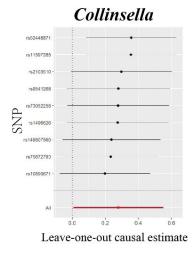
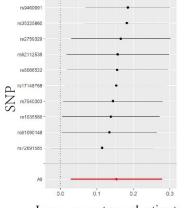
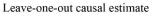
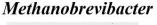
#### SUPPLEMENTARY FIGURES

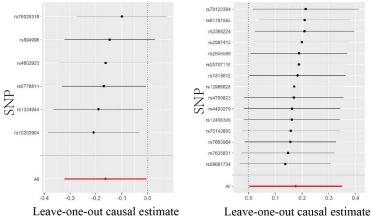




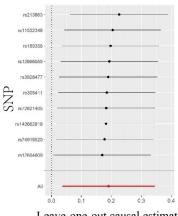






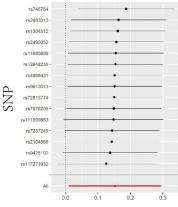


Coprobacter



Leave-one-out causal estimate

## Prevotella9



Leave-one-out causal estimate

Supplementary Figure 1. Leave-one-out plots for the causal association between gut microbiota and GDM in forward MR analyses.

**Oscillibacter** 

.

-0.2

Leave-one-out causal estimate

Lachnoclostridium

.

0.1

rs(939392)

rs12649930

rs36095275

rs16934185

rs61883564

4506202

rs133832

s75453768

rs11627628

rs234108

rs761240

rs6112314

rs1997204

rs78068103

rs1528479

rs789029

rs615997

rs12566975

rs62285313

rs3821998

rs1031599

rs72829893

82385421

s4738679

All

0.2

Leave-one-out causal estimate

Ruminococcus2

0.4

0.6

SNP

All

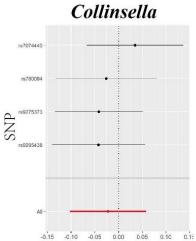
0.4

0.3

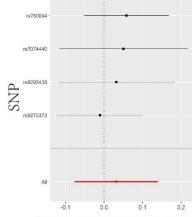
rs11990279

66406

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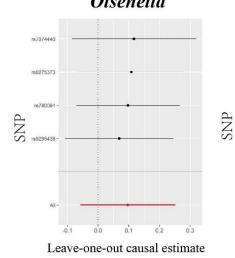
Leave-one-out causal estimate

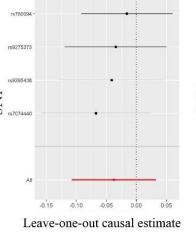


Oscillibacter

Leave-one-out causal estimate

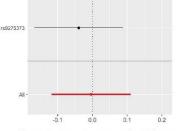
# Lachnoclostridium





Ruminococcus2

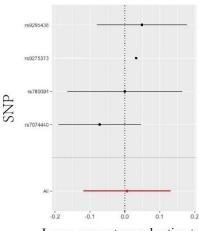
Coprobacter rs7074440 rs780094 =929543



SNP

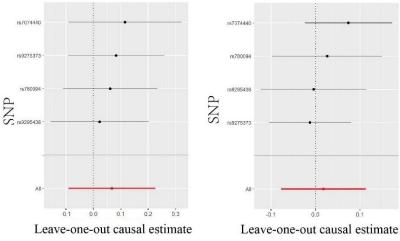
Leave-one-out causal estimate

## Prevotella9



Leave-one-out causal estimate

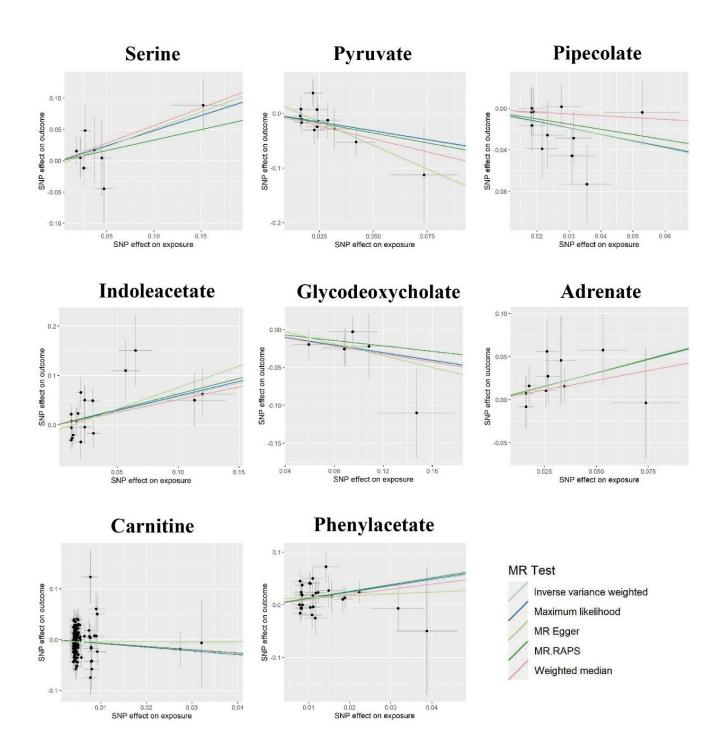
Methanobrevibacter



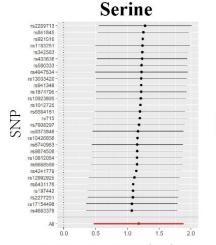
Supplementary Figure 2. Leave-one-out plots for the causal association between GDM and gut microbiota in reverse MR analyses.

0.1

-0.10 -0.05 0.00 0.05 Olsenella

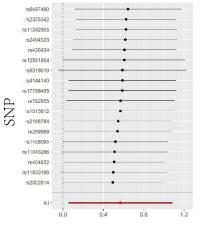


Supplementary Figure 3. Scatter plots for the causal association between gut microbiota-derived metabolites and GDM.



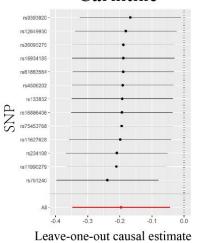
Leave-one-out causal estimate

#### Indoleacetate

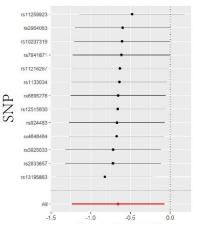


Leave-one-out causal estimate

Carnitine

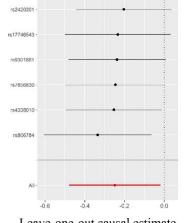


#### **Pyruvate**



Leave-one-out causal estimate

## Glycodeoxycholate



SNP

Adrenate

Leave-one-out causal estimate

-1.0

-0.5

**Pipecolate** 

rs9295427

rs4443239

rs11718405

rs12725284

rs4717457

rs7561932

rs3915237

re6407200

rs7871735

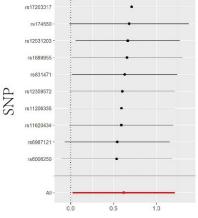
rs35421463

rs9460045

AI

1.5

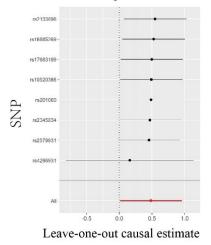
SNP



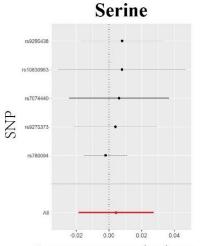
Leave-one-out causal estimate

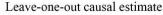
Leave-one-out causal estimate

#### Phenylacetate



Supplementary Figure 4. Leave-one-out plots for the causal association between gut microbiota-derived metabolites and GDM in forward MR analyses.







rs7800

rs9295438

rs9275373

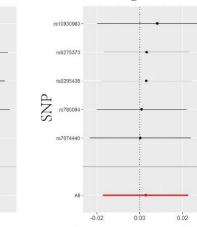
rs7074440

rs10830963

-0.10

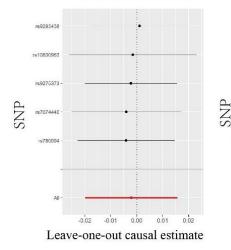
SNP

**Pipecolate** 

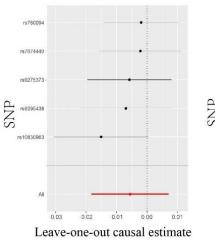


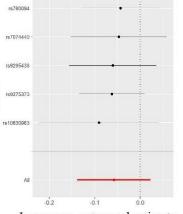
Leave-one-out causal estimate

Indoleacetate



Carnitine





-0.05

Leave-one-out causal estimate

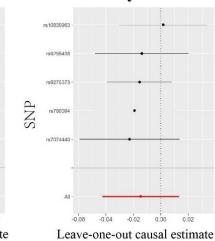
Glycodeoxycholate

0.00

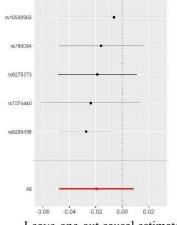
SNP

Leave-one-out causal estimate

Phenylacetate



Adrenate



Leave-one-out causal estimate

Supplementary Figure 5. Leave-one-out plots for the causal association between gut microbiota-derived metabolites and GDM in reverse MR analyses.