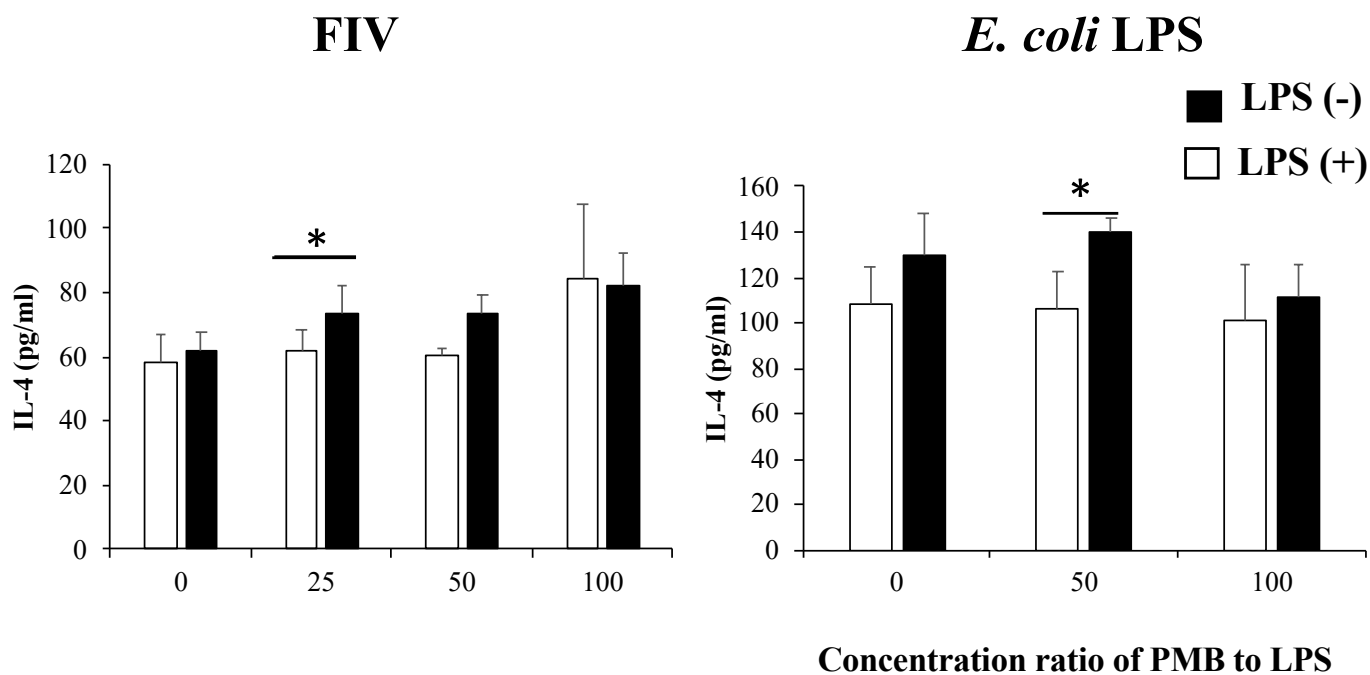


## Supplement Fig. S1

### Fig. S1 Hot-water-extracted fraction of *G. hansenii* GK-1 (FII) suppresses IL-4 production for OVA in spleen cells isolated from OVA23-3 mice

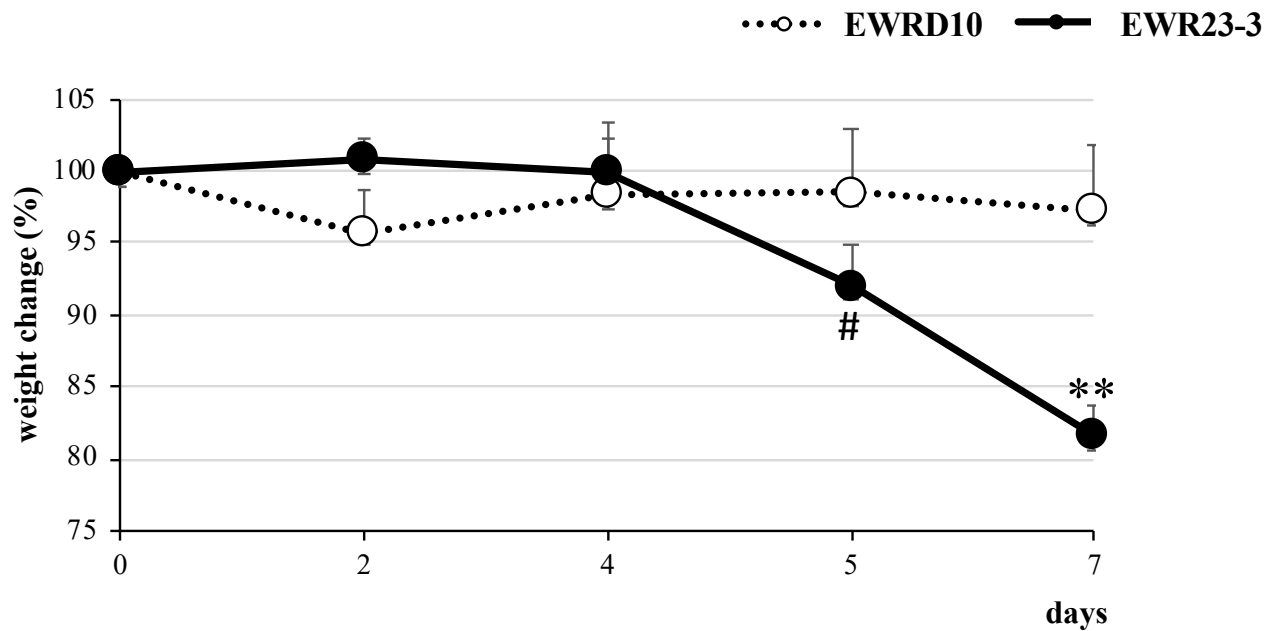
Spleen cells of OVA23-3 mice were stimulated with hot-water extracted fraction (FI, FII, and FIII, final concentrations; 0.05, 0.2, 1, 5 μg/mL) and OVA (final concentration; 0.25 mg/ml). The cells were cultured for 24 hours, and **A)** IL-4 and **B)** IFN-γ production in the collected culture supernatant was measured by ELISA. The cells purified from 4 mice were pooled and cultured in 3 wells per each condition. The significance test was performed by Dunnet's test [ $*P < 0.05$ ,  $#P < 0.1$  (vs without *G. hansenii* GK-1 fractions)]. These data are representative of 2 independent experiments.



## Supplement Fig. S2

**Fig. S2** Effect of PMB on IL-4 production of spleen cells from OVA23-3 mice stimulated with LPS fraction of *G. hansenii* GK-1 (FIV) or *E. coli* LPS in spleen cell culture system.

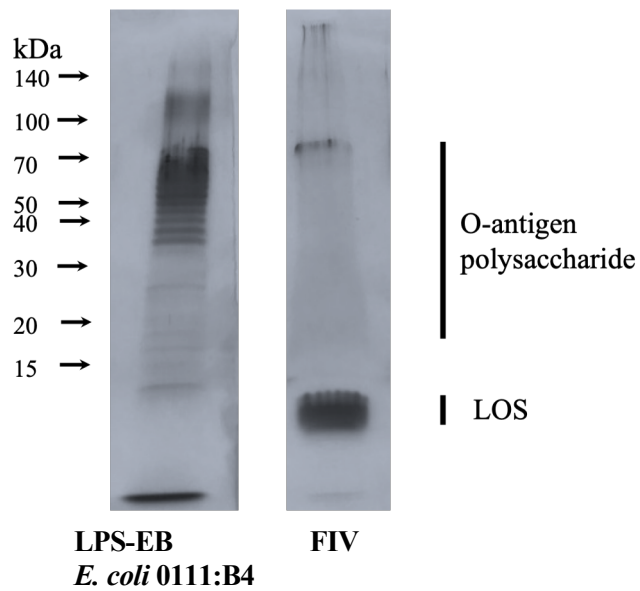
Spleen cells of OVA23-3 mice were stimulated with FIV (final concentration; 10 ng/mL, left) or *E. coli* LPS (final concentration; 200 ng/mL, right) and OVA (final concentration: 1 mg/mL). PMB was added stepwise to create wells for LPS+ (□) and LPS- (■) for each PMB concentration. The horizontal axis of the graph shows the concentration ratio of PMB to LPS. After culturing for 24 hours, the supernatant was collected. The production of IL-4 in the supernatant was measured by ELISA. The cells purified from 3 mice were pooled and cultured in 3 wells per each condition. Significance test was performed by Student's t-test [ $*P < 0.05$ ,  $^{\#}P < 0.1$  (vs sample concentration 0 ng / mL)]. These data are representative of 2 independent experiments.



### Supplement Fig. S3

**Fig. S3 Weight changes in EW-fed R23-3 (EWR23-3) mice significantly decreased compared with those of EW-fed RD10 mice (EWRD10).**

RD10 and R23-3 mice were fed with EW-diet for 7 days and their weights were measured every day. Time course of weights relative to initial weights (100%) was shown (n = 3 in each group). Significance test was performed by Student's t-test (\*\* $P < 0.01$ , # $P < 0.1$ ) for each day between RD10 and R23-3 mice. This data was representative of 2 independent experiments.



## Supplement Fig. S4

**Fig. S4 Structural difference between LPS of *G. hansenii* GK-1 (FIV) and that of *E. coli*.** FIV (right) or *E. coli* LPS (left) were analyzed by SDS-PAGE. SDS-PAGE profile of density gradient was visualized by periodic acid-silver staining.