

Supplemental material

Supplemental Figure 1. Suppressive activity of PMN-MDSC. PMN-MDSC were isolated from spleens of LLC tumor-bearing mice and PMN from spleens of tumor-free mice using Ly6G magnetic beads. Cells were cultured at indicated ratios with splenocytes from OT-1 transgenic mice with CD8⁺T cells expressing TCR recognizing OVA-derived peptide SIINFEKL. Peptide was added at 0.1 µg/ml concentration. Cell proliferation was measured in triplicates after 48 hours of culture by the uptake of ³H-thymidine. Control – splenocytes stimulated with peptides in the absence of PMN or PMN-MDSC. Three experiments with similar results were performed. Mean with SD are shown. P values were calculated using ANOVA test with correction for multiple comparisons.

Supplemental Figure 2. Effect of PMN on cross-presentation by DCs. **A.** Proliferation of OT1 CD8⁺ T cells after stimulation with CD103⁺DC loaded with OVA-derived long peptides (left panel) or loaded with OVA-derived short peptide (right panel) alone or after co-culture with PMN isolated from tumor free mice. **B.** Number of PMN and PMN-MDSC (left panel) and fold changes over basal level (right panel) 24 hr after co-culture with DCs. (n=5). Day 0 – number of PMN and PMN-MDSC at the start of the culture. **C.** Fold changes in the number of total CD11c⁺MHC class II⁺ DCs and CD103⁺CD172a⁻ cDC1 after 24 hr of co-cultures with spleen PMN from naive mice or PMN MDSC from LLC tumor-bearing mice compared to the number of DC cultured alone. 4:1 PMN:DC ratio was used. n=5.

Supplemental Figure 3. LC-ESI-MS analysis of LA-d4 molecular species in PMN-MDSC and DC after their co-culture. **A.** Typical LC-ESI-MS profiles of (a) LA, LA-d4 and (b) AA and AA-d4 elongated from LA-d4 in PMN-MDSC-LA-d4. Possible structures are inserted. **B.** Typical LC-ESI-MS profiles of mono-oxygenated (a) LA and LA-d4 in PMN-MDSC-d4 and (b) MS/MS spectra of mono-oxygenated LA and LA-d4 in PMN-MDSC-d4. Possible structures are inserted.

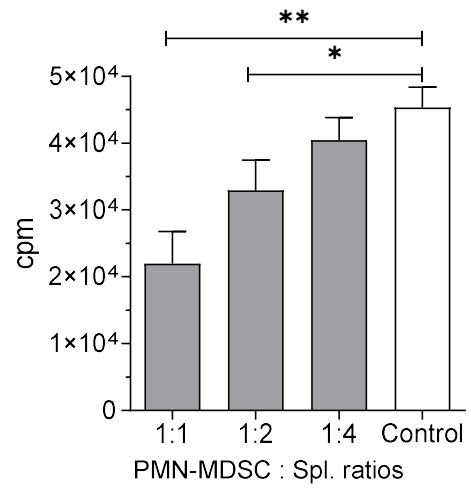
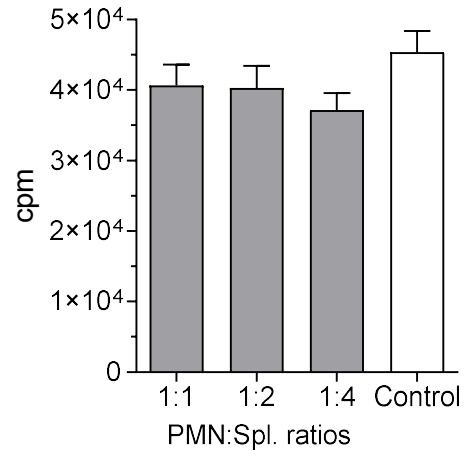
C. Typical LC-ESI-MS profiles of LA-d4 labeled (a) TAGs[16:0-18:2d4-18:1] species and (b) its MS/MS fragmentation spectrum of TAG ion $[M+NH_4]^+$ and DAGs products after co-culture of LA-d4 loaded PMN-MDSC cells (Gr-1+ cells) with DC. Possible structure is inserted.

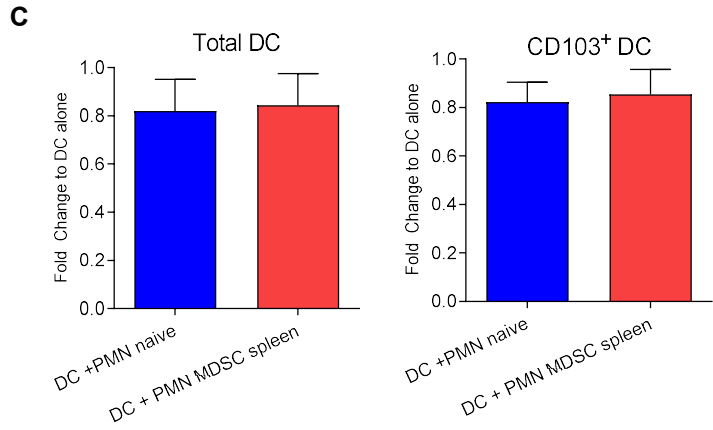
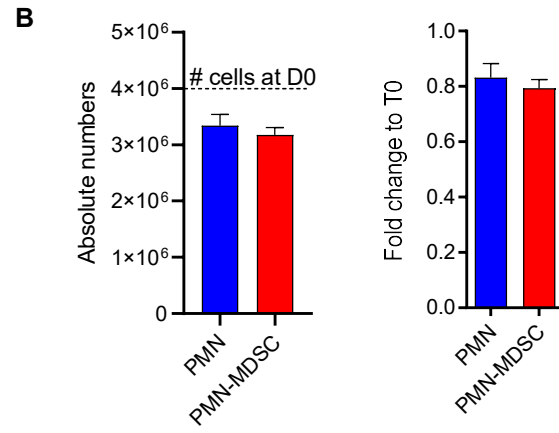
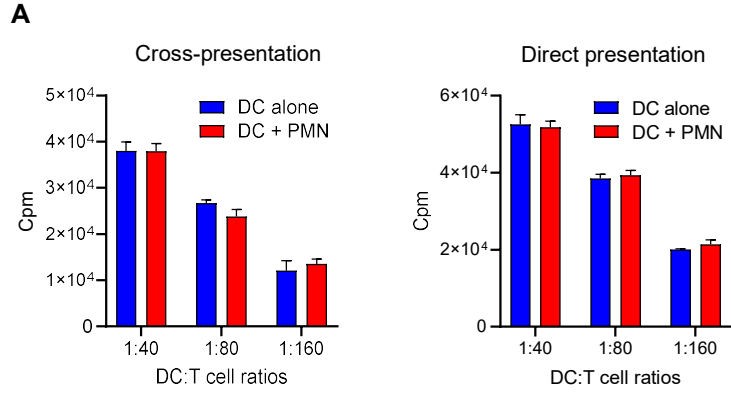
Supplemental Figure 4. Content of oxidatively truncated TAGs molecular species in PMN-MDSC, cDC1 and DC supplemented with tumor explant supernatant (TES). A. Typical LC-ESI-MS profile of TAG [16:0-9-ONA-18:1] (left, upper panel) and its MS/MS fragmentation spectrum of TAG ion $[M+NH_4]^+$ and DAG products (right, upper panel) in PMN-MDSC EL4. Possible structure is inserted. Content of TAG [16:0-9-ONA-18:1] species in PMN isolated from BM tumor free mice and PMN-MDSC tumor-bearing mice (lower panel). B. Typical LC-ESI-MS profile of TAG [16:0-9-ONA-16:0] (left, upper panel) and its MS/MS fragmentation spectrum of TAG ion $[M+NH_4]^+$ and TAG products (right, upper panel) in DC-TES EL4. Possible structure is inserted. Content of TAG [16:0-9-ONA-16:0] species in cDC1 and DC supplemented with TES EL4 (lower panel). C. Content of TAG [16:0-9-ONA-18:1] (upper panel) and TAG [18:1-9-ONA-18:1] species (lower panel) in cDC1 and DC supplemented with TES EL4.

Supplemental Figure 5. Lipid levels and DCs phenotype in MPO and Gp91 KO mice. A. Lipids levels measured by flow cytometry using BODIPY in PMN-MDSC isolated from WT, MPO KO, or GP91 KO TB mice. Representative of three independent experiments are shown. B. Analysis of surface markers by flow cytometry in $CD103^+$ DC1 after co-culture with WT or KO PMN-MDSC.

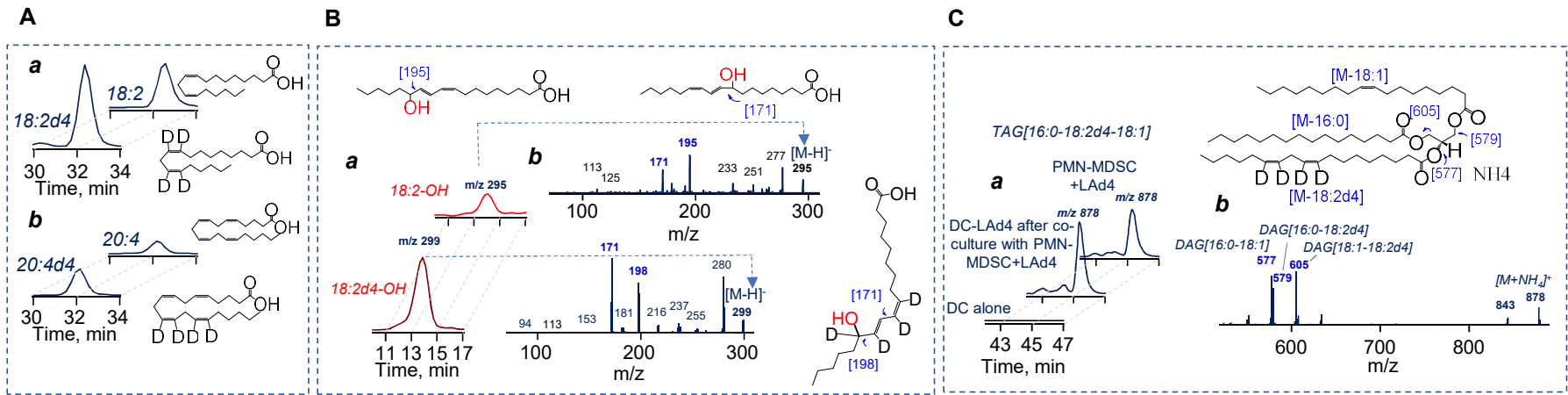
Supplemental Figure 6. Effect of MDSC depletion of cross-presentation by DCs *in vivo*. A. Proportion of MDSC in blood of LLC-OVA TB mice treated with anti-DR5 antibody. B. Tumor growth in mice treated with anti-DR5 antibody (n=4) C. Proliferation of OT1 $CD8^+$ T cells stimulated with $CD103^+$ DC (cDC1) and $CD172^+$ DC (cDC2) isolated from draining lymph nodes

of LLC-OVA tumor bearing mice treated with anti-DR5 antibody. Proliferation was measured by flow cytometry using CFSE dilution (n=2). In all experiments mean and SD are shown *p < 0.05, **p < 0.01 in unpaired two-tailed Student's t test between compared groups.

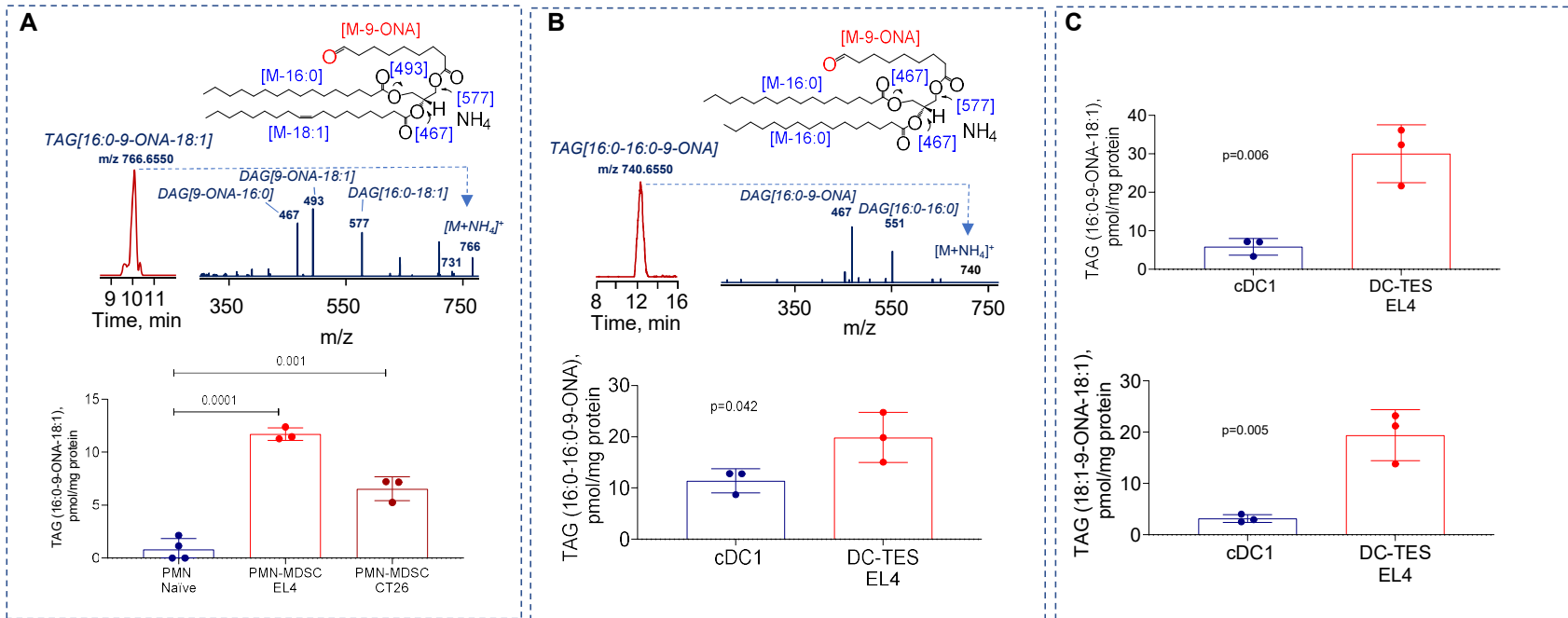
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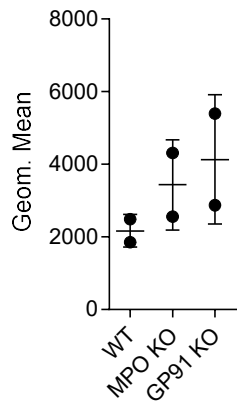
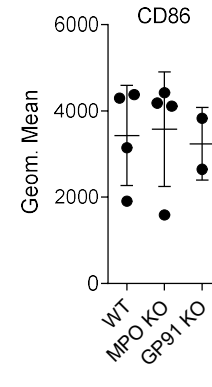
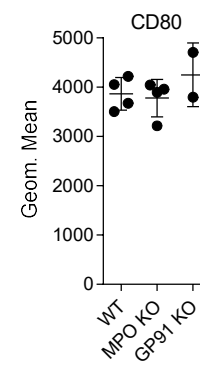
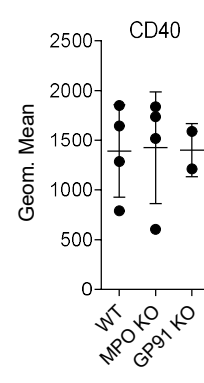
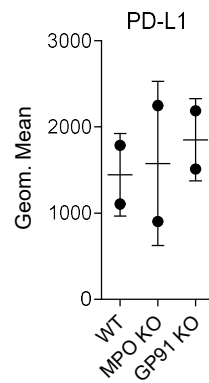
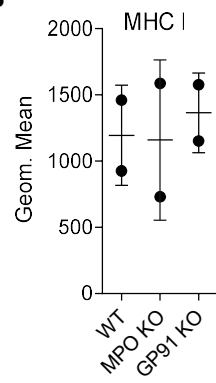
Supplementary Figure 2



Supplementary Figure 3



Supplementary Figure 4

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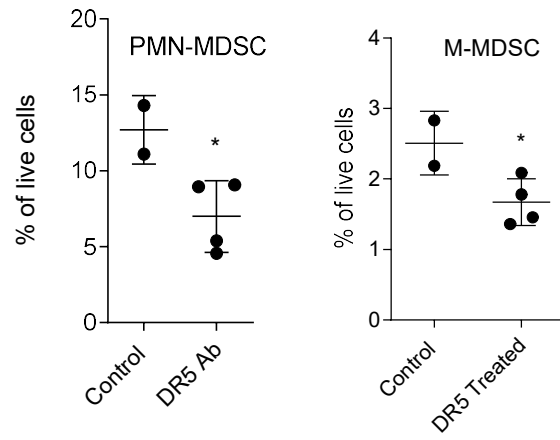
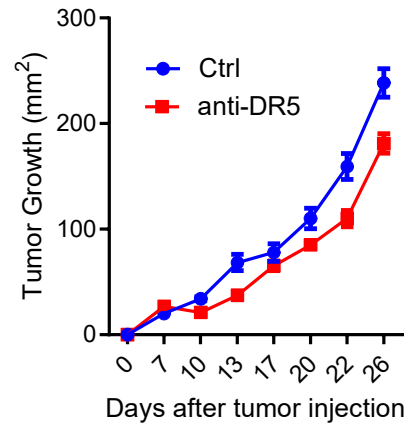
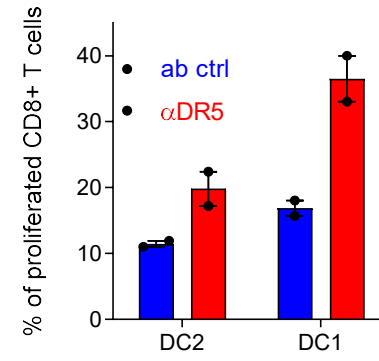
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Table S1. Antibodies used in the study

Mouse Markers	Source	Identifier
LY6G PE (clone: 1A8)	BDBiosciences	561104
LY6C PE-CY7 (clone: AL-21)	BDBiosciences	560593
CD45 AF700 (clone: 30F11)	BDBiosciences	560510
CD11B APC-CY7 (clone: M1/70)	BDBiosciences	561039
CD103 BV421 (clone: 2E7)	Biolegend	121422
CD172a PE-CY7 (clone: P84)	Biolegend	144014
CD103 Biotin (clone: 2E7)	Biolegend	121404
CD11C APC (clone: N418)	Biolegend	117310
I-A(b) PE-CY7 (clone: AF-120.1)	Biolegend	116420
I-A(b) FITC (clone: AF-120.1)	Biolegend	116406