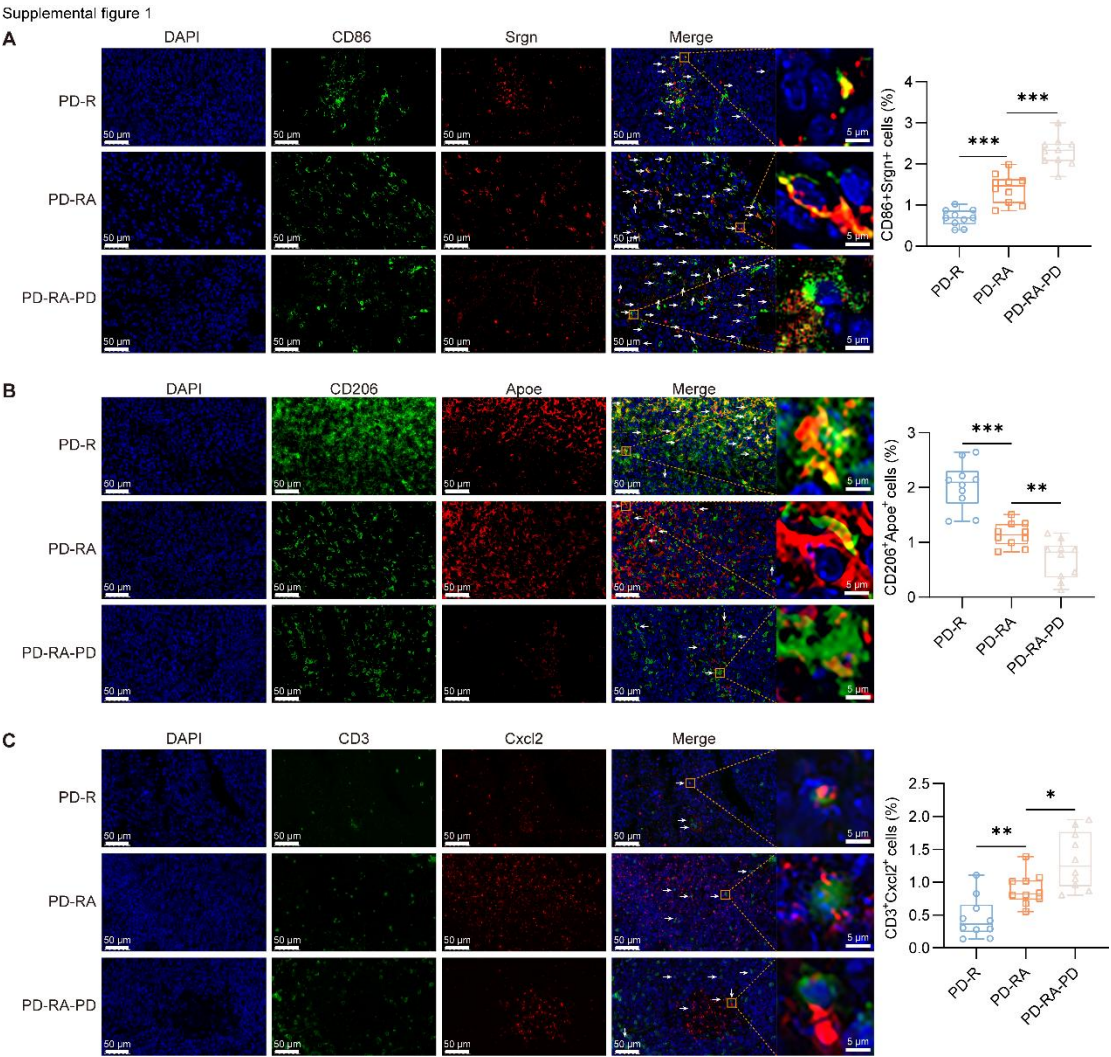## Supplemental datas

Supplemental figure 1

Figure.S1 Anlotinib reshapes the immune microenvironment by increasing the number of immune cells.

(A) Representative immunofluorescence images show co - staining of CD86 (green, a marker for M1 - like macrophages), Srgn (red), and DAPI (blue, nuclear stain) in tumors from the PD - R, PD - RA, and PD - RA - PD groups. The right - hand plot quantifies the percentage of CD86$^+$Srgn$^+$ double - positive cells. Data are presented as mean ± SD. (n = 10 independent experiments). P values were calculated using multiple

898   t-tests.

899 **(B)** Representative images depict co - staining of CD206 (green, a marker for

900   M2-like macrophages), Apoe (red), and DAPI in tumor tissues. The right -

901   hand plot quantifies the proportion of $CD206^+Apoe^+$ double - positive cells.

902   Data are presented as mean ± SD. (n = 10 independent experiments). P

903   values were calculated using multiple t-tests.

904 **(C)** Representative images illustrate co - staining of CD3 (green, a marker for

905   T cells), Cxcl2 (red), and DAPI. The right - hand plot quantifies the

906   percentage of $CD3^+Cxcl2^+$ double - positive cells. Data are presented as

907   mean ± SD. (n = 10 independent experiments). P values were calculated

908   using multiple t-tests.

909

910 **Supplementary Table 1. Antibodies used in this study.**

Antigens	Manufacturer	Cat No.
CD3	Proteintech	81324-1-RR
CD86	Proteintech	30691-1-AP
CD206	Proteintech	18704-1-AP
Apoe	Proteintech	66830-1-Ig
Srgn	Chemcruz	sc-374657
Cxcl2	Huabio	HA723640
Ki67	Proteintech	66555-6-Ig

911

912 **Supplementary Table 2. Annotation gene markers used in this study.**

Marker	Celltype
Myc, Igfbp4, Ccn1, Rhox5, Nedd4	Tumor cell
Ccl8, C1qb, C1qc, Selenop, Apoe	Macrophages
Chil3, H2-Ab1, Thbs1, Il1b, Plac8	Monocyte
Gzma, Gzmb, Ir2b, Gzmc, Trbc2	T cell
S100a9, S100a8, Retnlg, Ifitm1, Hdc	Neutrophils
Col1a1, Col1a2, Serping1, Trfaip6, Dcn	Fibroblasts
Igfbp3, Ctla2a, Aqp1, Igfbp7, Sparc	Endothelial
Ccr7, Cacnb3, Serpinb6b, Ccl5, Tmem123	Dendritic cells

913

Supplementary Table 3. Feature gene markers used in this study

Marker	Feature
Mki67, Pcnt, Pcna	Proliferation Marker
Cdh2, Vim, Zfp36, Pecam1	Metastasis Marker
Nos2, I1b, Tnf, Il6, Cxcl9, Cxcl10, Icam1	M1 Macrophage
Arg1, Mrc1, Il10, Cd206, Retnla, Fizz1, Tgfbr1	M2 Macrophage
Gzma, Klra4, Klra8, Gzmg, Gzme, Gzmd	T CTL
Cd4, Icos, Tnfsf11	Treg
Cd8a, Cd8b1, Pdcd1	CD8+ T exhaustion
Ccl2, Cxcl2, Ccl7"	T CXCL
Stmn1, Pclaf, Rrm2	CD8 Proliferating
Cxcr4, Ifit3, Ifit1"	CD8 Memory
Cxcl1, Cxcl2, Cxcr2, Ccl2, Ccl5	MDSC recruitment
Ccl22, Ccr4, Tgfb1, Cxcr3	Treg recruitment
Cxcl1, Cxcl2, Cxcr2, Il-17	N2 Neutrophil recruitment
Ccl5, Mcp1, Vegf	M2 Macrophage recruitment
Tnf, Ifng, Nos2, Il12b, Il1b, Cxcl9, Cxcl10, Ccl5	Anti-tumor Monocyte
Arg1, Mrc1, Vegfa, Il10, Tgfb1, Cd163, Ccl22, Cxcr2, S100a8, S100a9, Il4ra	Pro-tumor Monocyte
Itgam, Ly6c, Ly6g, Arg1, Nos2, S100a8, S100a9, Ccl2, Cxcr2, Pdcd1lg2, Il10, Tgfb1	MDSC
Tnf, Il1b, Cxcl9, Cxcl10, Ccl5, Ifng, Nos2, Mpo	Neutrophil anti-tumor
Cd3e, Cd8a, Ifng, Il2, Tnf, Gzma, Gzmb, Perforin, Ccl5, Cxcl9	T cell anti-tumor
Ifng, Il12b, Ccl5, Cxcl9, Cxcl10, Tnf, Il1b, Nos2	ImmunoEnhancement
Tnf, Ccl3, Icam1, Mpo, Il1b, Il6, Il12	N1 Neutrophil Marker
Ccl2, Ccl3, Ccl4, Ccl8, Ccl12, Ccl17, Cxcl1, Cxcl2,	N2 Neutrophil Marker

Cxcl8, Cxcl16, Mmp2, Mmp9, Vegfa, Hgf

915