**STAR\* METHODS**

**KEY RESOURCES TABLE**

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| REAGENT or RESOURCE | SOURCE | IDENTIFIER |
| Antibodies |  |  |
| Anit-Cre Recombinase Monoclonal Antibody (Rabbit, clone D7L7L), unconjugated | Cell Signaling Technology | Cat#15036; RRID:AB\_2798694 |
| Anti-mouse CD3e Monoclonal Antibody (Armenian Hamster, clone 145-2C11), PE conjugated | BD Biosciences | Cat#553064; RRID:AB\_394597 |
| Anti-mouse CD11b Monoclonal Antibody (Rat, clone M1/70), BUV563 conjugated | BD Biosciences | Cat#741242; RRID:AB\_2870793 |
| Anti-mouse CD11b Monoclonal Antibody (Rat, clone M1/70), FITC conjugated | BD Biosciences | Cat#557396; RRID:AB\_396679 |
| Anti-mouse CD11b Monoclonal Antibody (Rat, clone M1/70), PE-Cy7 conjugated | BD Biosciences | Cat#552850; RRID:AB\_394491 |
| Anti-mouse CD11c Monoclonal Antibody (Hamster, clone HL3), BV786 conjugated | BD Biosciences | Cat#563735; RRID:AB\_2738394 |
| Anti-mouse CD16/32 (Mouse BD Fc Block™) Monoclonal Antibody (Rat, clone 2.4G2), unconjugated | BD Biosciences | Cat#553142; RRID:AB\_394657 |
| Anti-mouse CD19 Monoclonal Antibody (Rat, clone 1D3), PE conjugated | BD Biosciences | Cat#553786; RRID:AB\_395050 |
| Anti-mouse CD31 Monoclonal Antibody (Rat, clone 390), APC conjugated | ThermoFisher | Cat#17-0311-82; RRID:AB\_657735 |
| Anti-mouse CD45.1 Monoclonal Antibody (Mouse, clone A20), BUV395 conjugated | BD Biosciences | Cat#565212; RRID:AB\_2722493 |
| Anti-mouse CD45.2 Monoclonal Antibody (Mouse, clone 104), BUV395 conjugated | BD Biosciences | Cat#564616; RRID:AB\_2738867 |
| Anti-mouse CD45.2 Monoclonal Antibody (Mouse, clone 104), FITC conjugated | BD Biosciences | Cat#561874; RRID:AB\_10894189 |
| Anti-mouse CD45.2 Monoclonal Antibody (Mouse, clone 104), PE-Cy7 conjugated | BD Biosciences | Cat#560696; RRID:AB\_1727494 |
| Anti-mouse CD45.2 Monoclonal Antibody (Mouse, clone 104), PerCP-Cy5.5 conjugated | BD Biosciences | Cat#552950; RRID:AB\_394528 |
| Anti-mouse CD45.2 Monoclonal Antibody (Mouse, clone 104), V500 conjugated | BD Biosciences | Cat#562129; RRID:AB\_10897142 |
| Anti-mouse CD64 Monoclonal Antibody (Mouse, clone X54-5/7.1), BV421 conjugated | BioLegend | Cat#139309 |
| Anti-mouse CD115 (CSF1R) Monoclonal Antibody (Rat, clone AFS98), APC conjugated | ThermoFisher | Cat#17-1152-82; RRID:AB\_1210789 |
| Anti-mouse CD115 (CSF1R) Monoclonal Antibody (Rat, clone AFS98), PerCP-Cy5.5 conjugated | BioLegend | Cat#135526; RRID:AB\_2562694 |
| Anti-mouse CD170 (SiglecF) Monoclonal Antibody (Rat, clone E50-2440), PE conjugated | BD Biosciences | Cat#552126; RRID:AB\_394341 |
| Anti-mouse CD172a (SIRPa) Monoclonal Antibody (Rat, clone P84), APC conjugated | BioLegend | Cat#144013; RRID:AB\_2564060 |
| Anti-mouse CD206 (MMR) Monoclonal Antibody (Rat, clone C068C2), AF647 conjugated | BioLegend | Cat#141712; RRID:AB\_10900420 |
| Anti-mouse cMaf Monoclonal Antibody (Mouse, clone sym0F1), PE conjugated | ThermoFisher | Cat#12-9855-42; RRID:AB\_2572747 |
| Anti-mouse F4/80 Monoclonal Antibody (Rat, BM8), BV650 conjugated | BioLegend | Cat#123149; RRID:AB\_2564589 |
| Anti-mouse F4/80 Monoclonal Antibody (Rat, BM8), FITC conjugated | BioLegend | Cat#123108; RRID:AB\_893502 |
| Anti-mouse F4/80 Monoclonal Antibody (Rat, BM8), PE conjugated | Sony Biotechnology | Cat#1215550; RRID: N/A |
| Anti-mouse FcεRIα (MAR-1) Monoclonal Antibody (Armenian Hamster, clone MAR-1), PE-Cy7 conjugated | BioLegend | Cat#134317; RRID:AB\_10643996 |
| Anti-mouse I-A/I-E (MHC-II) Monoclonal Antibody (Rat, clone M5/114.15.2), PerCP-Cy5.5 | Sony Biotechnology | Cat#1138125; RRID: N/A |
| Anti-mouse Ly6C Monoclonal Antibody (Rat, clone AL-21), PE-CF594 conjugated | BD Biosciences | Cat#562728; RRID:AB\_2737749 |
| Anti-mouse Ly6G Monoclonal Antibody (Rat, clone 1A8), APC conjugated | BD Biosciences | Cat#560599; RRID:AB\_1727560 |
| Anti-mouse Ly6G Monoclonal Antibody (Rat, clone 1A8), FITC conjugated | BD Biosciences | Cat#551461; RRID:AB\_394208 |
| Anti-mouse Ly6G Monoclonal Antibody (Rat, clone 1A8), PE conjugated | BD Biosciences | Cat#551461; RRID:AB\_394208 |
| Anti-mouse Ly6G Monoclonal Antibody (Rat, clone 1A8), PE-Cy7 conjugated | BD Biosciences | Cat#560601; RRID:AB\_1727562 |
| Anti-mouse MafB Recombinant Monoclonal Antibody (Rabbit, clone BLR046F), unconjugated | Bethyl Laboratories Inc. | Cat#A700-046; RRID:AB\_2891845 |
| Anti-mouse MerTK Monoclonal Antibody (Rat, clone DS5MMER), PE-Cy7 conjugated | ThermoFisher | Cat#25-5751-80; RRID:AB\_2573465 |
| Anti-mouse XCR-1 Monoclonal Antibody (Mouse, clone ZET), APC-Cy7 conjugated | BioLegend | Cat#148223; RRID:AB\_2783117 |
| Anti-rabbit IgG (H+L) Cross-Adsorbed Secondary Polyclonal Antibody (Goat), AF488 conjugated | ThermoFisher | Cat# A-11008; RRID:AB\_143165 |
| TotalSeq™-A0305 anti-mouse Hashtag 5 Antibody | BioLegend | Cat#155809; RRID:AB\_2750036 |
| TotalSeq™-A0306 anti-mouse Hashtag 6 Antibody | BioLegend | Cat#155811; RRID:AB\_2750037 |
| TotalSeq™-A0307 anti-mouse Hashtag 7 Antibody | BioLegend | Cat#155813; RRID:AB\_2750039 |
| TotalSeq™-A0308 anti-mouse Hashtag 8 Antibody | BioLegend | Cat#155815; RRID:AB\_2750040 |
| Chemicals, Peptides and Recombinant Proteins | | |
| 1,4 Dithiothreitol (DTT) | Sigma | Cat#10197777001 |
| 5-Ethynyl-2′-deoxyuridine (EdU) | Santa Cruz Biotechnology | Cat#sc-284628 |
| Baytrill (enrofloxacine) | Bayer | Cat#616300 |
| Bovine Serum Albumin (BSA) | Sigma | Cat#A7906 |
| Brilliant Stain Buffer | BD Bioscience | Cat#563794 |
| Collagenase A, from *Clostridium histolyticum* | Sigma | Cat#11088793001 |
| Collagenase IV | ThermoFisher | Cat#17104019 |
| cOmplete™ Protease Inhibitor Cocktail | Sigma | Cat#11697498001 |
| Diphtheria Toxin (DT), from *Corynebacterium diphtheriae* | List Biological Labs | Cat#150 |
| DNase I | Sigma | Cat#11284932001 |
| dNTP | ThermoFisher | Cat#N8080260 |
| DPBS | ThermoFisher | Cat#14190094 |
| EDTA | Merck Millipore | Cat#1084181000 |
| Fetal Bovine Serum (FBS) | ThermoFisher | Cat#10270098 |
| Glycerol | ThermoFisher | Cat#158920025 |
| GoTaq G2 Hot Start Taq Polymerase | Promega | Cat#M7401 |
| HBSS with Phenol Red | Lonza | Cat#BE10-508F |
| IsoFlo (Isoflurane) | Zoetis | Cat#B506 |
| KAPA Express Extract | Merck | Cat#KK7100 |
| Nimatek (Ketamine) | Dechra | Cat#804132 |
| Nonidet P 40 Substitute | Sigma | Cat#74385 |
| Percoll | GE Healthcare | Cat#17089101 |
| Pexidartinib (PLX-3397) | MedChemExpress | Cat#HY-16749 |
| Poly(ethylene glycol), average Mn 400 | Sigma | Cat#202398 |
| Quant-iT™ RiboGreen™ RNA Assay Kit | ThermoFisher | Cat#R11490 |
| Rompun (Xylazine) | Bayer | Cat#0076901 |
| Tris(hydroxymethyl)aminomethane | Merck Millipore | Cat#108382 |
| TRIzol Reagent | ThermoFisher | Cat#10296010 |
| Truseq Stranded mRNA kit | Illumina | Cat#20020594 |
| Tween-20 | ThermoFisher | Cat#233360010 |
| Tween-80 | Sigma | Cat#P1754 |
| G418 | ThermoFisher | Cat#10131027 |
| UltraPure BSA | ThermoFisher | Cat#AM2616 |
| Critical Commercial Assays |  |  |
| CD11b MicroBeads, human and mouse | Miltenyi Biotec | Cat#130-049-601 |
| Chromium Next GEM Single Cell 3' GEM, Library & Gel Bead Kit v3.1 | 10X Genomics | Cat#1000128 |
| Chromium Next GEM Chip G Single Cell Kit | 10X Genomics | Cat#1000120 |
| Click-iT™ Plus EdU Alexa Fluor™ 488 Flow Cytometry Assay Kit | ThermoFisher | Cat#10632 |
| FITC Mouse Anti-Ki-67 Set | BD Bioscience | Cat#556026 |
| LIVE/DEAD™ Fixable Near-IR Dead Cell Stain Kit, for 633 or 635 nm excitation | Invitrogen | Cat#L34976 |
| MCP-1/CCL2 Mouse Uncoated ELISA Kit | ThermoFisher | Cat#88-7391-88 |
| Monocyte Isolation Kit (BM), mouse | Miltenyi Biotec | Cat#130-100-629 |
| Pierce™ BCA Protein Assay Kit | ThermoFisher | Cat#23225 |
| Single Index Kit T Set A | 10X Genomics | Cat#1000213 |
| NovaSeq 6000 S1 Reagent Kit v1.5 (100 cycles) | Illumina | Cat#20028319 |
| Deposited data | | |
| *Bulk RNA-seq data* |  |  |
| Raw and analyzed RNA-seq data | This paper | GEO: GSE194021 |
| *scRNA-seq data* |  |  |
| Raw and analyzed scRNA-seq data | This paper | GEO: GSE194021 |
| Lung IM and classical monocytes | (Schyns et al., 2019) | EMBL-EBI: E-MTAB-7678 |
| *Microarray data* |  |  |
| Classical Monocytes MHCII+ in blood | ImmGen | GEO: GSM605868, GSM605870, GSM605871 |
| Classical Monocytes MHCII- in bone marrow | ImmGen | GEO: GSM854329, GSM854330, GSM854331 |
| Classical Monocytes MHCII- in blood | ImmGen | GEO: GSM605872, GSM605873, GSM605874 |
| Nonclassical Monocytes, MHCII+ | ImmGen | GEO: GSM605878, GSM605879 |
| Nonclassical Monocytes in bone marrow | ImmGen | GEO: GSM854332, GSM854333, GSM854334 |
| Nonclassical Monocytes in blood | ImmGen | GEO: GSM605884, GSM605885 |
| Nonclassical Monocytes, MHCII int | ImmGen | GEO: GSM605886, GSM605887, GSM605888, GSM605889, GSM605890 |
| Lung CD11b+ CD24- macrophage | ImmGen | GEO: GSM854271, GSM854272 |
| Small Intestinal Lamina Propria CD11c-hi CD103- CD11b+ MF | ImmGen | GEO: GSM854262, GSM854263, GSM854264, GSM854265, GSM854266, GSM854267, GSM854268 |
| Bone marrow macrophages | ImmGen | GEO: GSM854317, GSM854318, GSM854319 |
| Spleen Red Pulp macrophages | ImmGen | GEO: GSM605853, GSM605854, GSM605855 |
| Peritoneal macrophage steady state | ImmGen | GEO: GSM854294, GSM854295, GSM854296 |
| Peritoneal cavity macrophages steady state | ImmGen | GEO: GSM605850, GSM605851, GSM605852 |
| Medullary macrophages from skin draining lymph nodes | ImmGen | GEO: GSM854322, GSM854323 |
| Central nervous system microglia | ImmGen | GEO: GSM854326, GSM854327, GSM854328 |
| CD103+ migratory DC, Mediastinal LN CD103+ DC | ImmGen | GEO: GSM854243, GSM854244, GSM854245 |
| CD11b+ migratory DC, Mediastinal LN CD11b+ DC | ImmGen | GEO: GSM854255, GSM854256, GSM854257 |
| Lung CD103+ dendritic cells | ImmGen | GEO: GSM538231, GSM538232, GSM538233, GSM854241, GSM854242 |
| Lung MHCII+ CD11c+ CD103- CD11b+ CD24+ dendritic cells | ImmGen | GEO: GSM854269, GSM854270 |
| Lung IM, Ly6C+ cMo and AM | (Sabatel et al., 2017) | EMBL-EBI: E-MTAB-5012 |
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| Software and algorithms | | |
| Flowjo v10.8.1 | BD | https://www.flowjo.com/ |
| Prism 9 | GraphPad Software | https://www.graphpad.com/scientific-software/prism/ |
| Adobe Illustrator 2022 | Adobe |  |
| R | The R Foundation | https://www.r-project.org/ |
| Bioconductor | (Huber et al., 2015) | https://www.bioconductor.org/ |
| Cell Ranger | 10x Genomics |  |
| DESeq2 | (Love et al., 2014) |  |
| Seurat | (Stuart et al., 2019) | https://satijalab.org/seurat/ |
| clusterProfiler | (Wu et al., 2021) | https://github.com/YuLab-SMU/clusterProfiler |
| velocyto | (la Manno et al., 2018) | http://velocyto.org/ |
| scVelo | (Bergen et al., 2020) | https://scvelo.readthedocs.io/ |
| SCENIC | (Aibar et al., 2017) | https://scenic.aertslab.org/ |
| Monocle3 | (Trapnell et al., 2014) | https://cole-trapnell-lab.github.io/monocle3/ |
| TradeSeq | (van den Berge et al., 2020) | https://github.com/statOmics/tradeSeq |
| ComplexHeatmap | (Gu et al., 2016) | https://jokergoo.github.io/ComplexHeatmap-reference/book/ |
| VISION | (DeTomaso et al., 2019) | https://github.com/YosefLab/VISION |
| Experimental models: Organisms/strains | | |
| Mouse: CD45.1 C57BL6 | (Shen et al., 2000) | JAX 002014 |
| Mouse: *Cx3cr1Gfp* | (Jung et al., 2000) | JAX 025629 |
| Mouse: *Cx3cr1LSL-DTR* | (Diehl et al., 2013) | JAX 025629 |
| Mouse: *Lyz2Cre* | (Clausen et al., 1999) | JAX 004781 |
| Mouse: *Mafbfl/fl* | This paper | N/A |
| Mouse: *Maffl/fl* | (Wende et al., 2012) | N/A |
| Mouse: *Ms4a3Cre* | (Liu et al., 2019) | N/A |
| Mouse: *Nr4a1-/-* | (Lee et al., 1995) | JAX 006187 |
| Mouse: *Tmem119-Cre* | This paper | N/A |
| Oligonucleotides | | |
| *Tmem119-Cre* genotyping Primers 1:  F: 5’-TCCGTAACCTGGATAGTGAAACAG -3’  R: 5’-ATATGTCCTTCCGAGTGAGAGAC -3’ | This paper | Synthesized by Integrated DNA Technologies |
| *Tmem119-Cre* genotyping Primers 2:  F: 5’- ACCGAGGACAGAAATGAATAAGATG-3’  R: 5’- AGGGAACGAGGATGGGTAGTAG-3’ | This paper | Synthesized by Integrated DNA Technologies |
| *Mafbfl/fl* genotyping Primers:  F: 5’- TCCATCCATCTTGGGAAAAG-3’  R: 5’-TCAGGACTGGGCTGCTAGTT-3’ | This paper | Synthesized by Integrated DNA Technologies |
| Plasmids | | |
| PL253 | (Liu et al., 2003) | ATCC: PTA-4998 |
| PL451 | (Liu et al., 2003) | ATCC: PTA-4996 |
| PL452 | (Liu et al., 2003) | ATCC: PTA-4997 |