

**Title:** Supplementary Data 1:

**Description:** 158 metabolite measurements

**Title:** Supplementary Data 2:

**Description:** Significant SNP- metabolite associations

**Title:** Supplementary Data 3:

**Description:** 588 region-metabolite associations resulting from large scale analysis of 158 metabolites in METSIM cohort

**Title:** Supplementary Data 4:

**Description:** Repartition of locus - metabolite associations

**Title:** Supplementary Data 5:

**Description:** 228 new region-metabolite associations ( $P < 1.28 \times 10^{-9}$  in reference GWAS metabolites)

**Title:** Supplementary Data 6:

**Description:** SNPs from our 588 associations with corresponding p-values in GWAS of CHD, BMI and Type 2 diabetes

**Title:** Supplementary Data 7:

**Description:** Alternative SNP-effective Gene mapping for master regulators

**Title:** Supplementary Data 8:

**Description:** Posterior probability of being causal in LIPC region

**Title:** Supplementary Data 9:

**Description:** Heterogeneity in posterior probabilities of causality across the 75 traits

**Title:** Supplementary Data 10:

**Description:** Statin interaction on region-metabolite associations

**Title:** Supplementary Data 11:

**Description:** 30 significant SNP associations resulting from large-scale analysis of 158 metabolite differences between baseline and follow-up data in METSIM cohort ( $P < 5 \times 10^{-8}$ )

**Title:** Supplementary Data 12:

**Description:** 8 significant locus associations resulting from large-scale analysis of 158 metabolites differences between baseline and follow-up data in METSIM cohort

**Title:** Supplementary Data 13:

**Description:** Heritability computed in individuals present in both baseline and follow-up studies