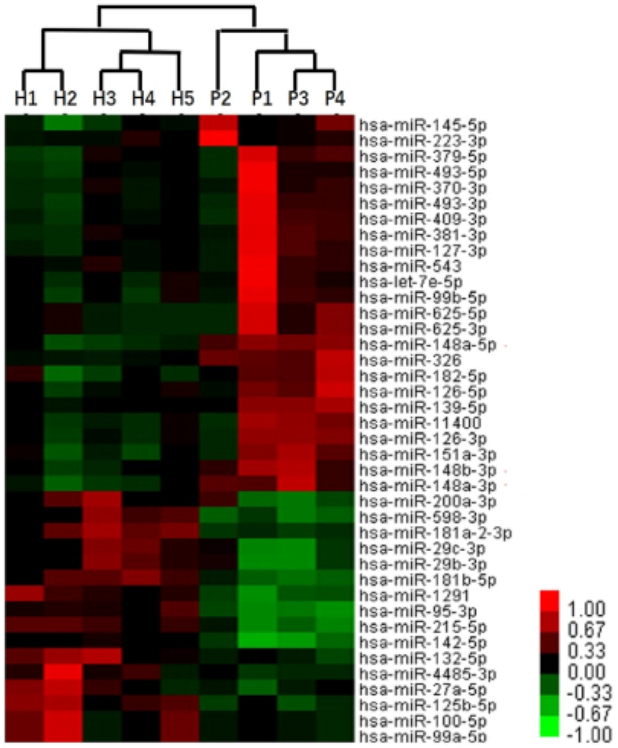
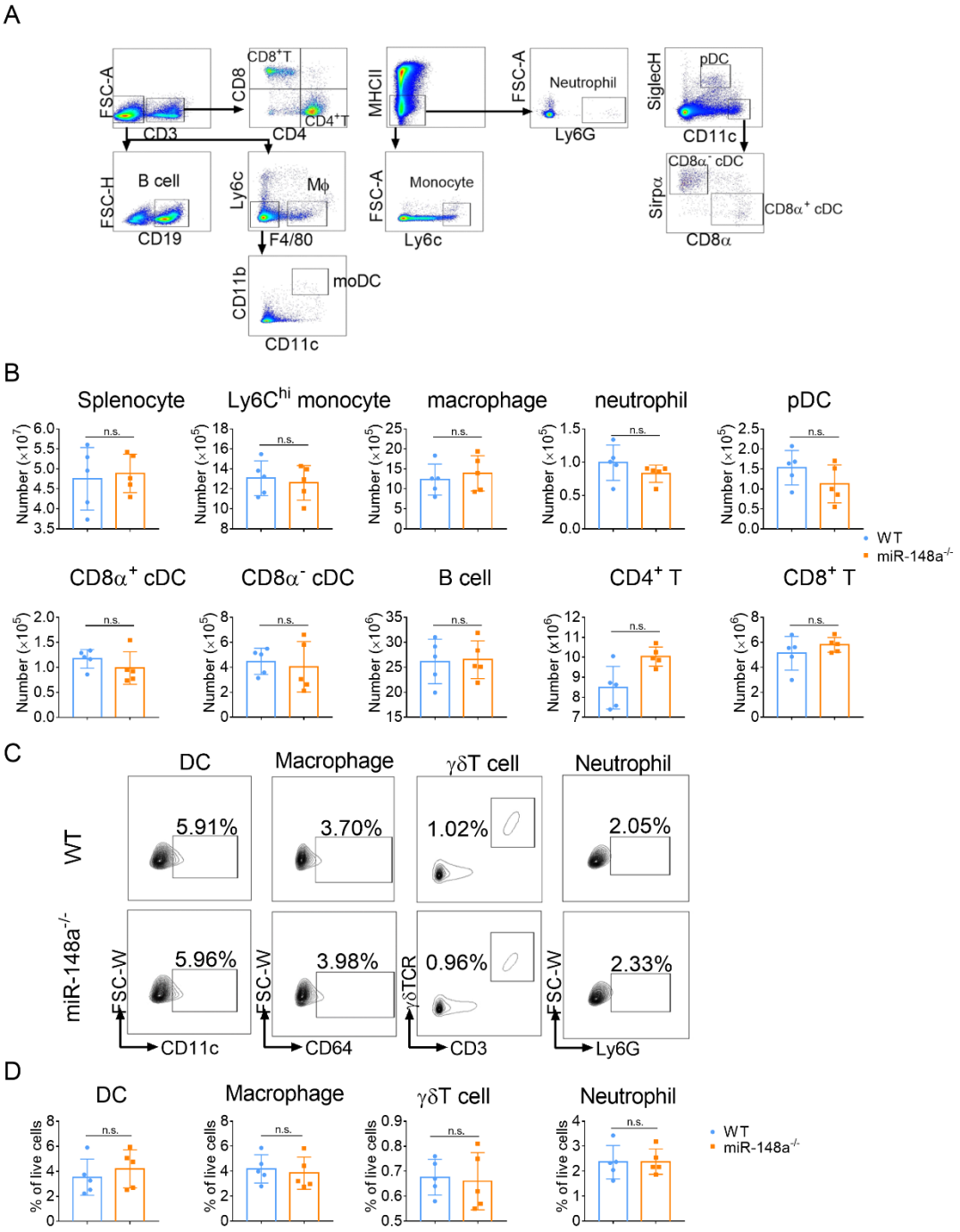
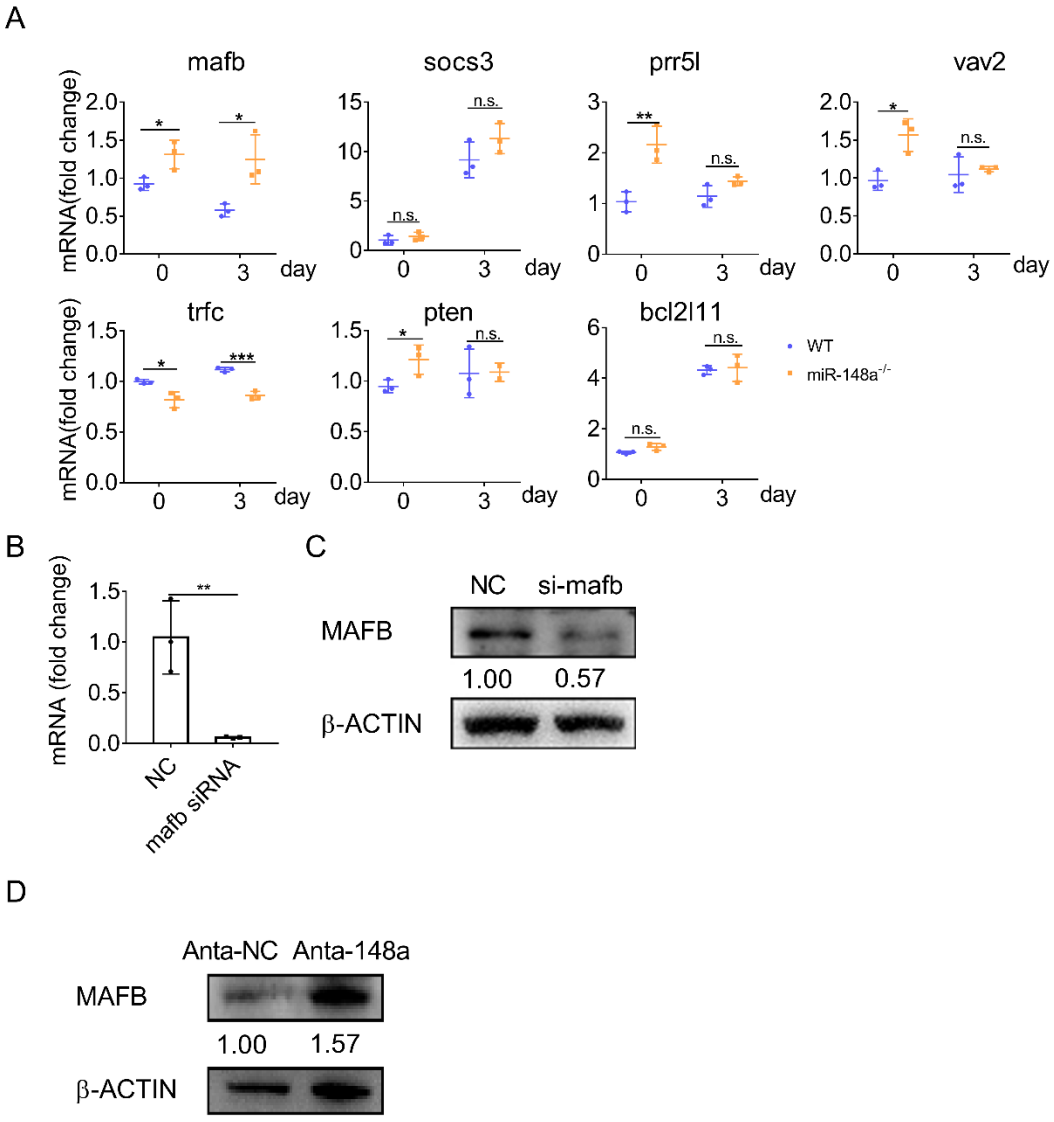
Supplemental Information



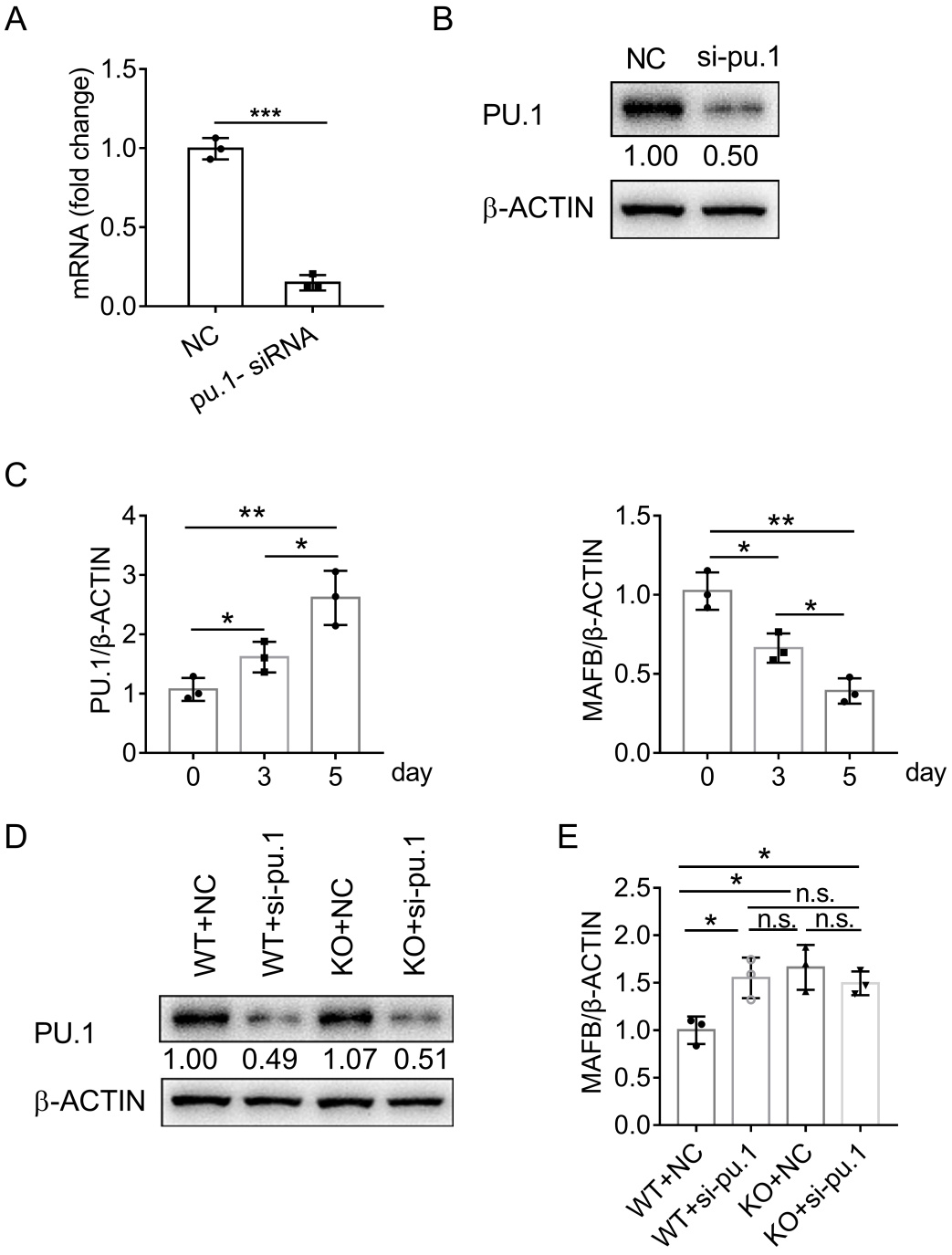
Supplemental Figure 1. MiRNA sequencing analysis of changed miRNAs in psoriatic patients. Top 40 obviously changed miRNAs enriched in PBMCs were shown. H1-H5, healthy control; P1-P4, psoriatic patients.



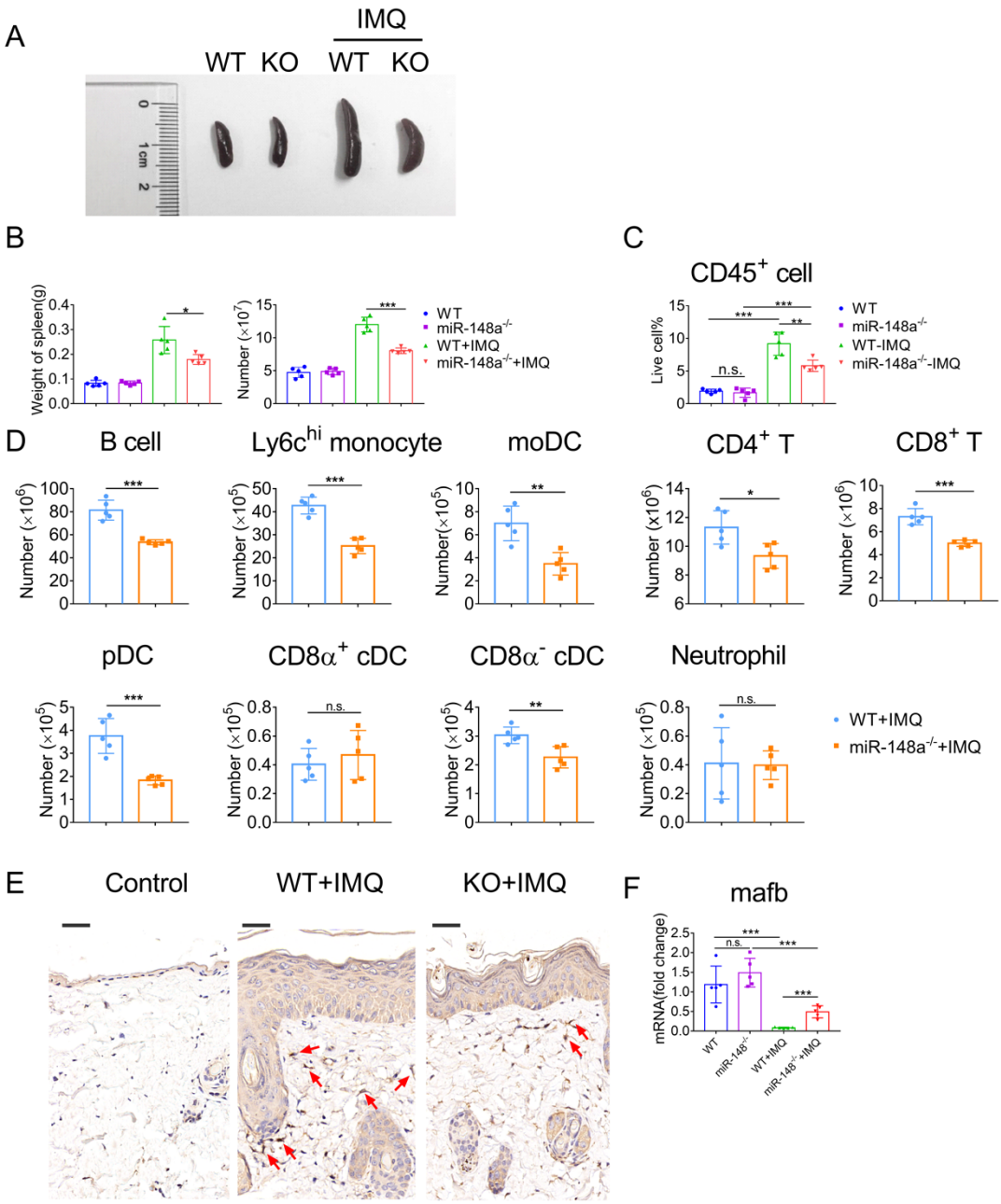
Supplemental Figure 2. (A) Gating strategy of spleen cell subsets. (B) The number of splenocytes, Ly6C^{hi} monocytes (MHCII^{-}Ly6C^{hi}), macrophages (CD3^{-}F4/80^{+}Ly6C^{-}), neutrophils (MHCII^{-}Ly6G^{+}), pDCs (CD11c^{int}SiglecH^{+}), CD8α^{+} cDCs (CD11c^{+}SiglecH^{-}Sirpα^{-}CD8α^{+}), CD8α^{-} cDCs (CD11c^{+}SiglecH^{-}Sirpα^{+}CD8α^{-}), B cells (CD3^{-}CD19^{+}), CD4^{+} T cells (CD3^{+}CD4^{+}), CD8^{+} T cells (CD3^{+}CD8^{+}) in spleen (n=5). Flow cytometry (C) and statistical data (D) of DCs (CD11c^{+}), macrophages (CD64^{+}), γδT cells (CD3^{+} γδTCR^{+}) and neutrophils (Ly6G^{+}) in dermis were shown (n=5). p values compare the indicated groups using a two-tailed unpaired Student's t test. Error bars represent SEM (n.s., not significant).



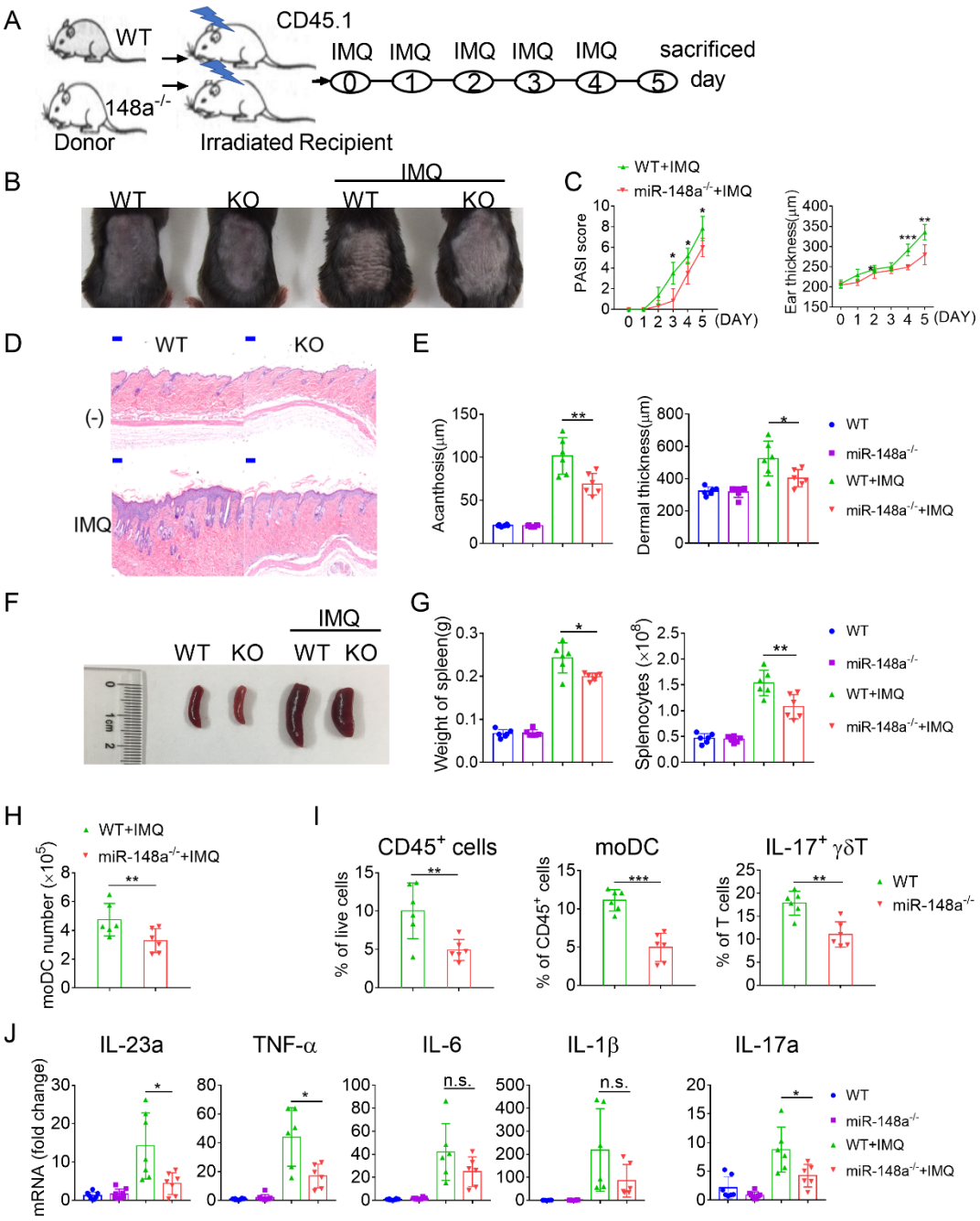
Supplemental Figure 3. (A) QRT-PCR detection of indicated gene expression in the independent samples. Knockdown efficiency of mRNA levels (B) and protein levels (C) of MAFB in monocytes. (D) Immunoblot analysis of MAFB expression in human primary monocytes transfected with antagomir-NC (Anta-NC) or antagomir-148a (Anta-148a). p values compare the indicated groups using a two-tailed unpaired Student's *t* test. Error bars represent SEM (*p<0.05, **p<0.01, ***p<0.001, n.s., not significant).



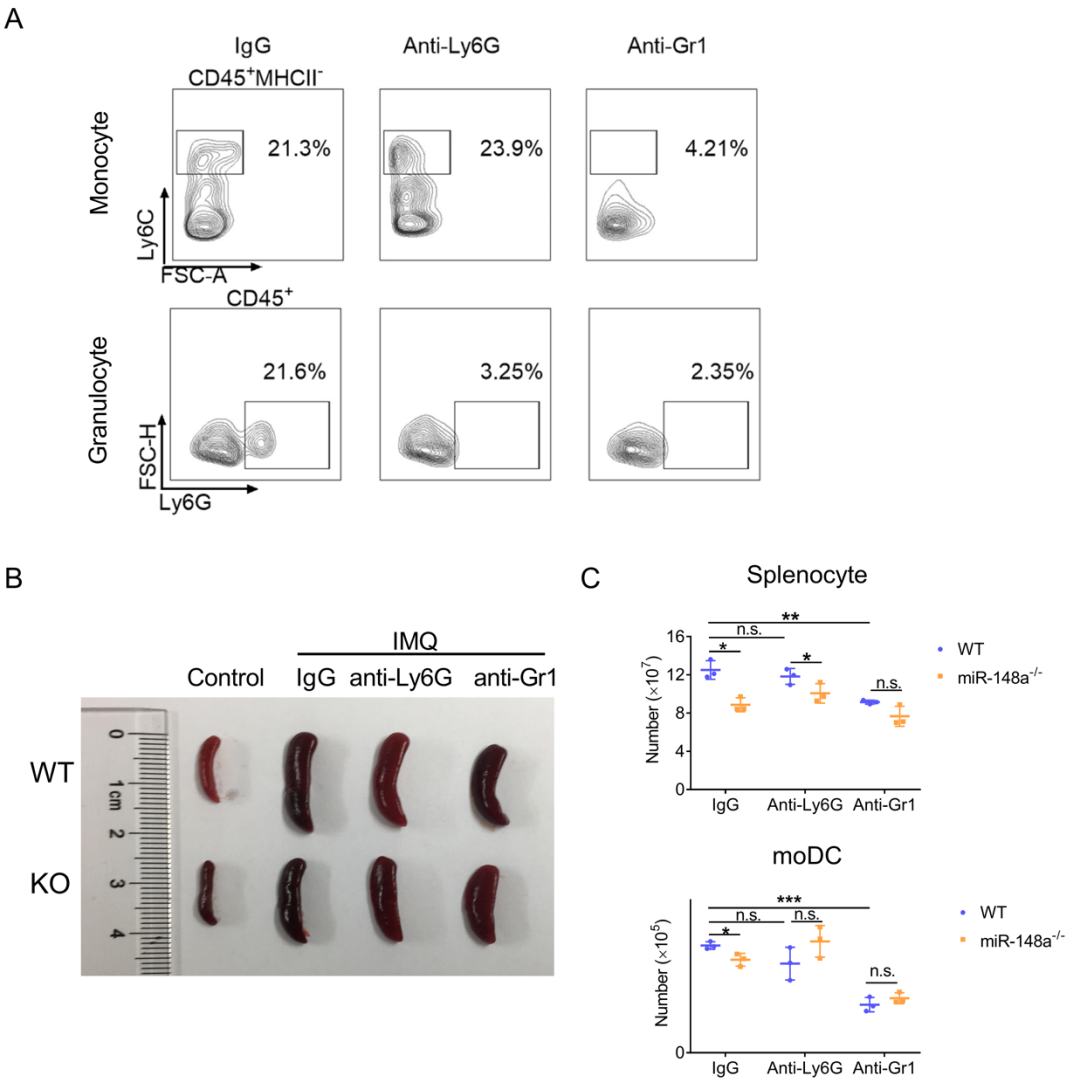
Supplemental Figure 4. Knockdown efficiency of mRNA levels (A) and protein levels (B) of PU.1 in monocytes. (C) Statics of PU.1 and MAFB expression during moDC differentiation. Protein levels of PU.1 and MAFB were detected by immunoblot and normalized to the β-ACTIN level (n=3). The target protein/ β-ACTIN ratio on day 0 was set as 1. (D, E) Monocytes isolated from WT and *miR-148a*$^{-/-}$ BM cells were transfected with control (NC) or siRNA specific to *PU.1* (si-*PU.1*), (D) knockdown efficiency of PU.1 and (E) the statics of MAFB protein levels were determined. The protein/β-ACTIN ratio in WT+NC was set as 1. p values compare the indicated groups using a two-tailed unpaired Student's *t* test or one-way ANOVA with Bonferroni′s post hoc test. Error bars represent SEM (*p<0.05, **p<0.01, ***p<0.001, n.s., not significant).



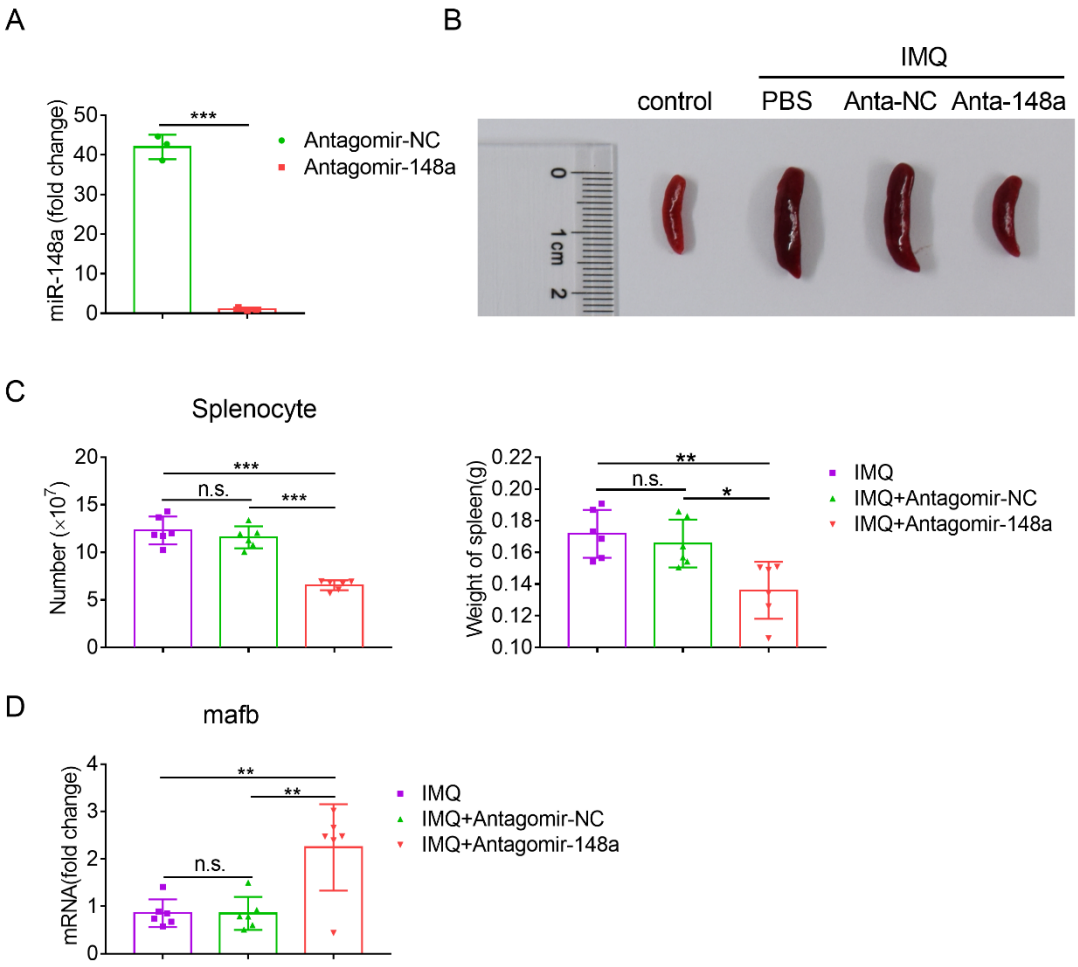
Supplemental Figure 5. *MiR-148a* deficiency alleviated the infiltration of immune cells. WT or *miR-148a*$^{-/-}$ mice were treated with IMQ for 6 consecutive days. (A) Pictures, (B) weight and cell numbers of spleen (n=5). (C) Percentages of dermal CD45$^+$ cells (n=5). (D) The number of spleen B cells, Ly6C^{hi} monocytes, moDCs (CD3$^-$Ly6C$^-$F4/80$^-$CD11c$^+$CD11b$^+$), CD8$^+$ T cells, CD4$^+$ T cells, pDCs, CD8α$^+$ cDCs, CD8α$^-$ cDCs and neutrophils (n=5). (E) Immunochemistry (IHC) assay on skin sections from the IMQ-treated mice using an antibody specific for mouse CD11c. Red arrows indicate moDCs. Scale bars indicate 50 μm. (F) mRNA levels of *MAFB* in dermal moDCs from WT or *miR-148a*$^{-/-}$ mice treated with IMQ for 6 days or not (n=5). p values compare the indicated groups using a two-tailed unpaired Student's t test. Error bars represent SEM (*p<0.05, **p<0.01, ***p<0.001, n.s., not significant).



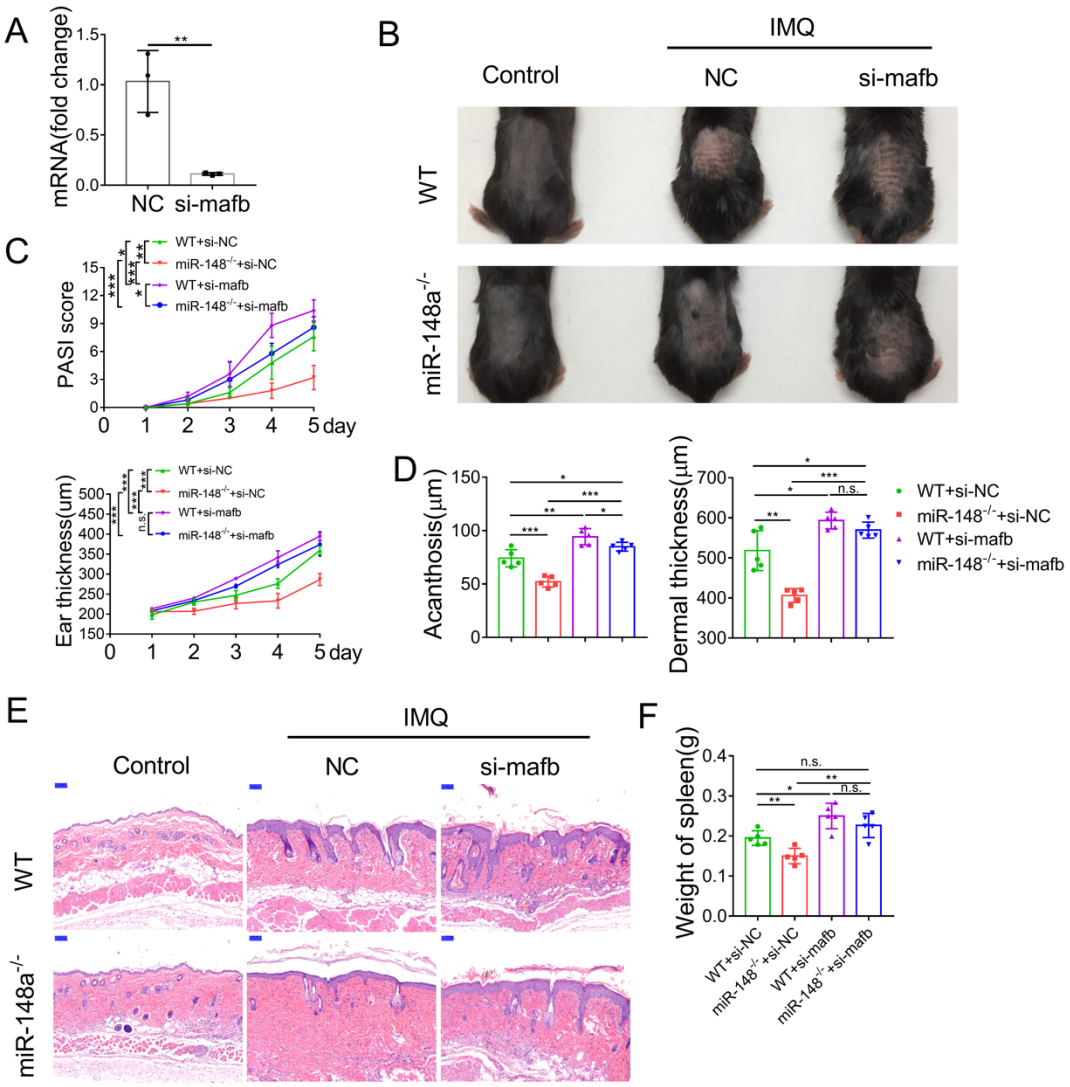
Supplemental Figure 6. *MiR-148a* in immune cells contributes to inflammation. (A) Schematic diagram for chimeric mice construction and IMQ application. Phenotypic presentation (B) and H&E staining (D) of skin lesions of representative mice on day 5 (n=6). Decrease in PASI score (C, left), ear thickness (C, right), acanthosis (E, left) and dermal thickness (E, right) on day 5 (n=6). (F) Pictures, (G) weight and cell numbers of spleen (n=6). (H) Cell numbers of spleen moDCs (n=6). (I) Statistical data of the skin infiltration of $CD45^+$ cells, moDCs and $IL17^+$ γδT cells (n=6). (J) The relative mRNA expression of indicated cytokines in skin (n=6). Scale bars represent 100μm in (D). p values were determined by Student's t test. Error bars represent SEM. (*p<0.05, **p<0.01, ***p<0.001, n.s., not significant).



Supplemental Figure 7. MoDC intrinsic *miR-148a* contributes to the spleen inflammation. (A) Deletion efficiency of monocytes plus neutrophils or neutrophils alone by anti-Gr1 antibody or anti-Ly6G antibody on day 5 in the skin of IMQ treated mice. (B) Picture of spleen (*n*=3). (C) Decrease of splenocytes and moDCs (*n*=3). p values compare the indicated groups using one-way ANOVA with Bonferroni′s post hoc test. Error bars represent SEM (*p<0.05, **p<0.01, ***p<0.001, n.s., not significant).



Supplemental Figure 8. (A) Knockdown efficiency of *miR-148a* in the skin (n=3). (B) Pictures of spleen (n=6). (C) Splenocyte numbers and spleen weight (n=6). (D) mRNA level of *MAFB* in dermal moDCs (n=6). p values compare the indicated groups using a two-tailed unpaired Student's t test or one-way ANOVA with Bonferroni′s post hoc test. Error bars represent SEM (*p<0.05, **p<0.01, ***p<0.001, n.s., not significant).



Supplemental Figure 9. MAFB knockdown attenuated the protective role of *miR-148a* deficiency on IMQ-induced psoriasis model. (A) Knockdown efficiency of *MAFB* in the skin (n=3). Phenotypic presentation (B) and H&E staining (E) of skin lesions of representative mice on day 6 (n=5). Elevation in PASI score (C, upper), ear thickness (C, lower), acanthosis (D, left) and dermal thickness (D, right) on day 6 (n=5). (F) Weight of spleen (n=5). Scale bars represent 100μm in (E). p values were determined by Student's t test. Error bars represent SEM. (*p<0.05, **p<0.01, ***p<0.001, n.s., not significant).

Supplemental Table 1. Information for patients with psoriasis vulgaris.

Sample ID	Age/ Gender	PASI score	Sample ID	Age/ Gender	PASI score
1	68/M	9	18	47/M	2.5
2	57/M	4.6	19	39/M	31.4
3	52/M	12.5	20	41/M	4.3
4	61/M	10	21	28/M	2.1
5	50/F	4.4	22	54/M	7.3
6	53/M	7.3	23	57/F	1.9
7	50/M	5.3	24	31/M	4.2
8	15/M	2	25	48/F	3.7
9	21/F	1	26	37/M	6.6
10	25/M	2.4	27	17/M	22.4
11	41/M	3.9	28	69/M	4.2
12	52/M	4.9	29	41/F	8.4
13	63/M	5.2	30	67/M	4.8
14	54/M	5.2	31	34/F	7.6
15	26/M	6.3	32	50/M	11.2
16	30/F	3.6	33	60/F	24.8
17	35/M	6.8	34	8/F	8

All patients were clinically diagnosed as psoriasis vulgaris. M, male; F, female; PASI: psoriasis area and severity index.

Supplemental Table 2. Information for antibodies.

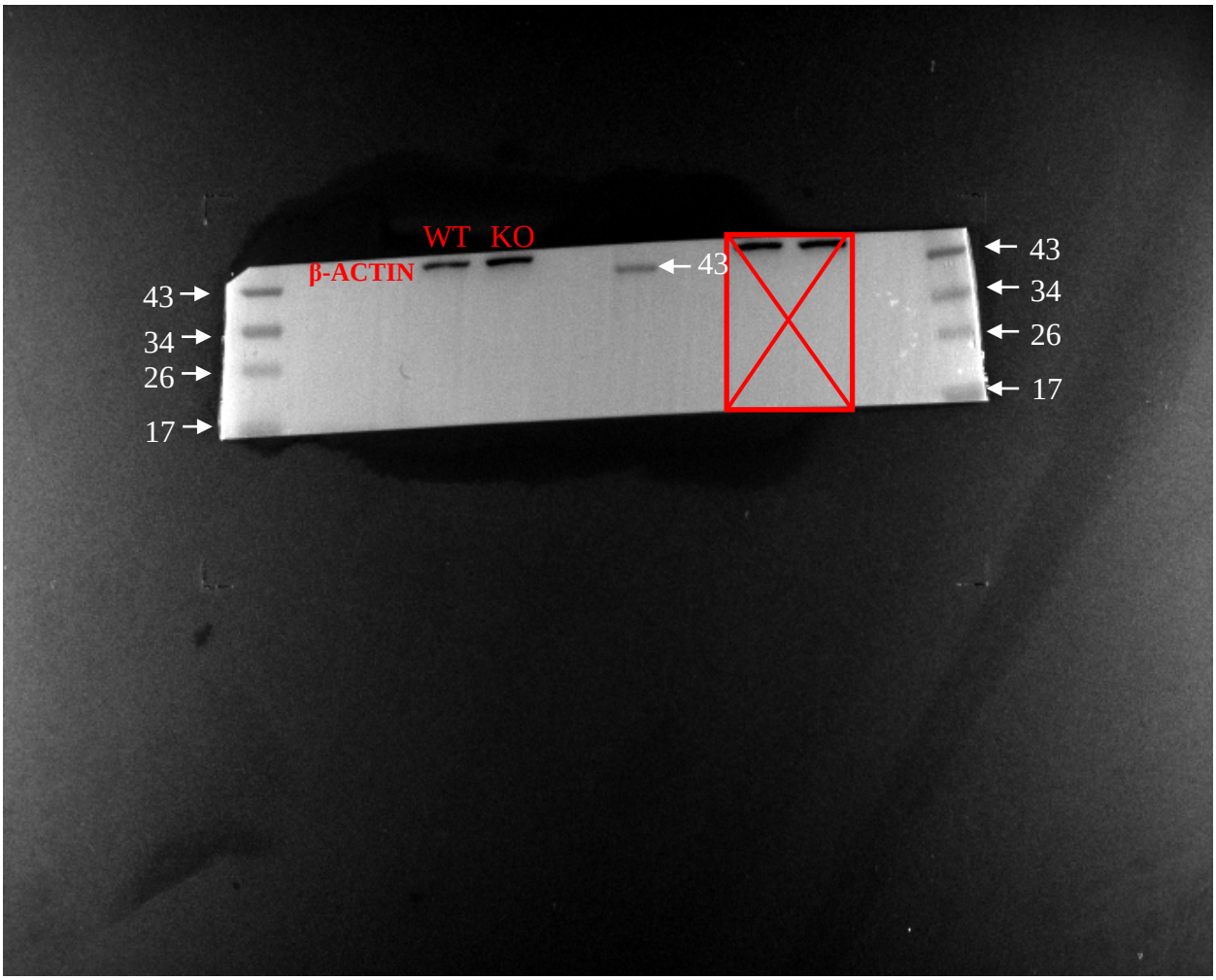
	Antibodies	Source	Cat#
Antibodies for FACS	Anti-mouse CD45 - APC-CY7	BioLegend	103116
	Anti-mouse CD3 - PE-CY7	BioLegend	100220
	Anti-mouse CD4 - FITC	BioLegend	100406
	Anti-mouse TCR γδ - APC	BioLegend	118116
	Anti-mouse Ly6G - Percp-cy5.5	BioLegend	127616
	Anti-mouse MHC Ⅱ - BV510	BioLegend	107636
	Anti-mouse CD64 - PE	BioLegend	139304
	Anti-mouse Ly6C - FITC	BioLegend	128006
	Anti-mouse CD11b - PE-CY7	BioLegend	101216
	Anti-mouse CD11c - Percp-cy5.5	BioLegend	117328
	Anti-mouse CD103 - BV711	BioLegend	121435
	Anti-mouse Langerin - APC	BioLegend	144206
	Anti-mouse CD19 - BV510	BioLegend	115546
	Anti-mouse F4/80 - PE	BioLegend	123110
	Anti-mouse CD11c - FITC	BioLegend	117306
	Anti-mouse Ly6C - BV605	BioLegend	128036
	Anti-mouse CD8α - PE-CY7	BioLegend	100722
	Anti-mouse CD172a - APC	BioLegend	144014
	Anti-mouse CD8α - Percp-cy5.5	BioLegend	100733
	Anti-mouse IL17A - PE	BD	559502
	Anti-mouse Siglec H – PE-CY7	Invitrogen	25-0333-82
Antibodies for IHC	Anti-mouse CD11c	Servicebio	GB11059

Supplemental Table 3. Primer sequence.

species	gene	Forward(5'-3')	Reverse(5'-3')
qPCR			
mouse	*PU.1*	GAGGTGTCTGATGGAGAAGCTG	ACCCACCAGATGCTGTCCTTCA
	MAFB	TACTGGATGGCGAGCAACTACC	ACTACGGAAGCCGTCGAAGCTC
	B-ACTIN	GGCTGTATTCCCCTCCATCG	CCAGTTGGTAACAATGCCATGT
	SOCS3	GGACCAAGAACCTACGCATCCA	CACCAGCTTGAGTACACAGTCG
	PRR5L	CGGATTGAGGTTCTGGCTGAAG	GCTTCACCTTCAGCAAGACCAG
	VAV2	CTGAAGGAGGTCATTGAGCTGC	GCCTTGCTTTCCTTGGAGGTGA
	PTEN	TGAGTTCCCTCAGCCATTGCCT	GAGGTTTCCTCTGGTCCTGGTA
	BCL2l11	GGAGATACGGATTGCACAGGAG	CTCCATACCAGACGGAAGATAAAG
	TRFC	GAAGTCCAGTGTGGGAACAGGT	CAACCACTCAGTGGCACCAACA
	IL17a	CAGACTACCTCAACCGTTCCAC	TCCAGCTTTCCCTCCGCATTGA
	IL23a	CATGCTAGCCTGGAACGCACAT	ACTGGCTGTTGTCCTTGAGTCC
	IL1β	GGACATGAGCACCTTCTTTTC	GGACATGAGCACCTTCTTTTC
	IL6	TAGTCCTTCCTACCCCAATTTCC	TTGGTCCTTAGCCACTCCTTC
	TNFα	AAACACAAGATGCTGGGACA	TTGATGGTGGTGCATGAGAG
human	*IL6*	AGACAGCCACTCACCTCTTCAG	TTCTGCCAGTGCCTCTTTGCTG
	TNFα	CTCTTCTGCCTGCTGCACTTTG	ATGGGCTACAGGCTTGTCACTC
	IL23a	GAGCCTTCTCTGCTCCCTGATA	GACTGAGGCTTGGAATCTGCTG
	IL17a	CGGACTGTGATGGTCAACCTGA	GCACTTTGCCTCCCAGATCACA
	IL1β	CCACAGACCTTCCAGGAGAATG	GTGCAGTTCAGTGATCGTACAGG
	RPL13a	CCTGGAGGAGAAGAGGAAAGAGA	TTG AGGACCTCTGTGTATTTGTCAA
	PU.1	GACACGGATCTATACCAACGCC	CCGTGAAGTTGTTCTCGGCGAA
	MAFB	AGACGCCTACAAGGTCAAGTGC	CGACTCACAGAAAGAACTCGGG
ChIp-qPCR			
human	*miR-148a* promoter	GGAACCTGCTGACTTGACA	CTCCCTTCCATCTTGACTTT
	neg	CTCCGGCCTTGTCTCTT	AACAGGTCTGGAAAGTGCT
	CD11b promoter	TTTGAAAGTTTGGGTCAGG	TCAGAGATTCAAAGGAAGAGG
Clone			
mouse	*MAFB*-3'UTR	ccctcgagCAGAGAACCTTGGCTAAGAAG	atttgcggccgcGGCAAGTTTGATTTCAACAC
	MAFB-3'UTR mutant	acgtgactCAATAAAAAAAAAATACCAAAAT	ACCGAATCCTCTTACTGACC
human	*miR-148a* promoter	ctagctagcTGATGGCAGACAATAACTCC	cccaagcttCAGCGCCGGCCGCCAGGC
	miR-148a promoter mutant	CGGAGCGGAGCGCGAG	CTTTTGCCGACGTGGAAATT

Supplemental Uncut Gel Images

Supplemental Uncut Gel Image 1.
Full uncut gel for Figure 2D: β-ACTIN



Supplemental Uncut Gel Image 1.
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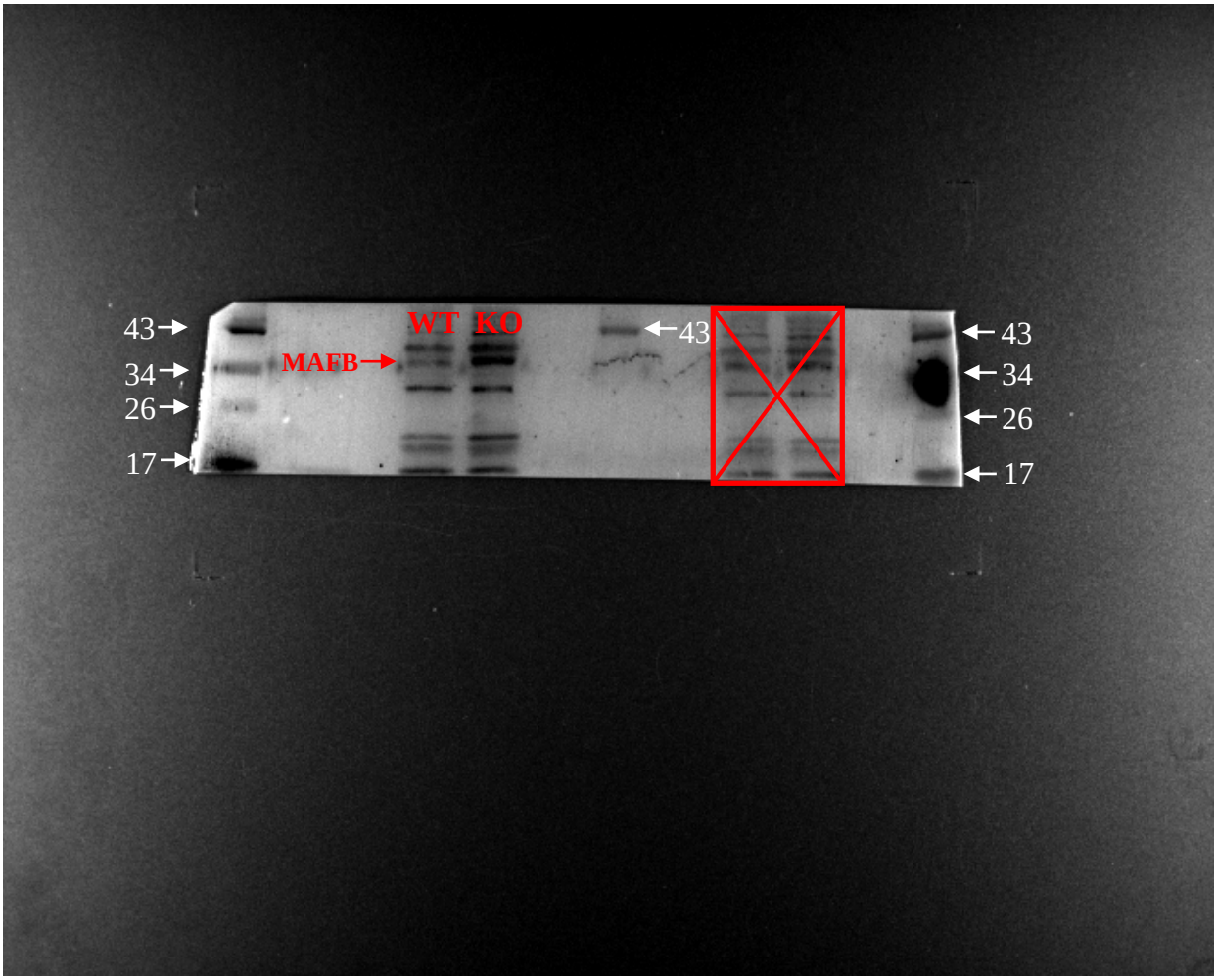

Supplemental Uncut Gel Image 2.
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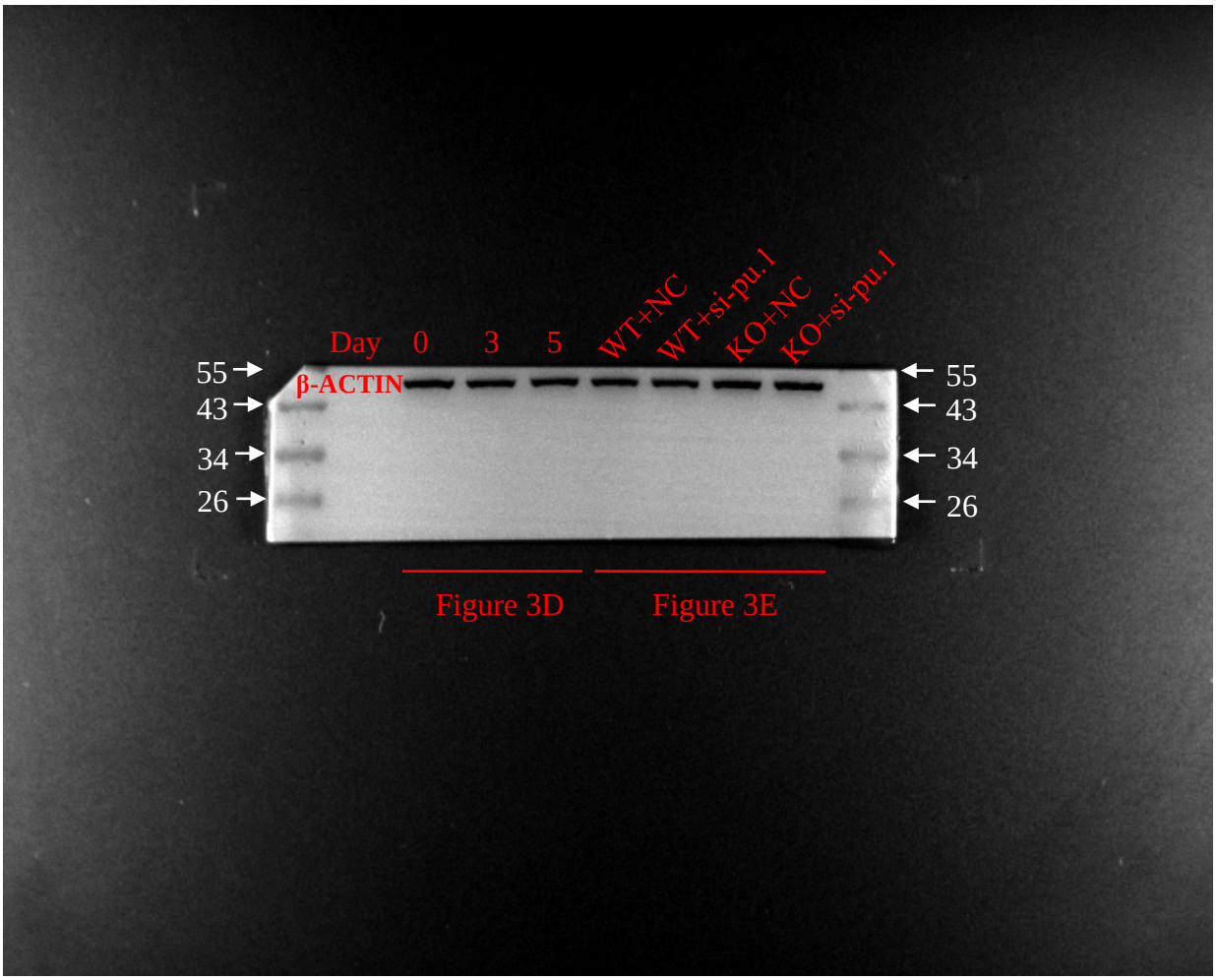

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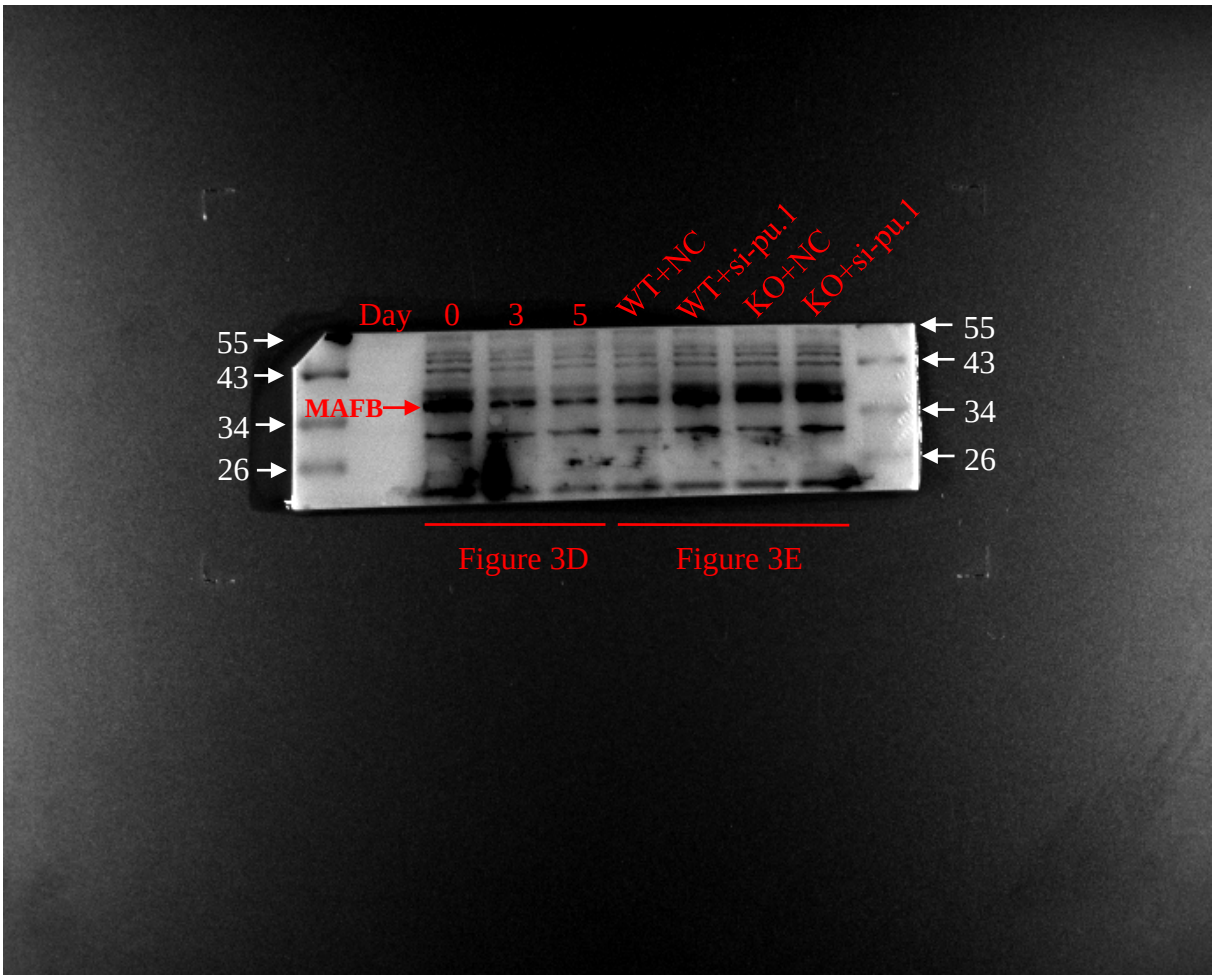

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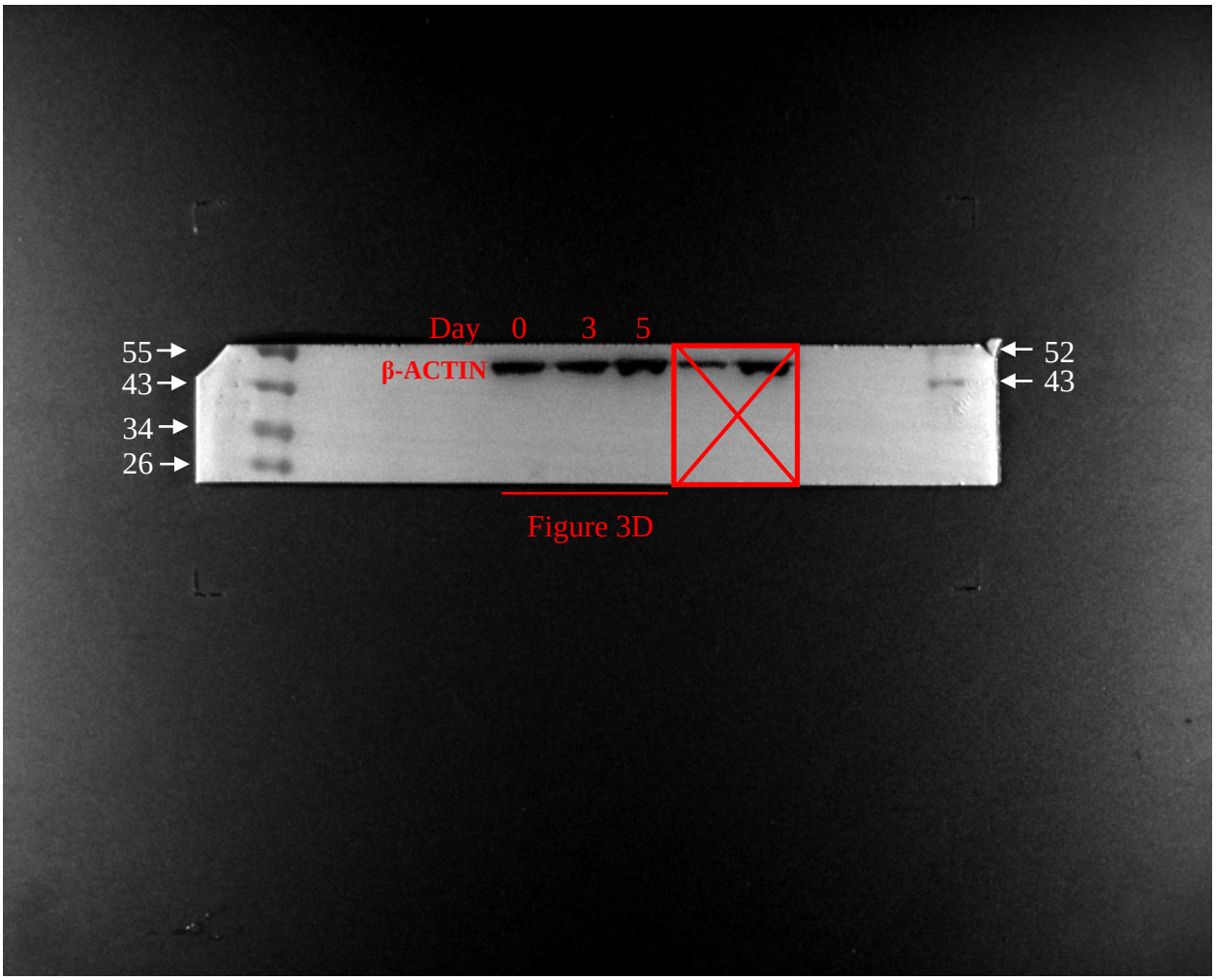

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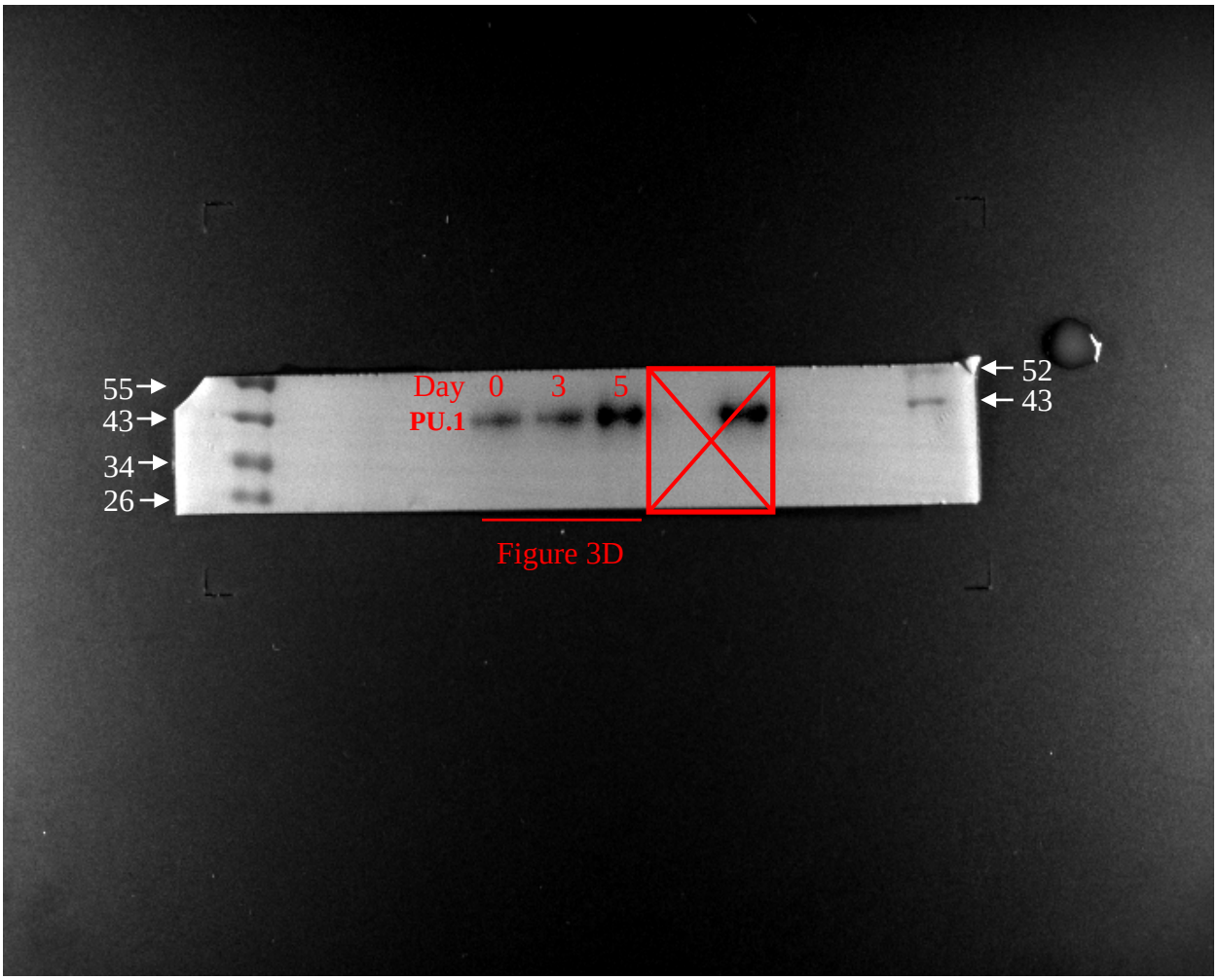
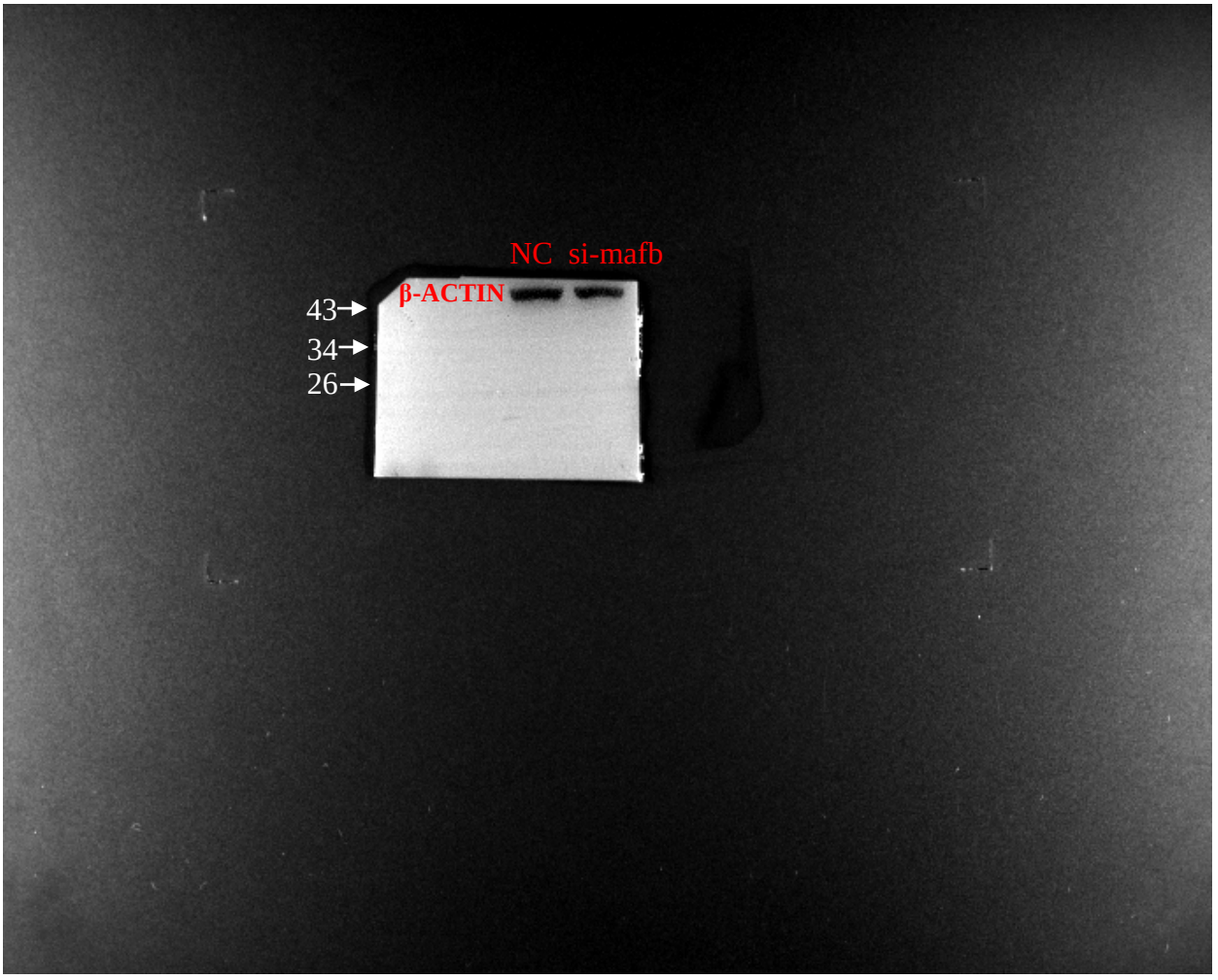


Supplemental Uncut Gel Image 4.
Full uncut gel for Figure S3C: β-ACTIN



Supplemental Uncut Gel Image 4.
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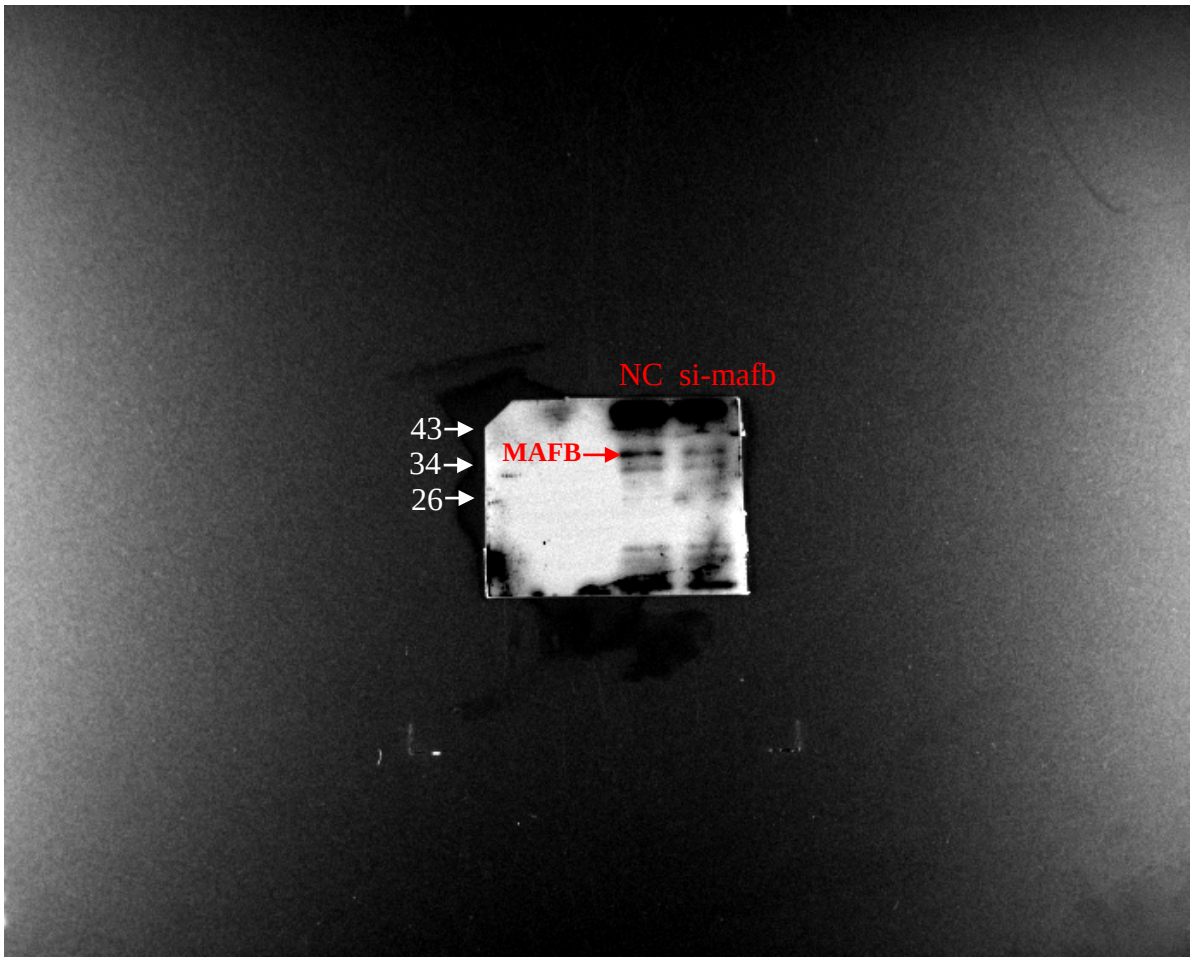

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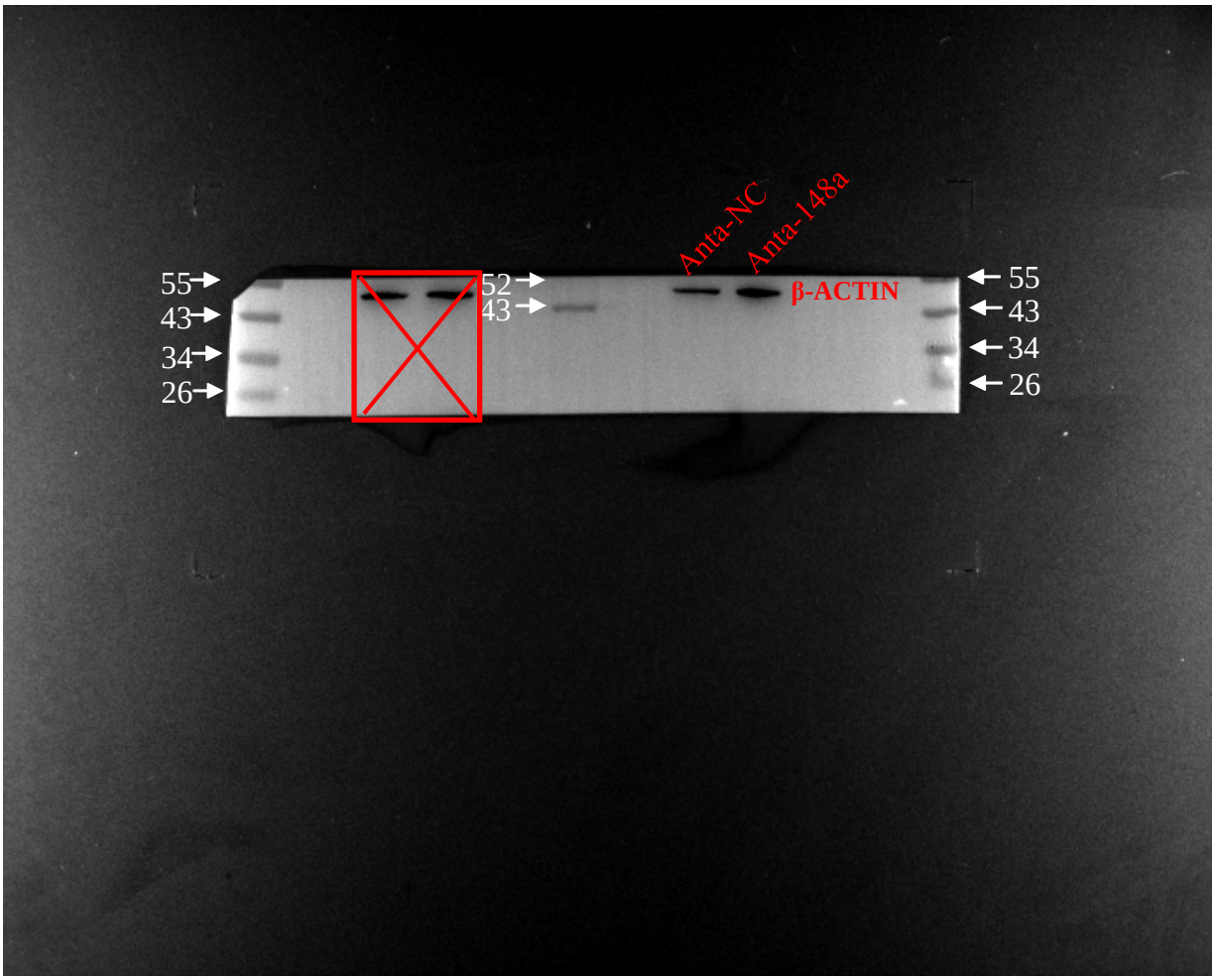

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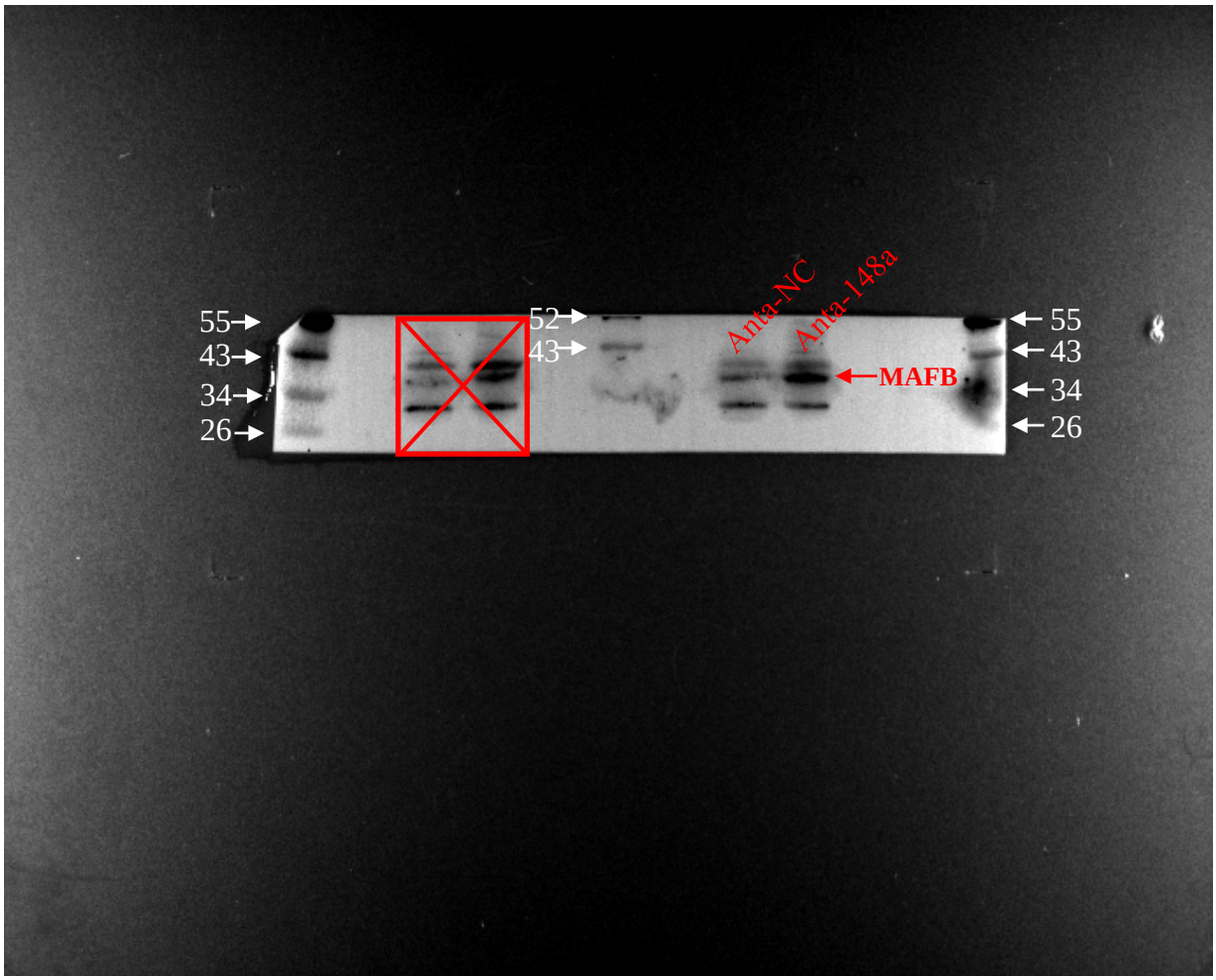

Supplemental Uncut Gel Image 6.
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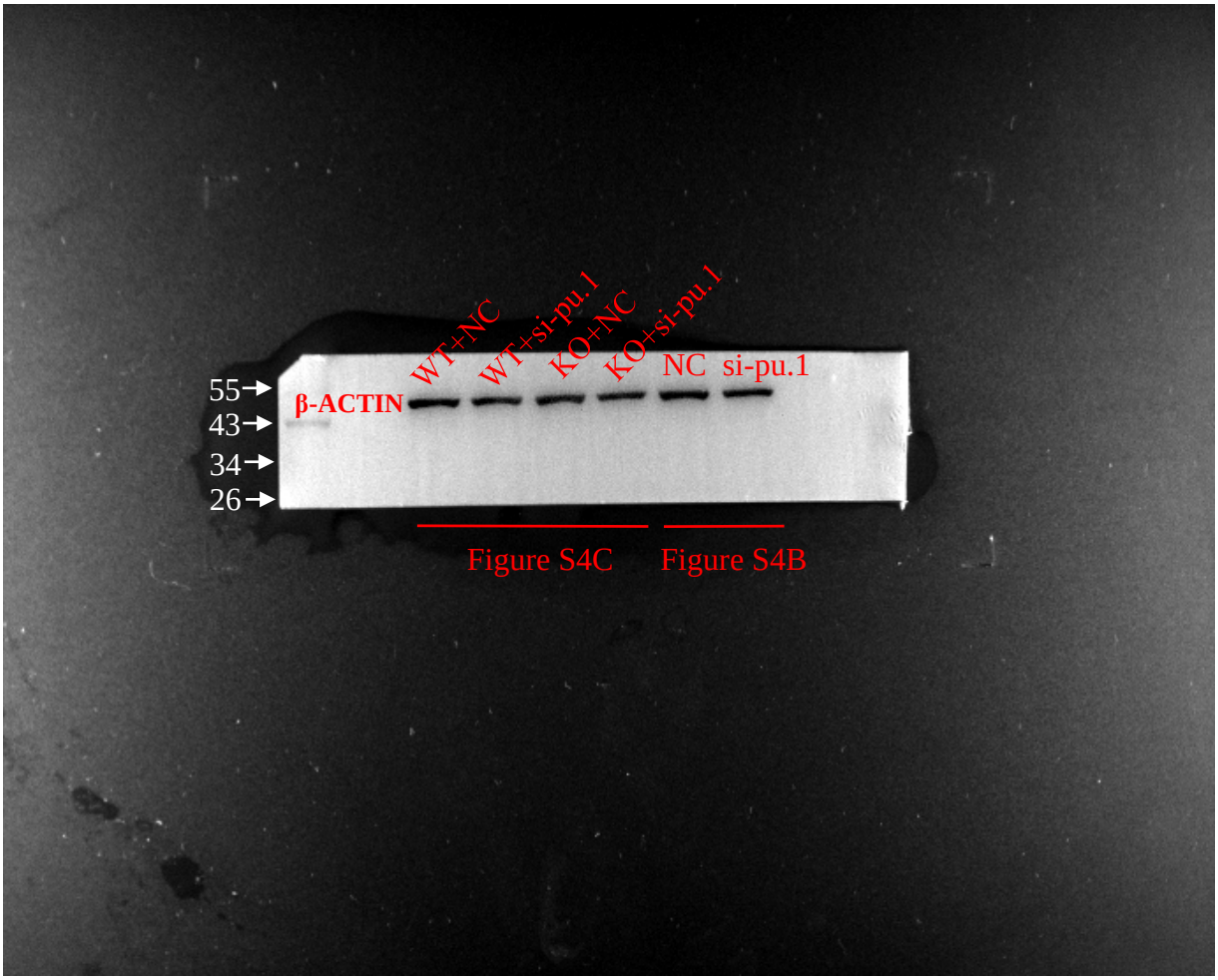

Supplemental Uncut Gel Image 6.
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