

Expanded View Figures

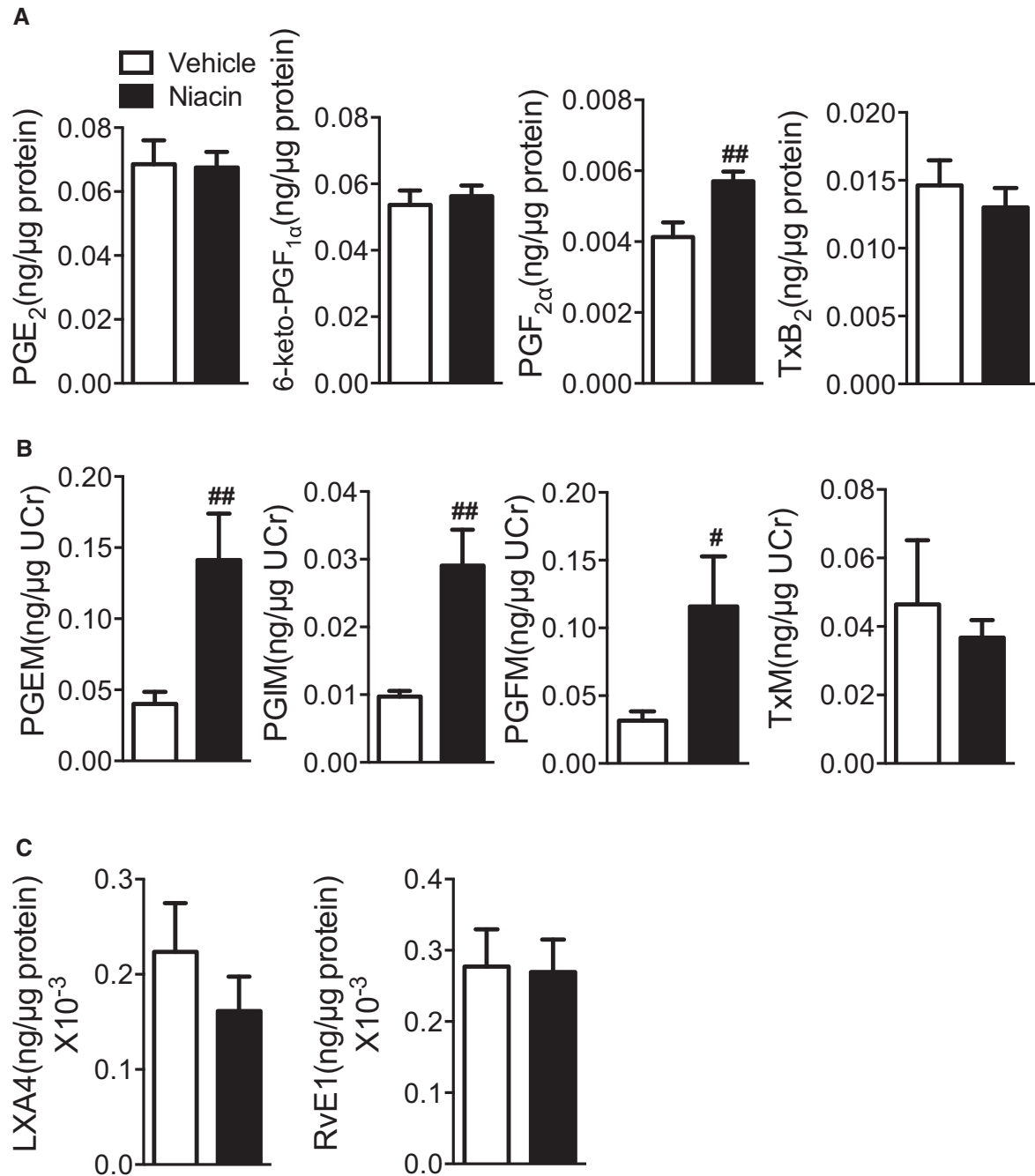


Figure EV1. Effect of niacin on PG, RvE1, and LXA4 production in mice after DSS challenge.

A Mass spectrometry analysis of PG production in colons from niacin (600 mg/kg)-treated mice after DSS challenge. Vehicle, $n = 6$; niacin 600 mg/kg, $n = 7$.

B Measurement of urinary metabolite of PGs in niacin (600 mg/kg)-treated mice. PGEM, 11 α -hydroxy-9,15-dioxo-2,3,4,5-tetranor-prostane-1,20-dioic acid; PGIM, 2,3-dinor-6-keto-PGF_{1 α} ; TxM, 2,3-dinor-TxB₂; PGFM, 13,14-dihydro-15-keto-PGF_{2 α} . $n = 6$.

C Mass spectrometry analysis of RvE1 and LXA4 production in colons from niacin (600 mg/kg)-treated mice after DSS challenge. $n = 6$.

Data information: Data are shown as mean \pm SEM. Data are representative of at least two independent experiments. Statistical significance was determined using unpaired Student's t -tests. (A) ^{##} $p < 0.01$. (B) [#] $p < 0.05$, ^{##} $p < 0.01$.

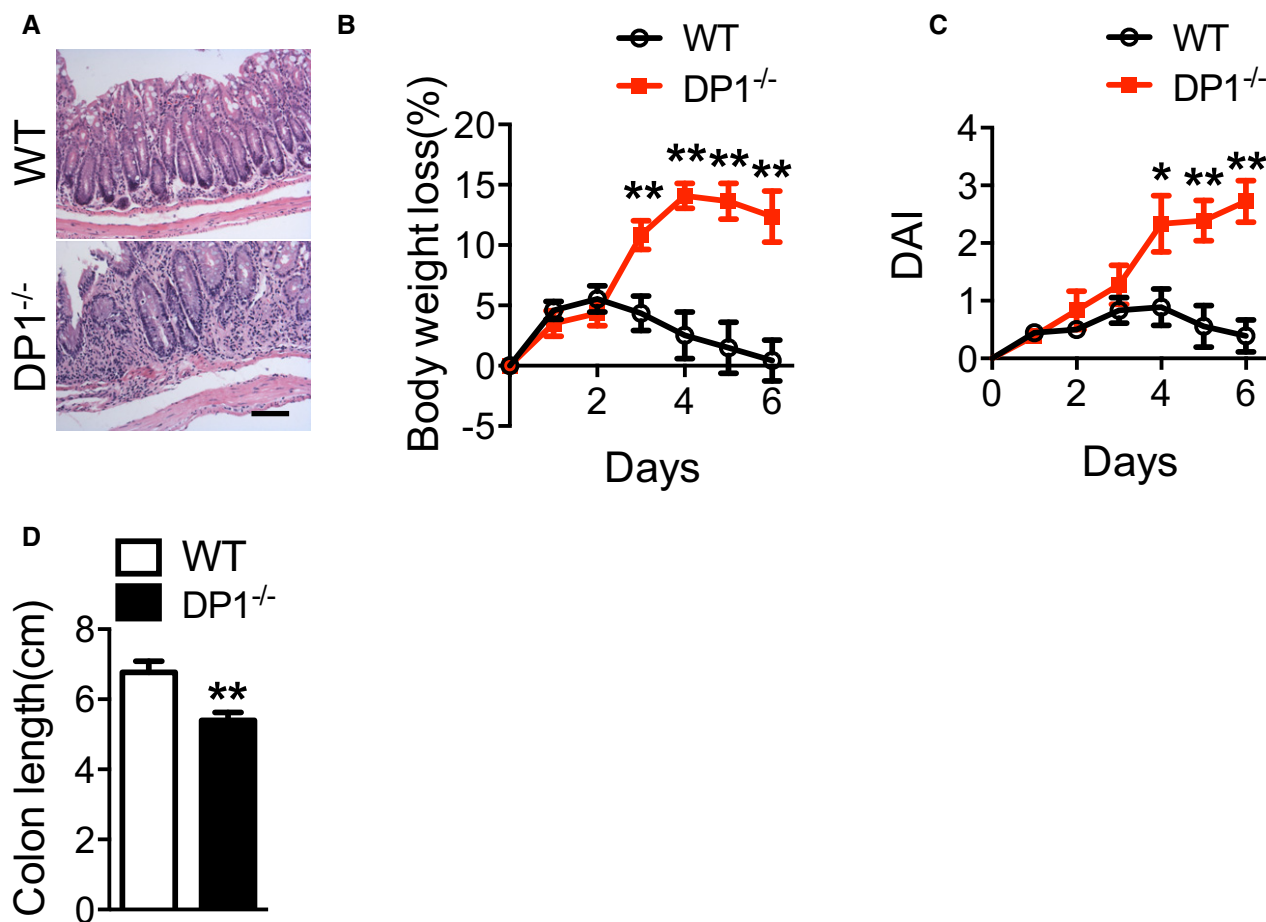


Figure EV2. DP1 deficiency augments TNBS-induced colitis in mice.

A H&E staining of histological sections in the distal colon from the mice after TNBS challenge. Scale bar: 100 μ m. Graphs represent overall histology score.

B–D Body weight loss (B), disease activity index (DAI, C), and colon length (D) of DP1^{-/-} and WT mice in response to 2.5% TNBS challenge.

Data information: Data are shown as mean \pm SEM. Statistical significance was determined using unpaired Student's *t*-tests. **P* < 0.05, ***P* < 0.01 compared with WT; *n* = 6.

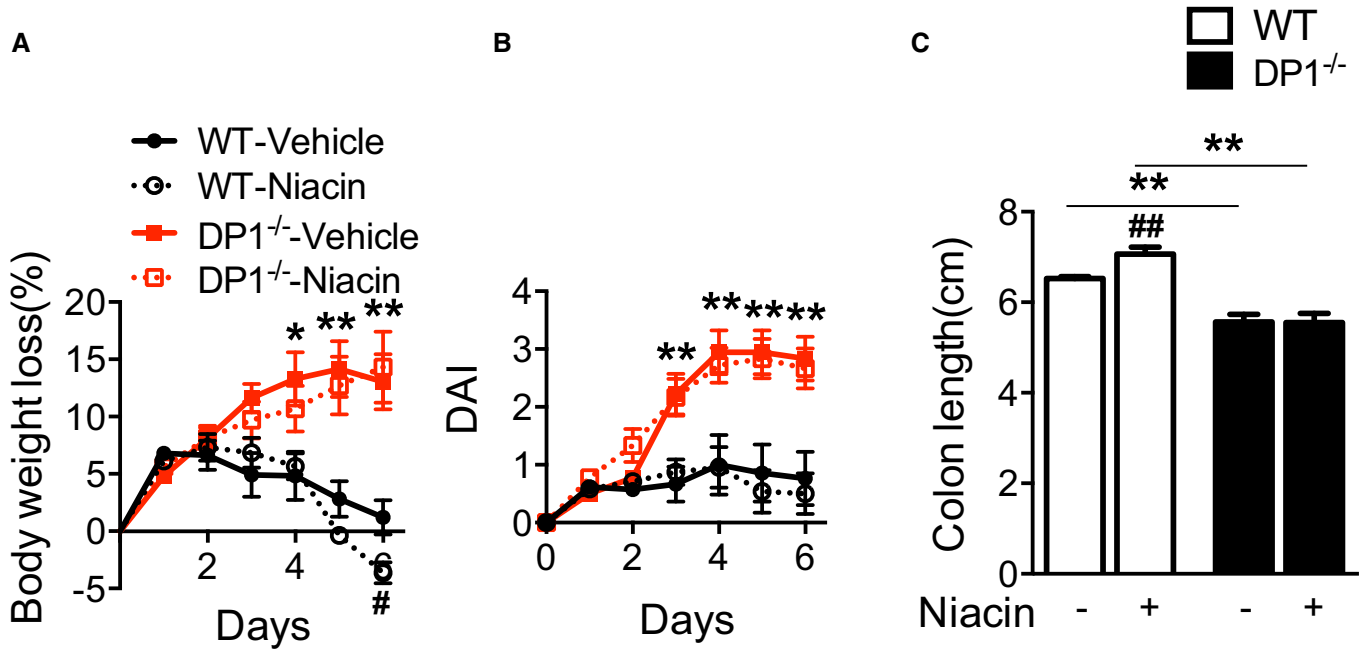


Figure EV3. Niacin protects mice against from TNBS-induced colitis.

A–C Effect of niacin treatment on body weight loss (A), disease activity index (DAI, B), and colon length (centimeter) (C) of DP1^{-/-} and WT mice in response to 2.5% TNBS challenge.

Data information: Data are shown as mean ± SEM. Statistical significance was determined using two-way ANOVA followed by a Bonferroni *post hoc* test. #*P* < 0.05, ##*P* < 0.01 vs. vehicle. **P* < 0.05, ***P* < 0.01 compared with WT. WT-vehicle, *n* = 7; WT-niacin, *n* = 8; DP1^{-/-}-vehicle, DP1^{-/-}-niacin, *n* = 6.

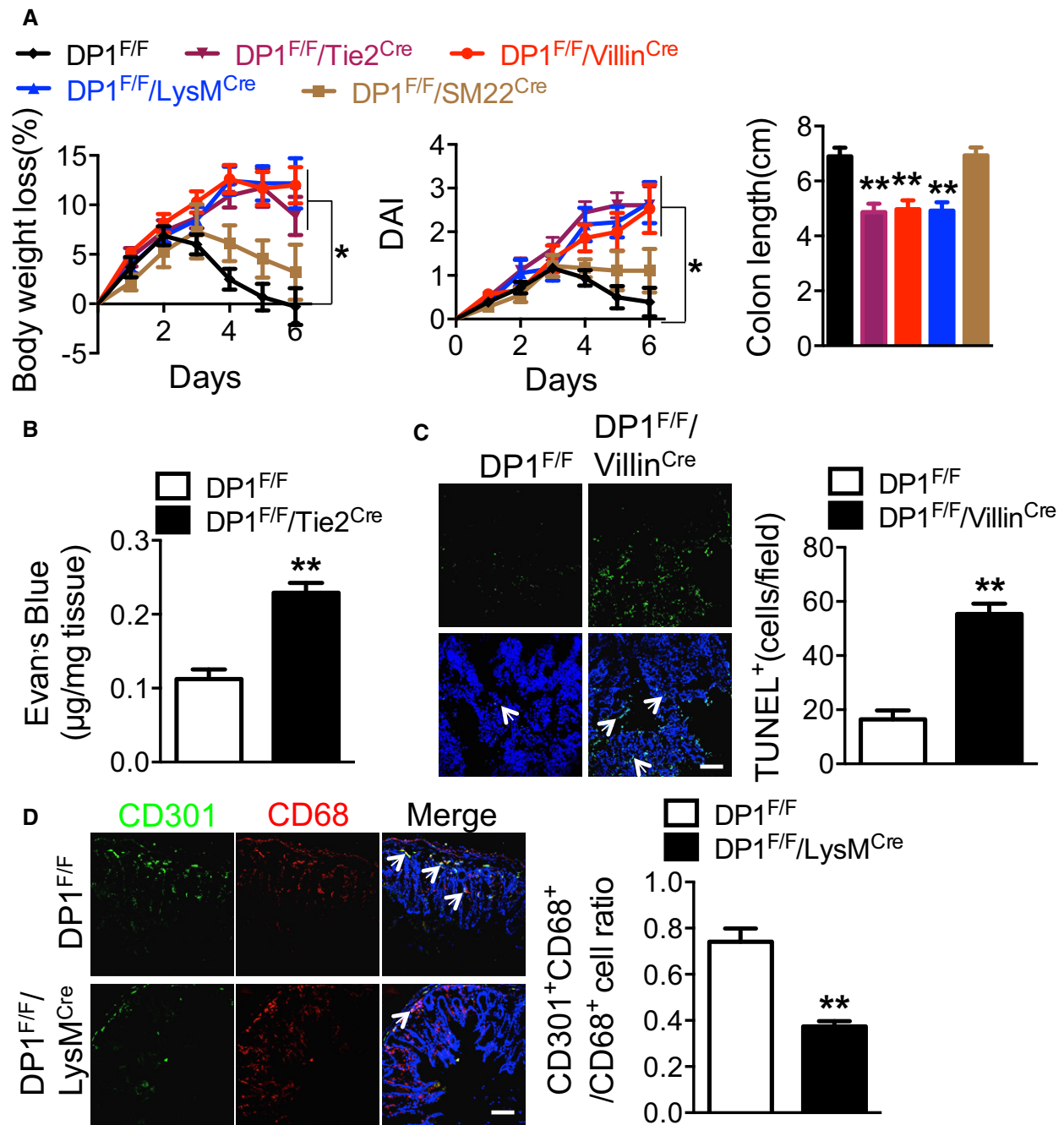


Figure EV4. TNBS-induced colitis in cell-specific DP1-deficient mice.

A Body weight loss, disease activity index (DAI), and colon length of DP1^{F/F}/Tie2^{Cre} mice, DP1^{F/F}/Villin^{Cre} mice, DP1^{F/F}/LysM^{Cre} mice, and DP1^{F/F}/SM22^{Cre} mice in response to TNBS treatment.

B Quantitative measurement of vascular permeability by dye leakage in the colonic mucosa from TNBS-challenged DP1^{F/F}/Tie2^{Cre} and DP1^{F/F} mice. The mice were sacrificed at day 6.

C TUNEL assay (left) and quantitation (right) in colonic tissues from TNBS-challenged DP1^{F/F}/Villin^{Cre} and DP1^{F/F} mice. The arrows indicate the TUNEL⁺ cells (left). Scale bar: 100 µm. DP1^{F/F}, n = 7; DP1^{F/F}/Villin^{Cre}, n = 8.

D Representative immunofluorescent staining (left) and quantitation (right) of CD301⁺CD68⁺ cells in colonic tissues from TNBS-challenged DP1^{F/F}/LysM^{Cre} and DP1^{F/F} mice. The arrows indicate the CD301⁺CD68⁺ cells (left). Scale bar: 100 µm. DP1^{F/F}, n = 8; DP1^{F/F}/LysM^{Cre}, n = 6.

Data information: Data are shown as mean ± SEM. Statistical significance was determined using two-way ANOVA followed by a Bonferroni *post hoc* test (A) and unpaired Student's *t*-tests (B–D). (A, B) **P* < 0.05, ***P* < 0.01 compared with DP1^{F/F}. DP1^{F/F}, DP1^{F/F}/Tie2^{Cre}, DP1^{F/F}/LysM^{Cre}, DP1^{F/F}/SM22^{Cre} n = 6; DP1^{F/F}/Villin^{Cre}, n = 7. (C, D) ***P* < 0.01 vs. DP1^{F/F}.

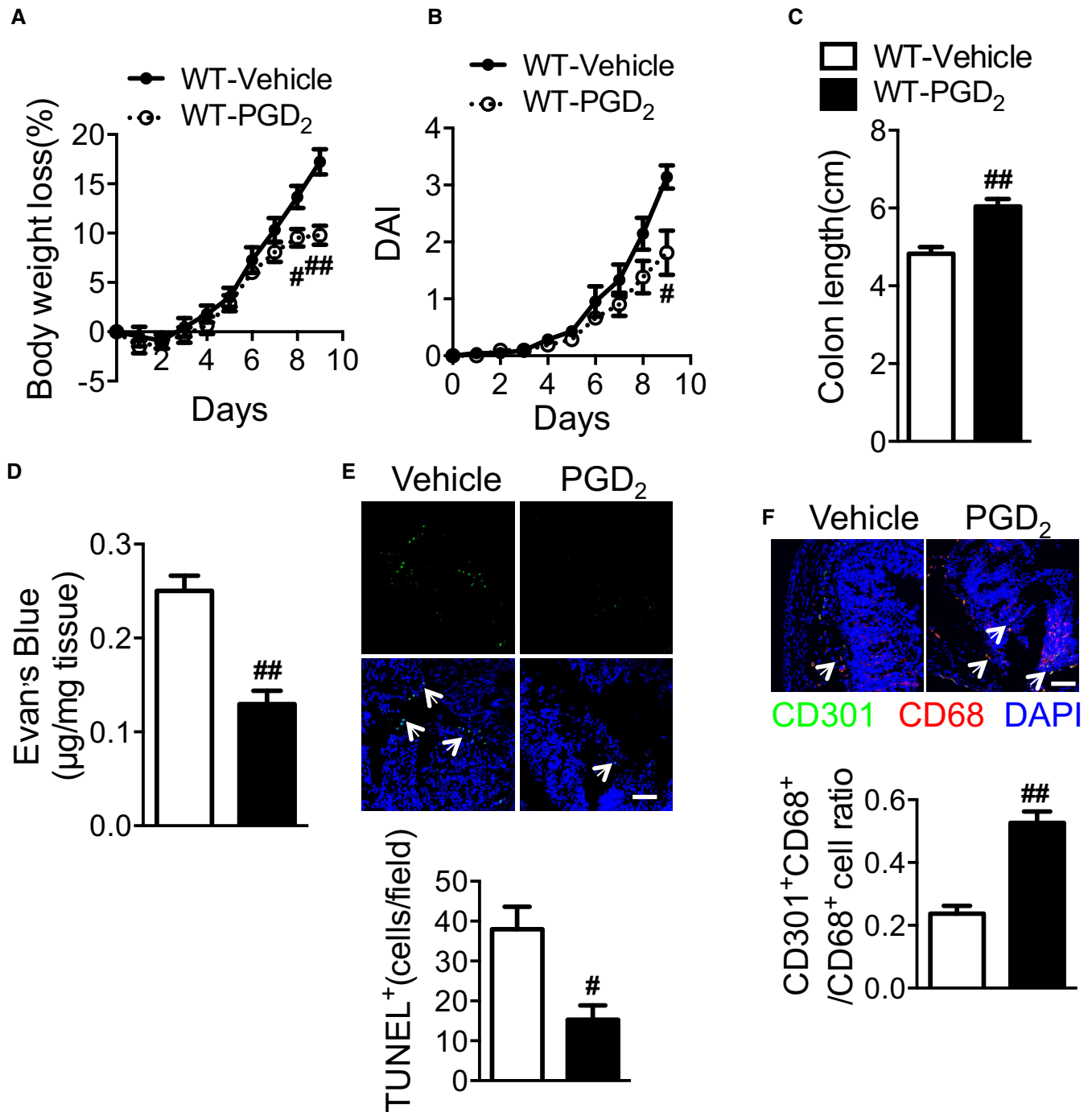


Figure EV5. PGD₂ infusion ameliorates DSS-induced colitis in mice.

A–C Effect of PGD₂ treatment on body weight loss (A), disease activity index (B), and colon length (C, centimeter) of WT mice in response to DSS challenge.

D Effect of PGD₂ on Evan's blue extravasation in the colonic mucosa from WT mice.

E Effect of PGD₂ on DSS-induced epithelial cell apoptosis in WT mice. Scale bars: 100 µm. The arrows indicate TUNEL⁺ cells.

F Effect of PGD₂ on colonic macrophage infiltration in DSS-challenged WT mice. Scale bars: 100 µm. The arrows indicate CD301⁺CD68⁺ cells.

Data information: All mice were sacrificed at day 9. Data are shown as mean ± SEM. Statistical significance was determined using unpaired Student's t-tests.

(A–C) [#]*P* < 0.05, ^{##}*P* < 0.01 vs. vehicle; *n* = 7. (D) ^{##}*P* < 0.01 compared with vehicle; *n* = 7. (E) [#]*P* < 0.05 compared with vehicle; vehicle, *n* = 5; PGD₂, *n* = 7. (F) ^{##}*P* < 0.01 compared with vehicle; *n* = 5.