

Description of Additional Supplementary File

Supplemental Data 1

Stable 1.1 Summary of significant global metabolomic analysis of asthma in MGBB-KAS

Stable 1.2 Summary of significant global metabolomic analysis of asthma in MGBB-Asthma

Supplemental Data 2

Stable 2.1 The general information of targeted sphingolipids panel in MGBB-KAS

Stable 2.2 The general information of targeted steroids panel in MGBB-KAS

Stable 2.3 The general information of targeted microbial-derived metabolites panel in MGBB-KAS

Supplemental Data 3

Stable 3.1 (All) Summary of significant targeted steroid hormones analysis of asthma and asthma phenotypes in MGBB-KAS

Stable 3.1 (Strata F) Summary of significant targeted steroid hormones analysis for asthma and asthma phenotypes in female of the MGBB-KAS cohort

Stable 3.1 (Strata M) Summary of significant targeted steroid hormones analysis for asthma and asthma phenotypes in male of the MGBB-KAS cohort

Stable 3.2 (All) Summary of the significant targeted microbiome metabolites analysis of asthma in MGBB-KAS

Stable 3.2 (Strata F) Summary of the significant targeted microbiome metabolite analysis for asthma and asthma phenotypes in females of the MGBB-KAS cohort

Stable 3.2 (Strata M) Summary of the significant targeted microbiome metabolite analysis for asthma and asthma phenotypes in male of the MGBB-KAS cohort

Stable 3.3 (All) Summary of the significant targeted sphingolipid metabolites analysis of asthma and asthma phenotypes in MGBB-KAS

Stable 3.3 (Strata F) Summary of the significant targeted sphingolipid metabolites analysis for asthma and asthma phenotypes in female of the MGBB-KAS cohort

Stable 3.3 (Strata M) Summary of the significant targeted sphingolipid metabolites analysis for asthma and asthma phenotypes in male of the MGBB-KAS cohort

Supplemental Data 4

Stable 4.1 (log) Summary of significant ratio of sphingolipid / microbial-related metabolites analysis of asthma and asthma phenotypes in MGBB-KAS

Stable 4.1 (raw) Summary of significant raw ratio of sphingolipid / microbial-related metabolites analysis of asthma and asthma phenotypes in MGBB-KAS

Stable 4.2 (log) Summary of significant ratio of sphingolipid and steroids analysis of asthma and asthma phenotypes in MGBB-KAS

Stable 4.2 (raw) Summary of significant raw ratio of sphingolipid and steroids analysis of asthma and asthma phenotypes in MGBB-KAS

Stable 4.3 (log) Summary of significant ratio of microbial-related metabolites and steroids analysis of asthma and asthma phenotypes in MGB-KAS

Stable 4.3 (raw) Summary of significant raw ratio of microbial-related metabolites and steroids analysis of asthma and asthma phenotypes in MGBB-KAS

Supplemental Data 5

Stable 5.1 Summary of significant ratio of sphingolipid / microbial-related metabolites analysis of asthma and asthma phenotypes in MGBB-LLF

Stable 5.2 Summary of significant ratio of sphingolipid / steroid metabolites analysis of asthma and asthma phenotypes in MGBB-LLF

Stable 5.3 Summary of significant ratio of microbial-derived metabolites and steroids analysis of asthma and asthma clinical measures in MGBB-LLF

Supplemental Data 6. Cox model results for the 21 selected ratios of sphingolipids / steroids

Supplemental Data 7. AUC values for various prediction models of incident asthma exacerbation in MGBB-KAS and MGBB-LLF