

Supplementary Table 1: List of fluorescently labelled antibodies used for mouse cell or human PBMCs surface staining in flow cytometry analysis.

Antibody	Clone	Supplier
Anti-mouse CD45 Percp	30-F11	BioLegend
LIVE/DEAD® Fixable Violet BV421		Thermo Fisher Scientific
Anti-mouse CD11b BV650	M1/70	BioLegend
Anti-mouse F4-80 PE-Cy7	BM8	BioLegend
Anti-mouse IA-IE Alexa 700	M5/114.15.2	BioLegend
Anti-mouse Ly6C APC-Cy7	HK1.4	BioLegend
Anti-mouse Ly6G BV711	1A8	BioLegend
Anti-mouse SiglecF BV605	E50-2440	BD Biosciences
Anti-human CD14 BV650	M5E2	BioLegend
Anti-human CD11b BV510	ICRF44	BioLegend
Anti-human CD45 Alexa Fluor® 700	2D1	BioLegend
Anti-human CD16 APC/Cy7	3G8	BioLegend
Zombie B550rm Fixable Viability Kit		BioLegend
Anti-mouse CD11b APC	M1/70	BioLegend
Anti-mouse CD11c FITC	N418	BioLegend
Anti-mouse CD45 AF700	30-F11	BioLegend
Anti-mouse CD16/32	93	BioLegend
Anti-mouse F4-80 BV510	BM8	BioLegend

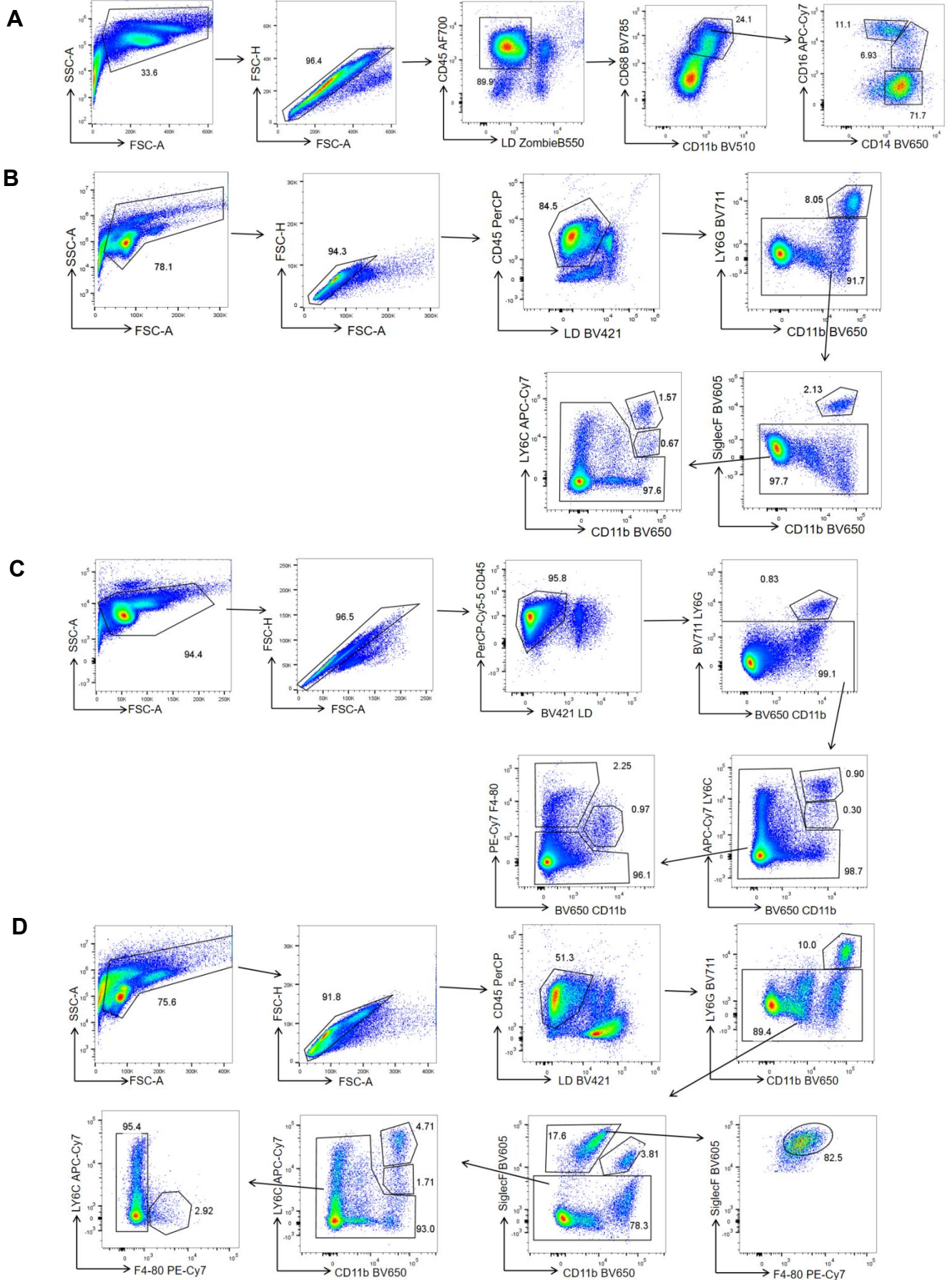
Supplementary Table 2: List of fluorescently labelled antibodies used for mouse cell or human PBMCs intracellular staining in flow cytometry analysis.

Antibody	Clone	Supplier
Anti-mouse INOS PE	CXNFT	Thermo Fisher Scientific
Anti-mouse CD206 APC	C068C2	BioLegend
Anti-human CD68 BV785	Y1/82A	BioLegend
Ferritin Heavy Chain	39G3	Thermo Fisher Scientific
Coralite® plus 488-conjugated LC3B-specific polyclonal antibody		Proteintech

Supplementary Table 3: The effect sizes and confidence intervals of the core indicators in the figures.

Indicator	Comparison Groups	Cohen's d	95% CI for Cohen's d	Effect Size Interpretation
Classical Monocytes	Healthy Control vs. Asthmatics	-0.72	(-1.48, 0.04)	Medium to Large
Nonclassical Monocytes	Healthy Control vs. Asthmatics	0.81	(0.04, 1.58)	Large
Percentage of RPM	PBS vs. HDM	1.29	(0.33, 2.25)	Large to Very Large
Percentage of Pre-RPM	PBS vs. HDM	0.93	(0.01, 1.84)	Large
Percentage of AM	PBS vs. HDM	2.30	(0.75, 3.85)	Very Large
Percentage of IM	PBS vs. HDM	0.12	(-1.05, 1.28)	Negligible
Pre-RPM iNOS	PBS vs. HDM	-1.54	(-2.66, -0.41)	Very Large
Pre-RPM CD206	PBS vs. HDM	-0.18	(-1.17, 0.80)	Negligible
RPM iNOS	PBS vs. HDM	-2.24	(-3.51, -0.97)	Very Large
RPM CD206	PBS vs. HDM	0.15	(-0.83, 1.13)	Negligible
AM iNOS	PBS vs. HDM	-1.37	(-2.69, -0.06)	Large
AM CD206	PBS vs. HDM	0.23	(-0.94, 1.40)	Small
IM iNOS	PBS vs. HDM	-1.64	(-3.01, -0.26)	Very Large
IM CD206	PBS vs. HDM	-0.70	(-1.90, 0.51)	Medium
Pre-RPM LC3B	PBS vs. HDM	-1.31	(-2.40, -0.22)	Large
RPM LC3B	PBS vs. HDM	-1.55	(-2.68, -0.42)	Very Large
AM LC3B	PBS vs. HDM	-1.30	(-2.61, 0.01)	Large
IM LC3B	PBS vs. HDM	-1.23	(-2.51, 0.06)	Large
Pre-RPM FTH1	PBS vs. HDM	1.21	(0.14, 2.29)	Large
RPM FTH1	PBS vs. HDM	1.11	(0.05, 2.17)	Large
AM FTH1	PBS vs. HDM	1.49	(0.15, 2.83)	Very Large
IM FTH1	PBS vs. HDM	1.12	(-0.15, 2.39)	Large

Supplementary Figure 1 Gating strategies of monocyte-macrophages and its subpopulations. (A) in human peripheral blood mononuclear cells, (B) mouse peripheral blood, (C) mouse spleen, (D) mouse lung



Supplementary Figure 2 (A) Percentage of alveolar macrophages isolated by adhesion from BALF. (B) mRNA expression of NCOA4 and LC3B in lung tissues by RT-qPCR (n=10 per group) . *P<0.05

