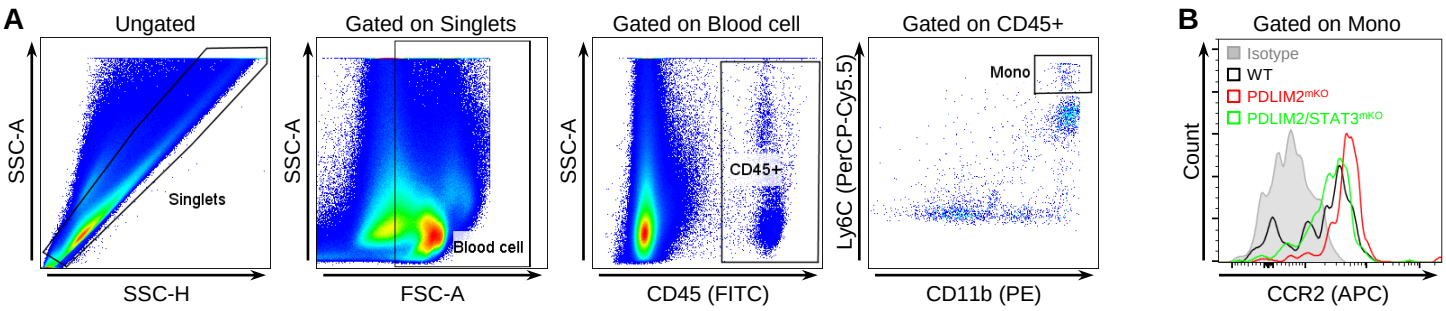
Supplemental Figure 4. Increased number but not proliferation or apoptosis of lung macrophages in WT and PDLIM2^{mKO} mice treated with urethane. (**A**) FACS assays showing more macrophages in the lung of urethane-treated PDLIM2^{mKO} mice (*n* = 8). (**B**) FACS assays showing clodronate (clod) depletion of macrophages in the lung of urethane-treated WT and PDLIM2^{mKO} mice (*n* = 5). (**C** and **D**) FACS analysis showing comparable proliferation (C) and apoptosis (D) of AMs in the lung of WT and PDLIM2^{mKO} mice treated with urethane (*n* = 5). Student's *t* test (two tailed, unpaired) (A, C-D) and Ordinary one-way ANOVA (B) were performed, and data represent means ± SEM. *, $P < 0.05$; **, $P < 0.01$; ns, not statistically significant.



Supplemental Figure 5. Increased expression of NF-κB and STAT3 inhibitors in lung macrophages in the mice harboring lung cancers. qPCR analysis showing increased RNA expression of the indicated genes in the lung macrophages of mice treated with urethane for 6 weeks, compared to untreated mice. Student's *t* test was performed (two tailed, unpaired) and data represent means ± SEM ($n \geq 3$). *, $P < 0.05$; **, $P < 0.01$; ns, not statistically significant.



Supplemental Figure 6. No significant effect of cell-intrinsic PDLIM2 deletion on RelA activation in the lung macrophages of mice with lung tumorigenesis. IF co-staining of RelA (red) and F4/80 (green) in BAL cells showing no effect of PDLIM2 deletion on RelA nuclear expression in the lung macrophages of urethane-treated mice. Scale bar: 20 μm. The nuclear expression of RelA in F4/80-positive cells was analyzed by image J and represented by Pearson's correlation coefficient. Student's *t* test was performed (two tailed, unpaired) and data represent means ± SEM ($n \geq 2$ mice, 3 images per mouse). ns, not statistically significant.



Supplemental Figure 7. Increase of CCR2 expression on blood monocytes by cell-intrinsic PDLIM2 deletion and inhibition of CCR2 increase by STAT3 co-deletion. (**A**) FACS gating strategy for blood monocytes. (**B**) Representative FACS assays of CCR2 expression on blood monocytes in the indicated mice treated with urethane.

Supplemental Table 1. Macrohpage PDLIM2 expression and clinicopathological characteristics of lung cancer patients from the TMA cohort

Lung cancer patient cohort	Macrophage PDLIM2 expression level			
Clinicopathological characteristics	Low (n=47)	High (n=11)	Total (n=58)	*p* -value
Sex				0.5172
Male	27	5	32	
Female	20	6	26	
Age (mean=65.71 yrs)				0.3248
< mean	21	7	28	
> mean	26	4	30	
Smoke				0.3623
Never	4	1	5	
Former	29	9	38	
Smoker	14	1	15	
T stage				0.275
T1	16	7	23	
T2	25	4	29	
T3	1	0	1	
T4	5	0	5	
N stage				0.5833
N0	29	9	38	
N1	6	1	7	
N2	8	1	9	
NX	4	0	4	
Clinical stage				0.3811
1	26	9	35	
2	5	1	6	
3	12	1	13	
N/A	4	0	4	

Supplementary Table 2. Antibodies Used

Antibody	Clone	Catalog number	Company	Usage	Purpose
Anti-CD45 Alexa Fluor 700	30-F11, Rat IgG2b, κ	103128	Biolegend, San Diego, CA, USA	0.5 µl per sample	FACS
Anti-CD117 BV421	ACK2, Rat IgG2b, κ	135124	Biolegend, San Diego, CA, USA	5.0 µl per sample	FACS
Anti-NKp46 BV421	29A1.4, Rat IgG2a, κ	137612	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS
Anti-B220 BV510	RA3-6B2, Rat IgG2a, κ	103248	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS
Anti-Ly6G BV510	1A8, Rat IgG2a, κ	127633	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS
Anti-Ly6C BV650	HK1.4, Rat IgG2c, κ	128049	Biolegend, San Diego, CA, USA	1.25 µl per sample	FACS
Anti-CD64 PE-Cy7	X54-5/7.1, Mouse IgG1, κ	139314	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS
Anti-FcεRIα PE-Cy7	MAR-1, Armenian Hamster IgG	134318	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS
Anti-CCR2 APC	SA203G11, Rat IgG2b, κ	150627	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS
Anti-CD45 FITC	30-F11, Rat IgG2b, κ	103107	Biolegend, San Diego, CA, USA	0.5 µl per sample	FACS
Anti-MerTK Super Bright 436	DS5MMER, Rat IgG2a, κ	62-5751-82	Thermo Fisher Scientific, Waltham,MA, USA	5.0 µl per sample	FACS
Anti-Ki-67 PerCP-eFluor710	SolA15, Rat IgG2a, κ	46-5698-82	Thermo Fisher Scientific, Waltham,MA, USA	0.3 µl per sample	FACS
Anti-PD-1 PerCP-eFluor710	J43, Armenian hamster IgG	46-9985-82	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Anti-MHC-II APC	M5/114.15.2, Rat IgG2b, κ	17-5321-82	Thermo Fisher Scientific, Waltham,MA, USA	0.15 µl per sample	FACS
Anti-CD11c APC-eFluor780	N418, Armenian hamster IgG	47-0114-82	Thermo Fisher Scientific, Waltham,MA, USA	2.5 µl per sample	FACS
Anti-CD3e APC-eFluor780	145-2C11, Armenian hamster IgG	47-0031-82	Thermo Fisher Scientific, Waltham,MA, USA	5 µl per sample	FACS
Anti-CD4 APC-eFluor780	RM4-5, Rat IgG2a, κ	47-0042-82	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Anti-Annexin V	VAA-33, Rat IgG2a, κ	BMS147FI	Thermo Fisher Scientific, Waltham,MA, USA	5 µl per sample	FACS
Anti-CD11b PE	M1/70, Rat IgG2b, κ	12-0112-82	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Anti-CD11c PE-Cy7	N418, Armenian hamster IgG	25-0114-82	Thermo Fisher Scientific, Waltham,MA, USA	2.5 µl per sample	FACS
Anti-CD16/CD32	93, Rat IgG2a, λ	14-0161-85	Thermo Fisher Scientific, Waltham,MA, USA	1.0 µl per sample	FACS
Anti-CD25 PE	PC61.5, Rat IgG1, λ	12-0251-81	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Anti-CD3 PE	145-2C11, Armenian hamster IgG	12-0031-83	Thermo Fisher Scientific, Waltham,MA, USA	2.5 µl per sample	FACS
Anti-CD4 PE-Cy7	RM4-5, Rat IgG2a, κ	25-0042-81	Thermo Fisher Scientific, Waltham,MA, USA	1.25 µl per sample	FACS
Anti-CD44 PE-Cy7	IM7, Rat IgG2b, κ	25-0441-81	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Anti-CD8 APC	53-6.7, Rat IgG2a, κ	17-0081-83	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Anti-F4/80 APC	BM8, Rat IgG2a, κ	17-4801-82	Thermo Fisher Scientific, Waltham,MA, USA	2.0 µl per sample	FACS
Anti-Foxp3 FITC	FJK-16s, Rat IgG2a, κ	11-5773-82	Thermo Fisher Scientific, Waltham,MA, USA	2.0 µl per sample	FACS
Anti-GranzB FITC	NGZB, Rat IgG2a, κ	11-8898-80	Thermo Fisher Scientific, Waltham,MA, USA	0.25 µl per sample	FACS
Anti-IFNγ FITC	XMG1.2, Rat IgG1, κ	11-7311-81	Thermo Fisher Scientific, Waltham,MA, USA	1.0 µl per sample	FACS
Anti-Ly6C PerCP/Cyanine5.5	HK1.4, Rat IgG2c, κ	45-5932-82	Thermo Fisher Scientific, Waltham,MA, USA	5.0 µl per sample	FACS
Anti-Ly6G FITC	1A8-Ly6g, Rat IgG2a, κ	11-9668-82	Thermo Fisher Scientific, Waltham,MA, USA	1.0 µl per sample	FACS
Anti-Siglec-F PerCP-eFluor710	1RNM44N, Rat IgG2a, κ	46-1702-82	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Anti-Luciferase FITC	Luci 21 1-107, Mouse IgG1, κ	NB600-307F	Novus Biologicals, Littleton, CO, USA	1.0 µl per sample	FACS
Rat IgG2a kappa Isotype Control, PE-Cyanine7	eBR2a	25-4321-82	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Rat IgG2a kappa Isotype Control, Super Bright 780	eBR2a	78-4321-82	Thermo Fisher Scientific, Waltham,MA, USA	0.3 µl per sample	FACS
Armenian Hamster IgG Isotype Control, PerCP-eFluor 710	eBio299Arm	46-4888-82	Thermo Fisher Scientific, Waltham,MA, USA	0.625 µl per sample	FACS
Armenian Hamster IgG Isotype Control, eFluor 450	eBio299Arm	48-4888-82	Thermo Fisher Scientific, Waltham,MA, USA	2.5 µl per sample	FACS
Armenian Hamster IgG Isotype Control, BV510	HTK888	400942	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS
Rat IgG2a, κ Isotype Control, BV650	RTK2758	400542	Biolegend, San Diego, CA, USA	1.25 µl per sample	FACS
Rat IgG2a, κ Isotype Control, PerCP/Cyanine5.5	RTK2758	400531	Biolegend, San Diego, CA, USA	1.25 µl per sample	FACS
Rat IgG2b, κ Isotype Control, APC	RTK4530	400611	Biolegend, San Diego, CA, USA	2.5 µl per sample	FACS

Latex Beads-Rabbit IgG-FITC Complex		500290	Cayman Chemical, Ann Arbor, MI, USA	1:100	FACS
Anti-PD-L1	10F.9G2, Rat IgG2b, κ	BE0101	BioXcell, West Lebanon, NH, USA	20 μg (*in vitro*); 7 μg/g (*in vivo*)	Blockade
Anti-Pol II	4H8, Mouse IgG1	2629	Cell Signaling Technology, Danvers,MA, USA	1:50	ChIP
Anti-BACH1	C-20, goat polyclonal IgG	sc-14700	Santa Cruz Biotechnology, Dallas, TX,USA	1:500 (IF); 1:1000 (IB); 1:50 (ChIP)	IF/IB/ChIP
Anti-Arginase	N-20, goat polyclonal IgG	sc-18351	Santa Cruz Biotechnology, Dallas, TX,USA	1:500	IF
Anti-STAT3	79D7, Rabbit IgG	4904	Cell Signaling Technology, Danvers,MA, USA	1:500	IF
Anti-RelA	D14E12, Rabbit IgG	8242	Cell Signaling Technology, Danvers,MA, USA	1:500	IF
Anti-F4/80	Cl:A3-1, Rat IgG2b	MCA497G	Bio-Rad, Hercules, CA, USA	1:200	IF
Anti-mouse PDLIM2	Goat antibidy	EB11878	Everest Biotech, Ramona, CA, USA	1:200 (IF); 1:1000 (IB); 1:400 (IHC)	IF/IB/IHC
Anti-human PDLIM2	Rabbit polyclonal antibody	HPA003880	Sigma-Aldrich, St. Louis,MO, USA	1:250	IHC
Anti-BrdU	BU-33, monoclonal	B2531	Sigma-Aldrich, St. Louis,MO, USA	1:500	IHC
Anti-CD34	C-18, goat polyclonal IgG	sc-7045	Santa Cruz Biotechnology, Dallas, TX,USA	1:500	IHC
Anti-Cleaved Caspase 3	Asp175	9661	Cell Signaling Technology, Danvers,MA, USA	1:200	IHC
Anti-Hsp90	F-8, mouse monoclonal IgG2a	sc-13119	Santa Cruz Biotechnology, Dallas, TX,USA	1:1000	IB
Anti-Lamin A/C	346, mouse monoclonal IgM	sc-7293	Santa Cruz Biotechnology, Dallas, TX,USA	1:1000	IB
Donkey anti-Goat TRITC		A16004	Thermo Fisher Scientific, Waltham,MA, USA	1:200	IF
Donkey anti-Rat FITC		DKXRT-003-DFITC	ImmunoReagents Inc., Raleigh, NC, USA	1:200	IF
Donkey anti-Rabbit IgG-R		sc-2095	Santa Cruz Biotechnology, Dallas, TX,USA	1:200	IF
Rabbit anti-goat IgG Biotinylated		sc-2774	Santa Cruz Biotechnology, Dallas, TX,USA	1:200	IHC
Goat anti-rabbit IgG Biotinylated		E0432	Dako, Carpinteria, CA, USA	1:200	IHC
Anti-mouse IgG Biotinylated		BMK-2202	Dako, Carpinteria, CA, USA	1:200	IHC
Goat anti-Mouse HRP		sc-2055	Santa Cruz Biotechnology, Dallas, TX,USA	1:5000	IB
Donkey anti-Goat HRP		sc-2020	Santa Cruz Biotechnology, Dallas, TX,USA	1:5000	IB

Supplemental Table 3. Primers Used

Gene	Species	Accession number	Forward (5' to 3')	Reverse (5' to 3')	Usage
18S RNA	mouse	NR_003278.3	AGGAATTGACGGAAGGGCAC	GGACATCTAAGGGCATCACA	RT-PCR
Pdlim2	mouse	NM_145978.2	GCAGCGTCAACATCTCGAACC	TGCTTCTCGCAGTACAACTCATT	RT-PCR
Vegfa	mouse	NM_009505.4	GCACTGGACCCTGGCTTTAC	GTCTCAATCGGACGGCAGTA	RT-PCR
Mrc1	mouse	NM_008625.2	TTCAGCAACAGCAAGGCGAA	ATTGAATGCTTGGCGCTGGA	RT-PCR
Ccr2	mouse	NM_009915.2	GCCATCATAAAGGAGCCATACC	TGTGGTGAATCCAATGCCCT	RT-PCR
Ccl2	mouse	NM_011333.3	GCTGTTCACAGTTGCCGGCTG	GGGCGTTAACTGCATCTGGCT	RT-PCR
Bach1	mouse	NM_007520.2	TCACCTGACCGCCGCTTG	ATTGAGGCTGAGCAAGACGTT	RT-PCR
Nfkbia	mouse	NM_010907.2	CTGGACTCCATGAAGGACGA	GTGGATGATTGCCAAGTGCAG	RT-PCR
Tnfaip3	mouse	NM_001166402.1	GTGACCCTGAAGGACAGTGG	TTGATCAGGTGAGTCGTGCC	RT-PCR
Cyld	mouse	NM_001128170.2	CAGGTAGCAGGTTCGGCTG	ACTGGCAAAAAGGAGCCACT	RT-PCR
Socs3	mouse	NM_007707.3	CAAGGCCGGAGATTTCGCTT	GGGAAACTTGCTGTGGGTGA	RT-PCR
Pdlim2	mouse	NC_000080.6	CCAGGTATAGCTCTGGGGGA	GGGCCAGCTCTAAGCACTAC	ChIP PCR