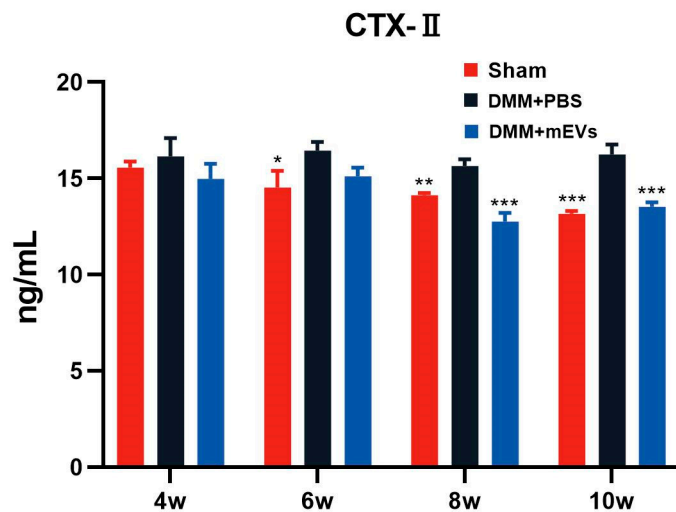
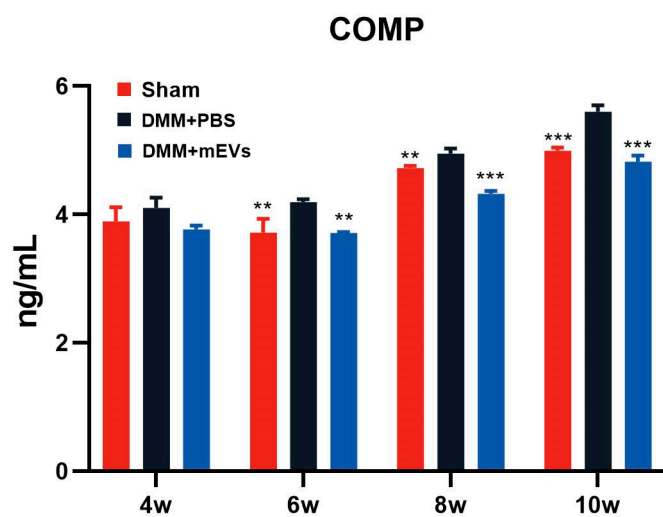


Table S1 The OARSI scoring system.

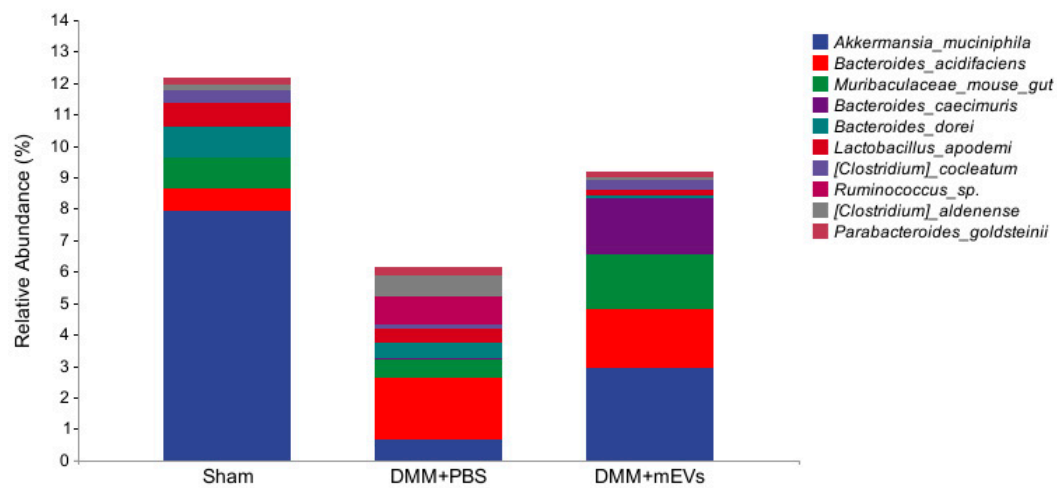
	Score
Normal	0
Loss of Safranin O without structural changes	0.5
Small fibrillations without loss of cartilage	1
Vertical clefts down to the layer immediately below the superficial layer and some loss of surface lamina	2
Vertical clefts/erosion to the calcified cartilage extending to <25% of the articular surface	3
Vertical clefts/erosion to the calcified cartilage extending to 25-50% of the articular surface	4
Vertical clefts/erosion to the calcified cartilage extending to 50-75% of the articular surface	5
Vertical clefts/erosion to the calcified cartilage extending to >75% of the articular surface	6



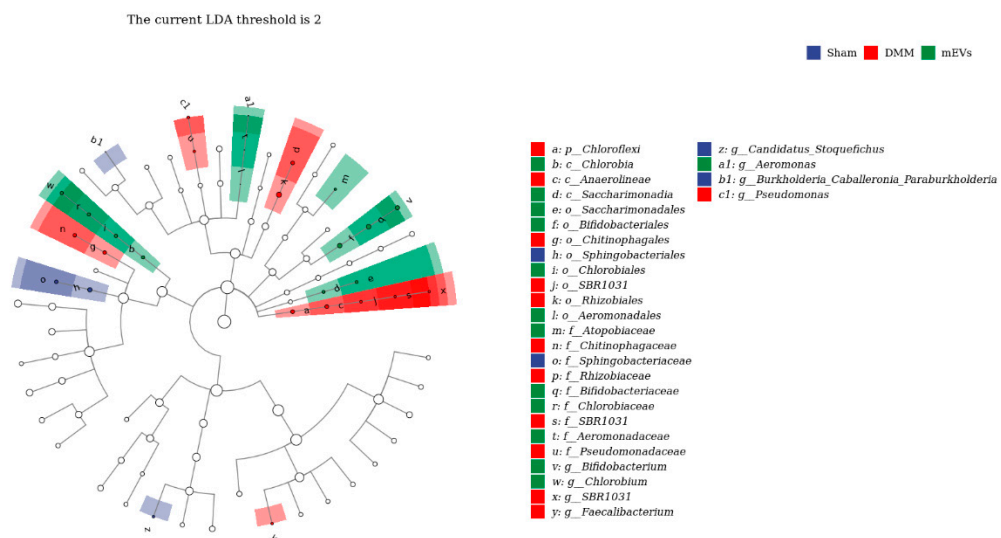
**Figure S1** The serum CTX-II levels were determined by ELISA. All data are shown as means  $\pm$  SD deviation ( $n = 3$ ). \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$  vs. DMM+PBS group.



**Figure S2** The serum COMP levels were determined by ELISA. All data are shown as means  $\pm$  SD deviation ( $n = 3$ ). \*\* $p < 0.01$ , \*\*\* $p < 0.001$  vs. DMM+PBS group.



**Figure S3** The relative abundance of species in each experimental group.



**Figure S4** Cladogram based on linear discriminant analysis effect size (LEfSe) analysis showing community composition of the gut microbiota in mice.