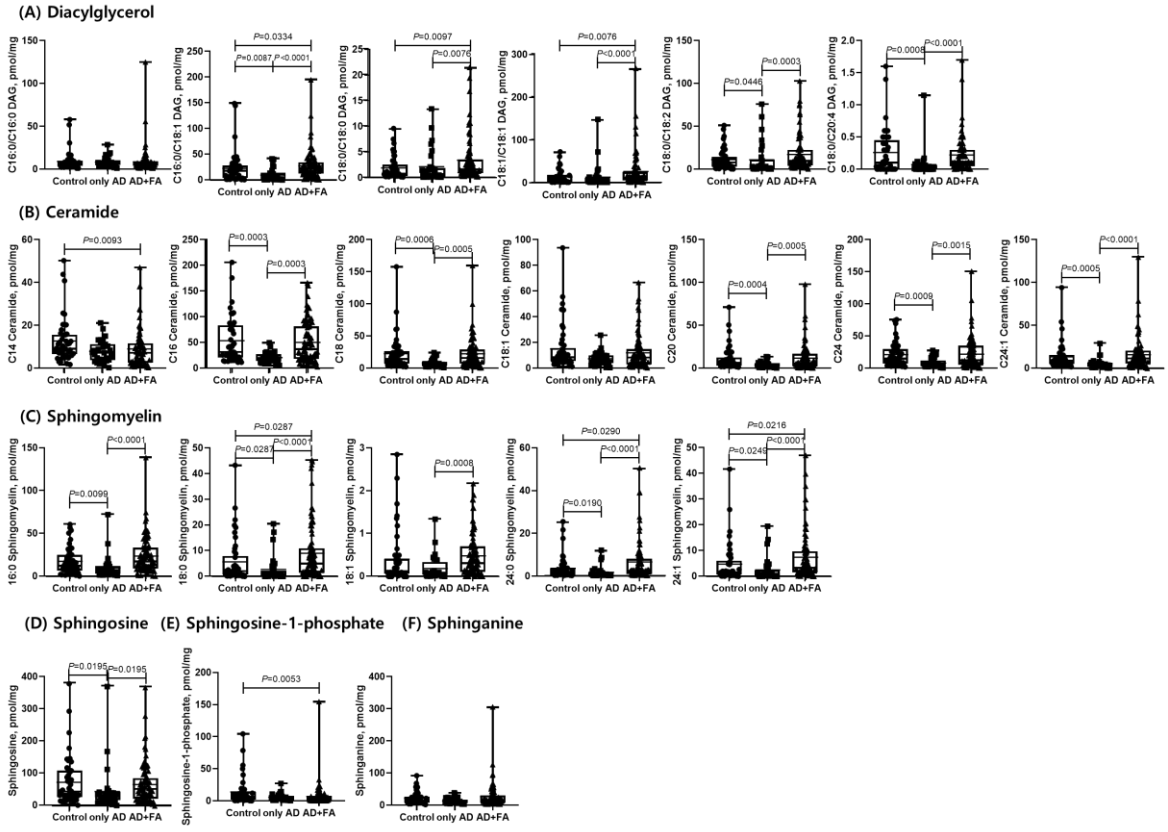
SUPPLEMENTARY MATERIAL

Supplementary figure 1. Comparison of sphingolipid metabolites among the groups studied A. Diacylglycerol; B. Ceramide; C. Sphingomyelin; D. Sphingosine; E. Sphingosine-1-phosphate; F. Sphinganine. The significance of any differences between groups was tested using the Mann-Whitney *U* test. *P*-values were corrected for multiple comparisons using the Benjamini and Hochberg's false discovery rate (FDR).



*Mann-Whitney *U* test, *P*-values were corrected for multiple comparisons using the Benjamini and Hochberg's false discovery rate (FDR).

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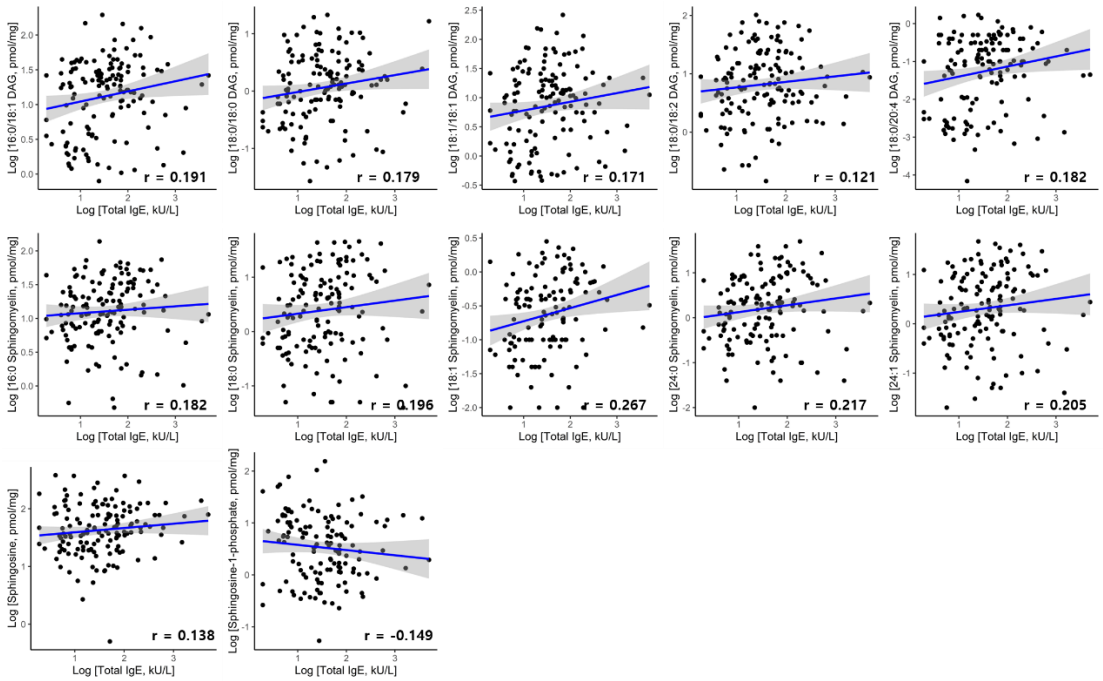
Supplementary figure 2. Correlation between total IgE, egg white/milk-specific IgE, and gut sphingolipid

A. Total IgE; B. Egg white-specific IgE; C. Milk-specific IgE. sphingolipid metabolites, and clinical parameters are log transformed. The data was analyzed by spearman correlation.

(A) Total IgE



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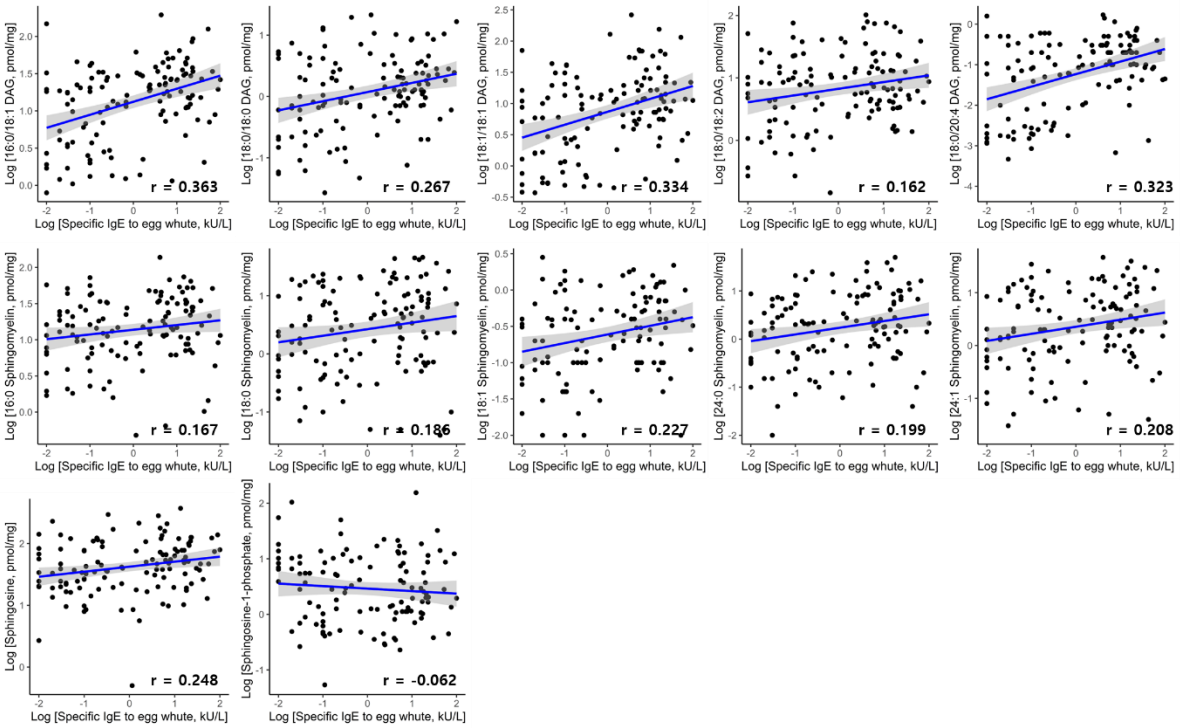
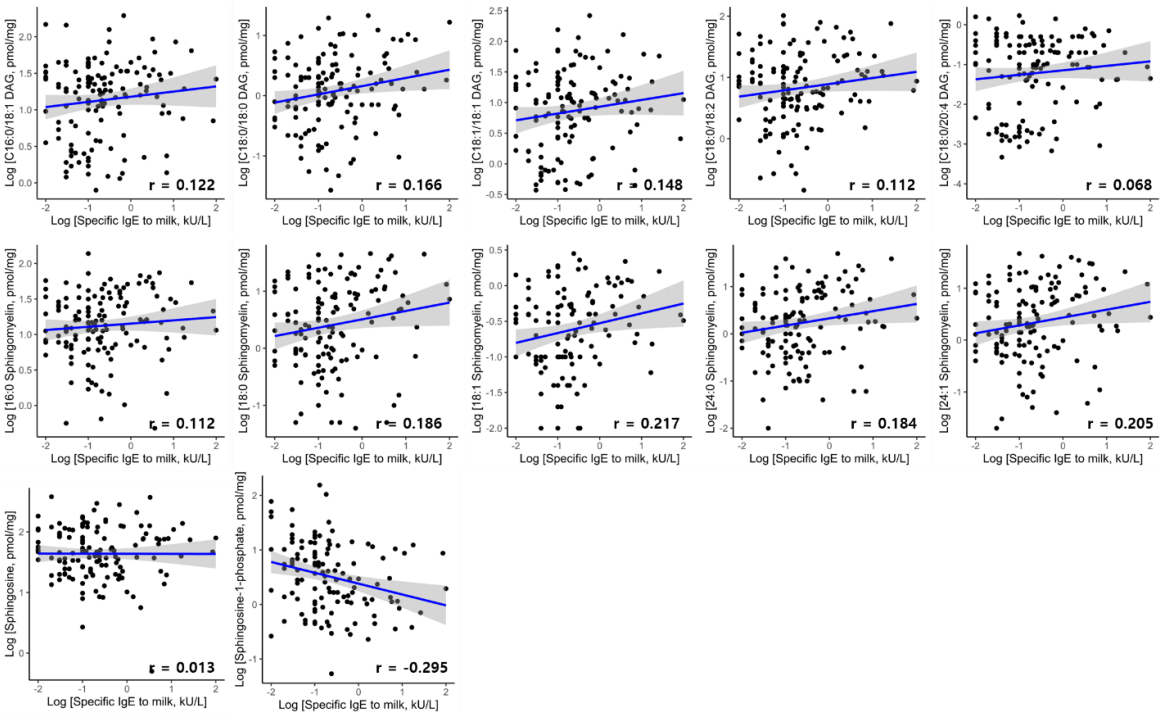
(B) Specific IgE to Egg white



(C) Specific IgE to Milk



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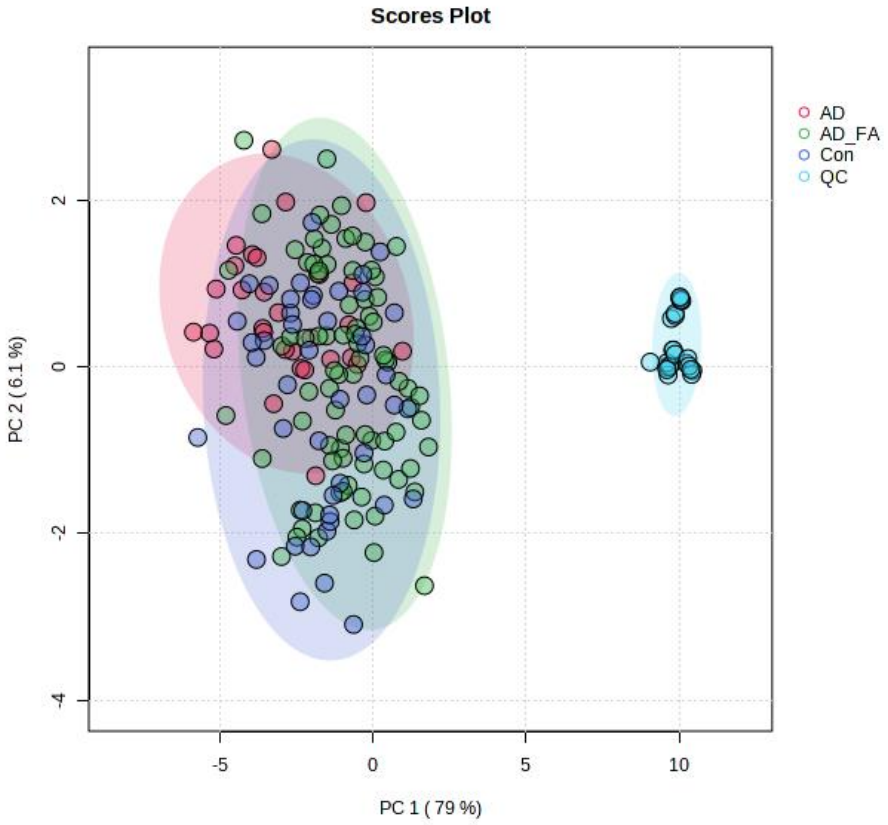
Supplementary figure 3. Principal component analysis (PCA) score plot of target lipidome data from sample feces and QCs was generated using MetaboAnalyst 5.0 after log transformation of target lipidome data. No filter was applied, and missing values were estimated by replacement with 1/5 of the minimum positive value in the original data.



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