

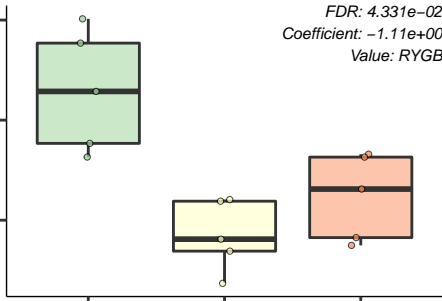
N-acetylaspartate (NAA)

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)

FDR:  $4.331e-02$   
Coefficient:  $-1.11e+00$   
Value: RYGB



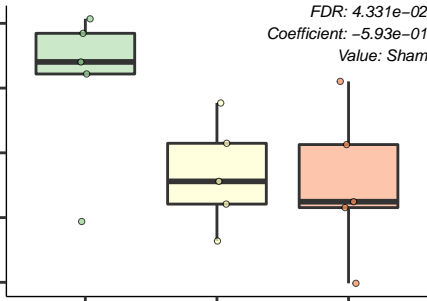
mannitol/sorbitol

*FDR: 4.331e-02*  
*Coefficient: -5.93e-01*  
*Value: Sham*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)



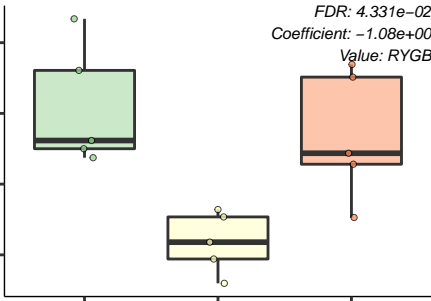
alpha-ketoglutarate

*FDR: 4.331e-02*  
*Coefficient: -1.08e+00*  
*Value: RYGB*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)



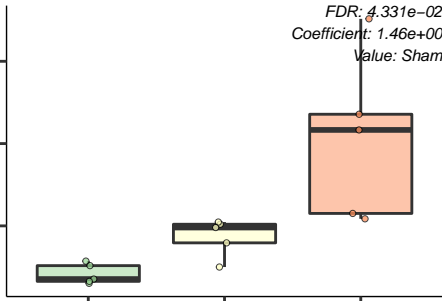
palmitoleate (16:1n7)

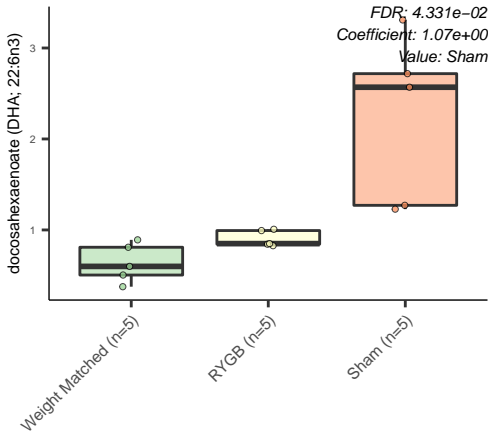
Weight Matched (n=5)

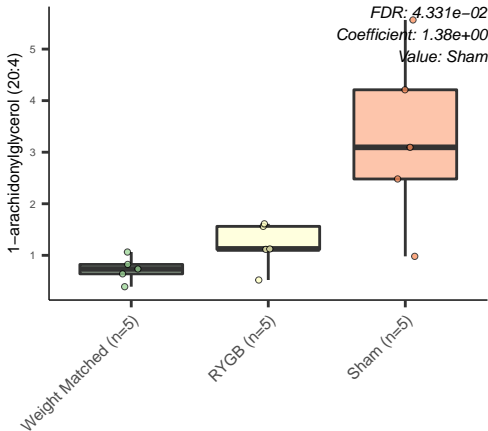
RYGB (n=5)

Sham (n=5)

*FDR: 4.331e-02*  
*Coefficient: 1.46e+00*  
*Value: Sham*







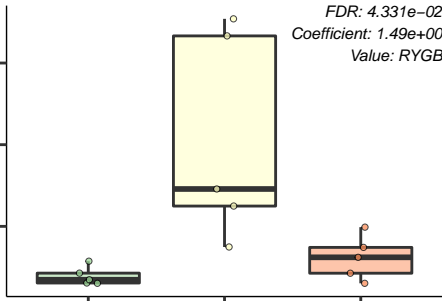
sphingosine

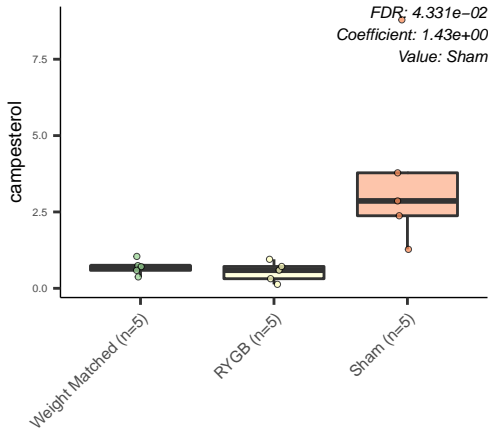
*FDR: 4.331e-02*  
*Coefficient: 1.49e+00*  
*Value: RYGB*

Weight Matched (n=5)

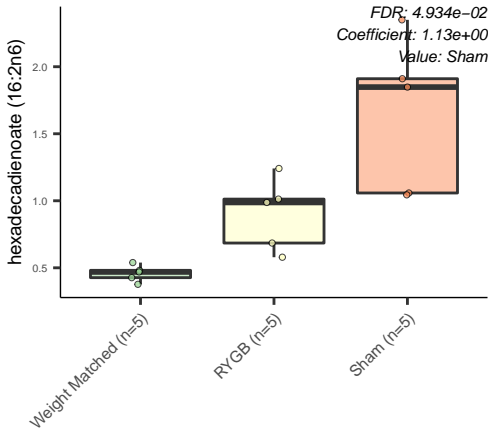
RYGB (n=5)

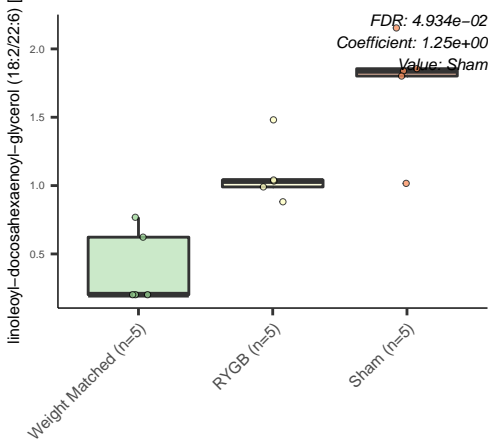
Sham (n=5)

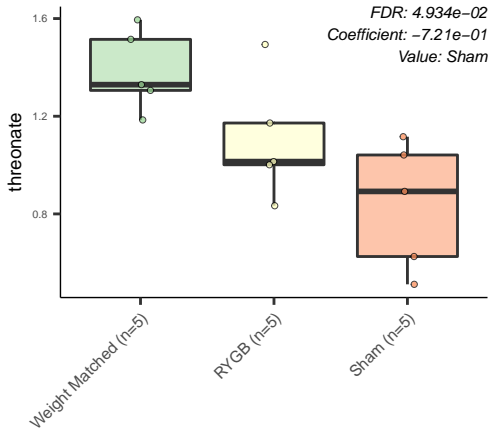












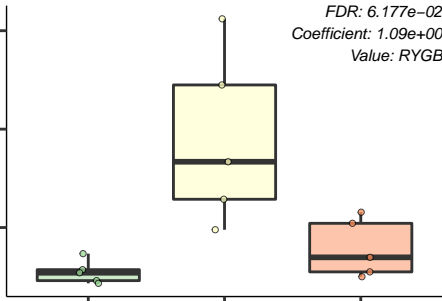
sphinganine

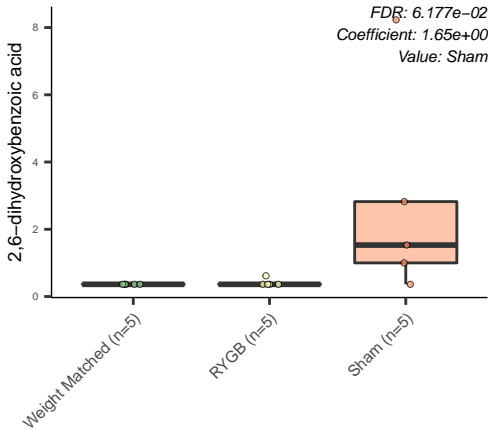
*FDR: 6.177e-02*  
*Coefficient: 1.09e+00*  
*Value: RYGB*

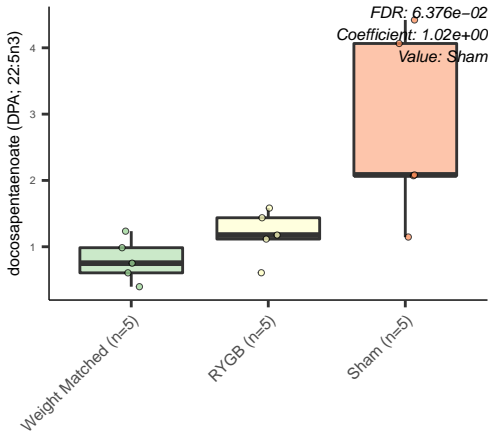
Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)







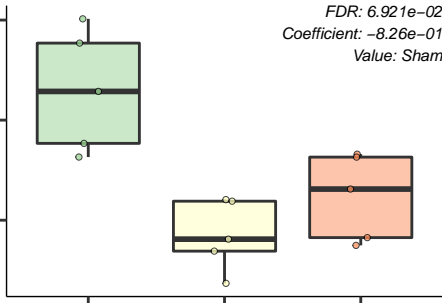
N-acetylaspartate (NAA)

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)

FDR:  $6.921e-02$   
Coefficient:  $-8.26e-01$   
Value: Sham



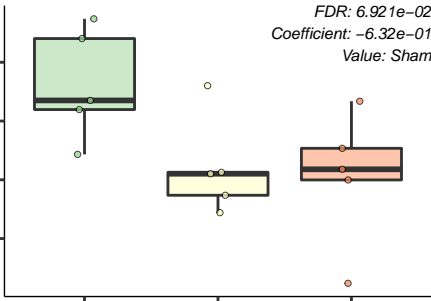
N-acetylproline

*FDR: 6.921e-02*  
*Coefficient: -6.32e-01*  
*Value: Sham*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)





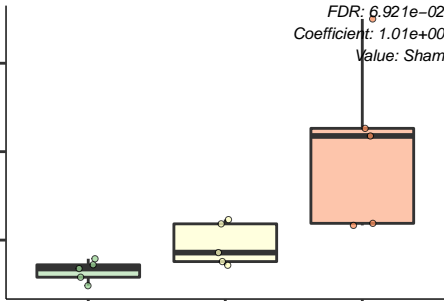
10-heptadecenoate (17:1n7)

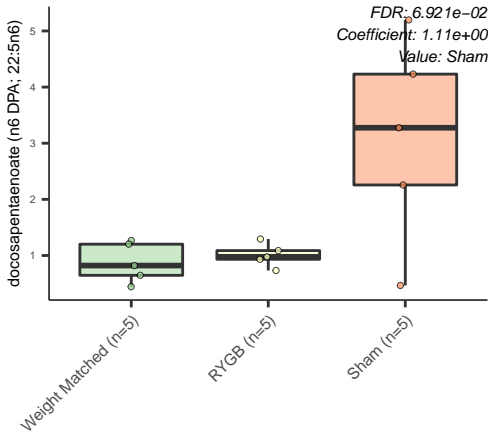
Weight Matched (n=5)

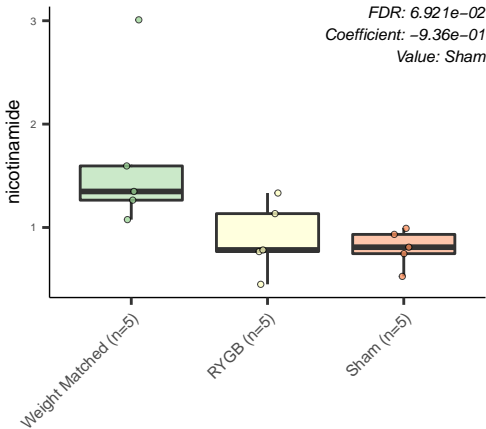
RYGB (n=5)

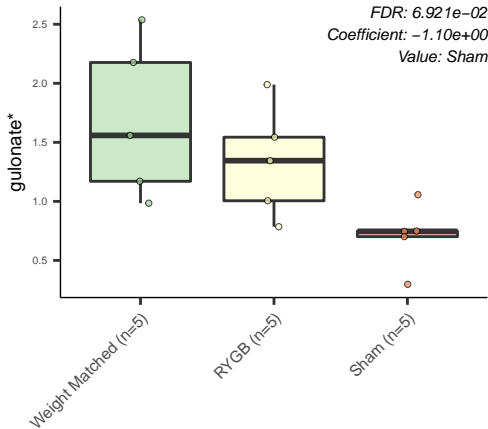
Sham (n=5)

FDR:  $6.921 \times 10^{-2}$   
Coefficient:  $1.01 \times 10^0$   
Value: Sham









stachydrine

*FDR: 6.921e-02*  
*Coefficient: 3.59e+00*  
*Value: Sham*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)

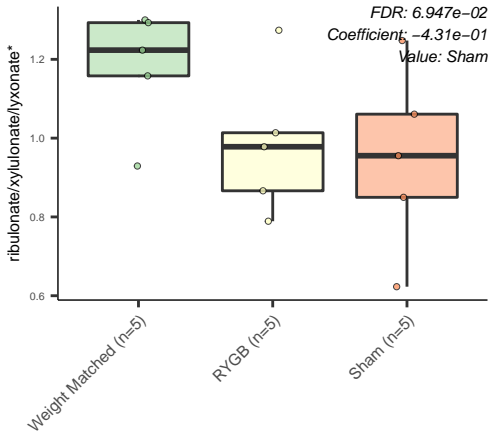
200

150

100

50

0



mannitol/sorbitol

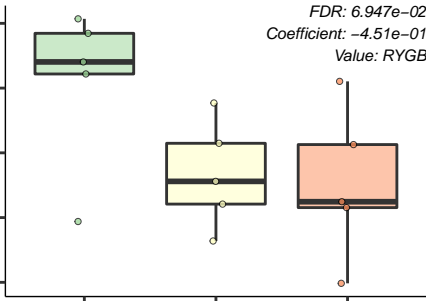
*FDR: 6.947e-02*  
*Coefficient: -4.51e-01*  
*Value: RYGB*

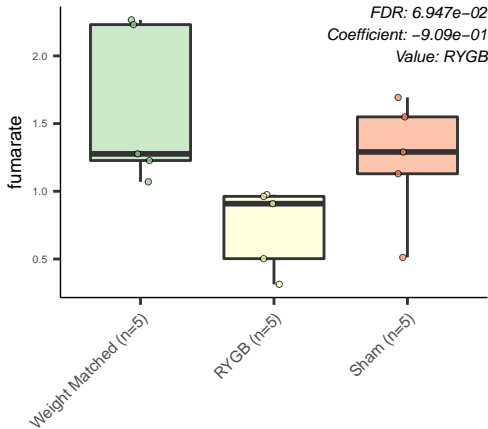
Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)

1.50  
1.25  
1.00  
0.75  
0.50







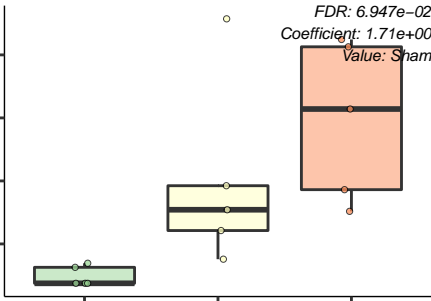
5-dodecenoate (12:1n7)

*FDR: 6.947e-02*  
*Coefficient: 1.71e+00*  
*Value: Sham*

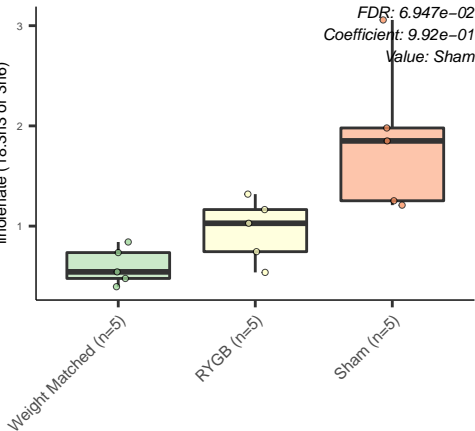
Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)



inolenate (18:3n3 or 3n6)



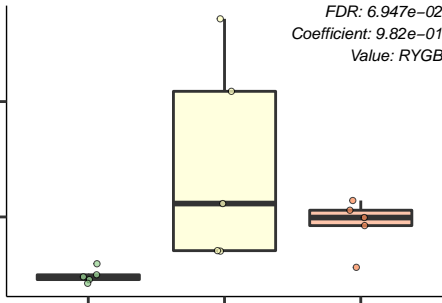
3-hydroxyadipate\*

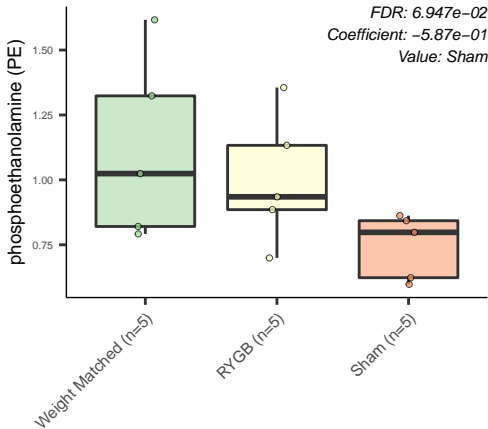
*FDR: 6.947e-02*  
*Coefficient: 9.82e-01*  
*Value: RYGB*

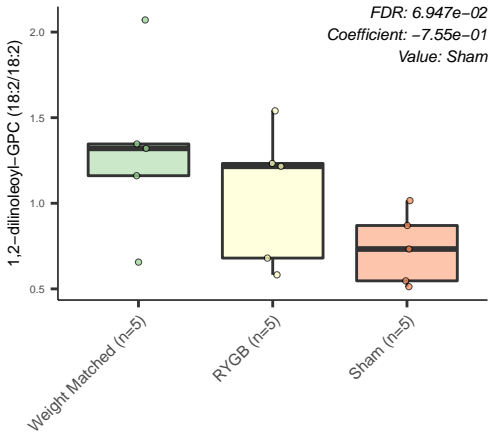
Weight Matched (n=5)

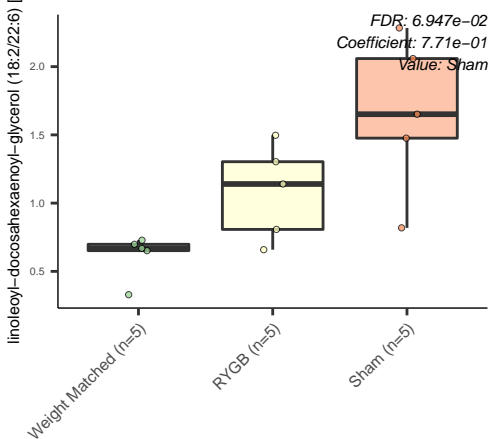
RYGB (n=5)

Sham (n=5)



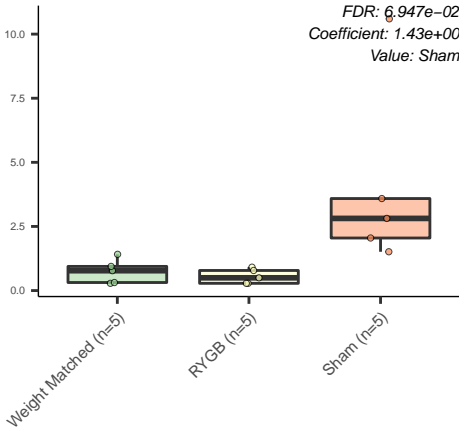






beta-sitosterol

FDR:  $6.947e-02$   
Coefficient:  $1.43e+00$   
Value: Sham



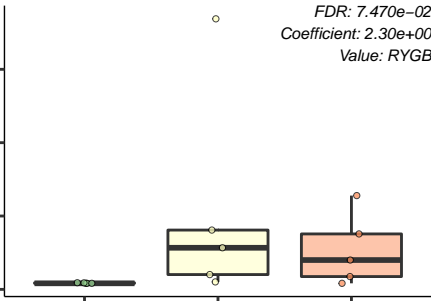
ophthalmate

*FDR: 7.470e-02*  
*Coefficient: 2.30e+00*  
*Value: RYGB*

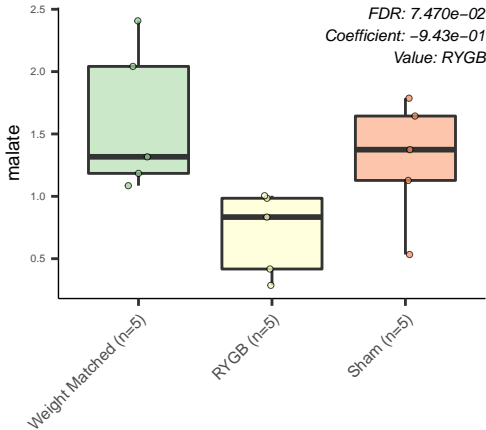
Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)







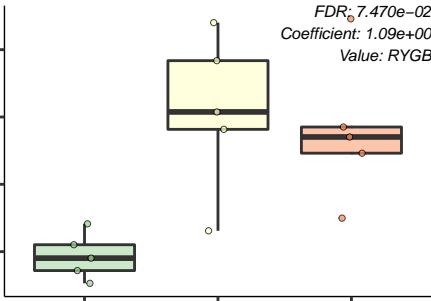
3-hydroxybutyrate (BHBA)

*FDR: 7.470e-02*  
*Coefficient: 1.09e+00*  
*Value: RYGB*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)



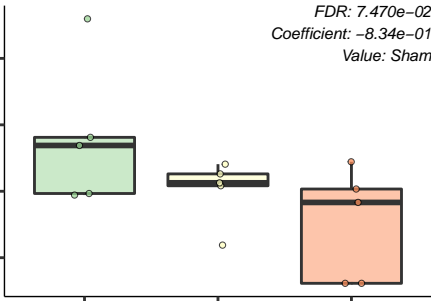
N1-methylinosine

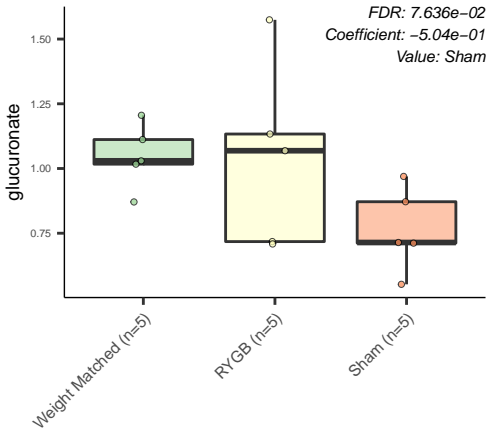
*FDR: 7.470e-02*  
*Coefficient: -8.34e-01*  
*Value: Sham*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)





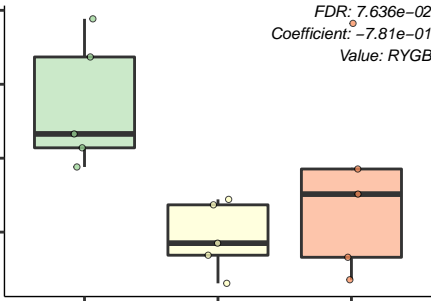
2-hydroxyglutarate

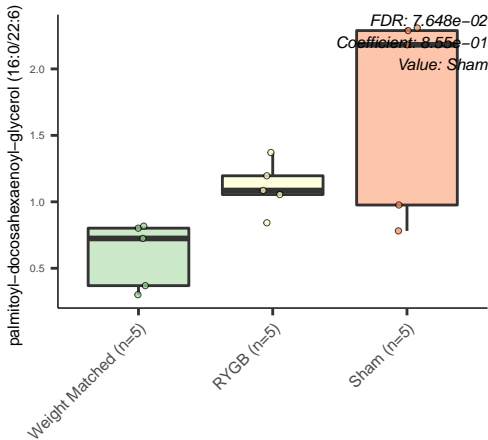
*FDR: 7.636e-02*  
*Coefficient: -7.81e-01*  
*Value: RYGB*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)





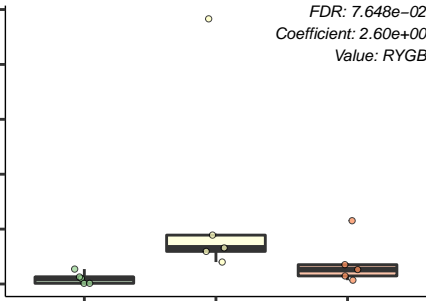
chenodeoxycholate

*FDR: 7.648e-02*  
*Coefficient: 2.60e+00*  
*Value: RYGB*

Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)



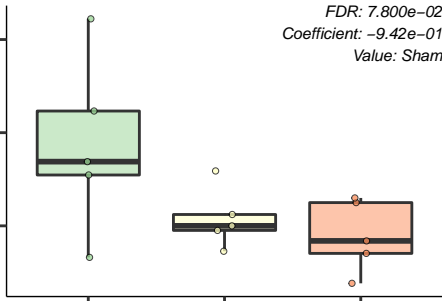
N-acetylmethionine

FDR:  $7.800e-02$   
Coefficient:  $-9.42e-01$   
Value: Sham

Weight Matched (n=5)

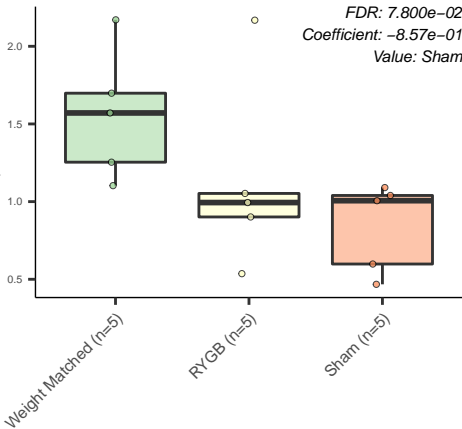
RYGB (n=5)

Sham (n=5)





cysteine



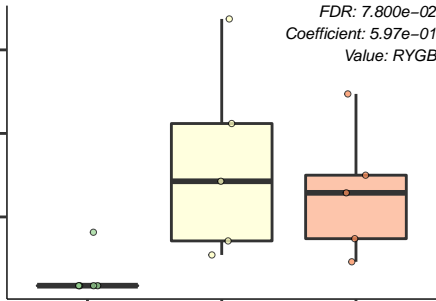
1-(1-enyl-palmitoyl)-2-oleoyl-GPE (P-16:0/18

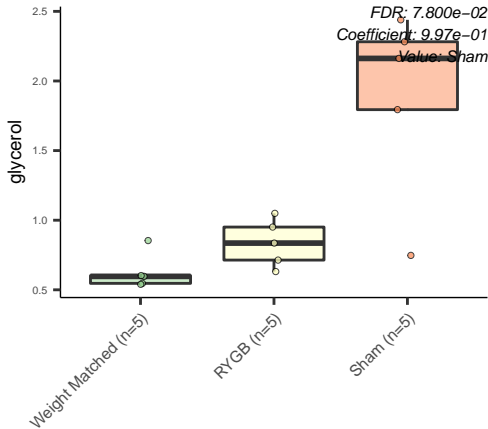
Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)

FDR: 7.800e-02  
Coefficient: 5.97e-01  
Value: RYGB





homostachydrine\*

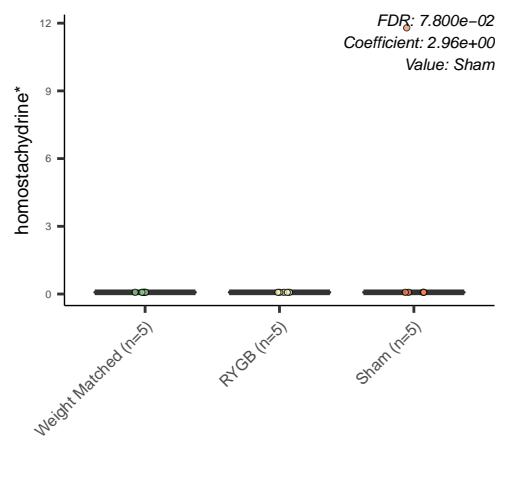
*FDR: 7.800e-02*  
*Coefficient: 2.96e+00*  
*Value: Sham*

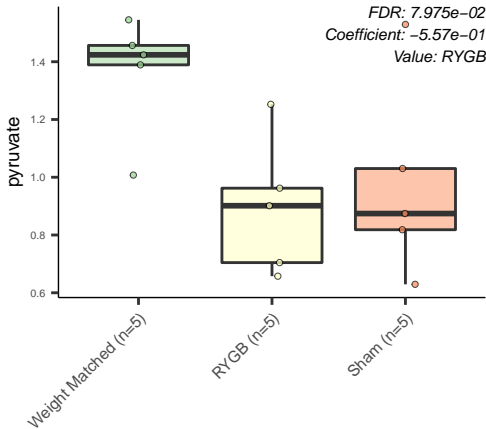
Weight Matched (n=5)

RYGB (n=5)

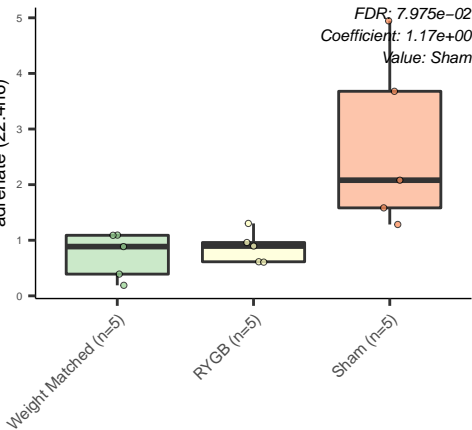
Sham (n=5)

12  
9  
6  
3  
0





adrenate (22:4n6)



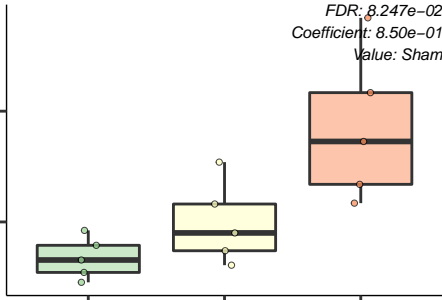
linoleate (18:2n6)

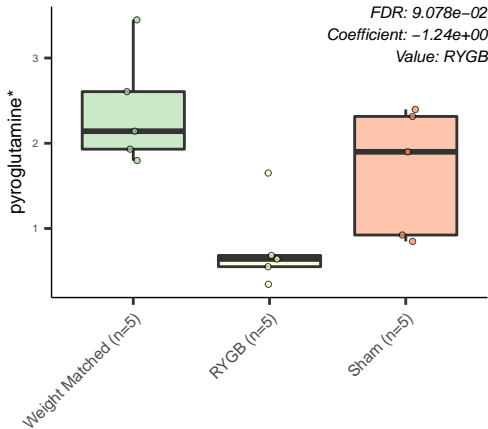
Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)

FDR:  $8.247 \times 10^{-2}$   
Coefficient:  $8.50 \times 10^{-1}$   
Value: Sham







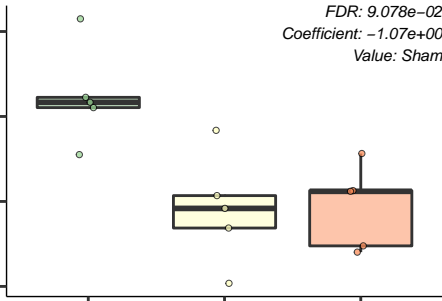
gamma-glutamylalanine

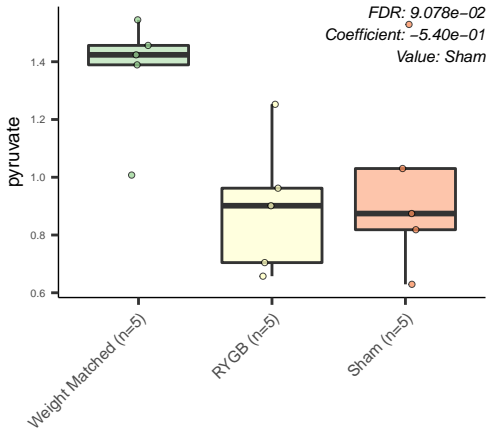
*FDR: 9.078e-02*  
*Coefficient: -1.07e+00*  
*Value: Sham*

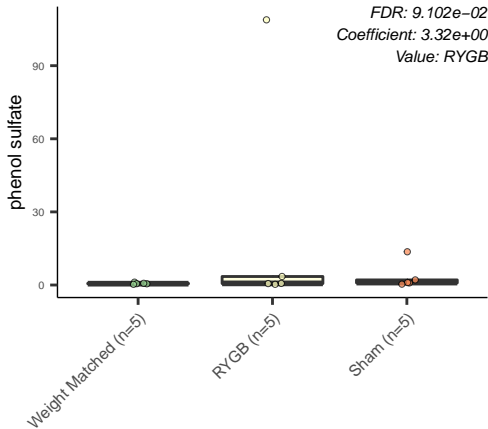
Weight Matched (n=5)

RYGB (n=5)

Sham (n=5)







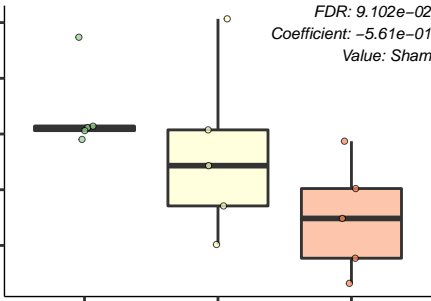
oxalate (ethanedioate)

Weight Matched (n=5)

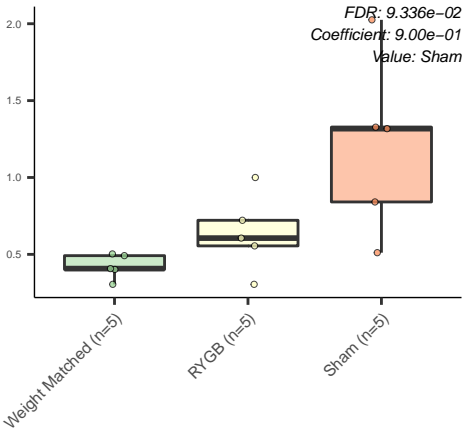
RYGB (n=5)

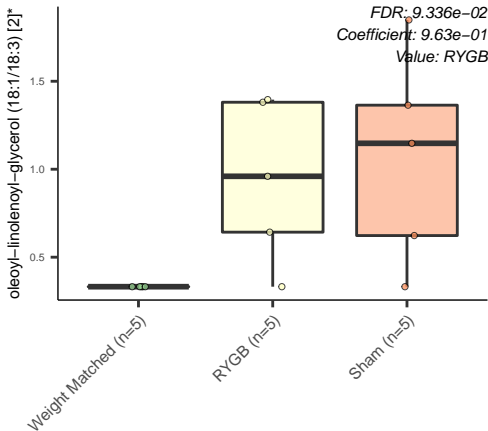
Sham (n=5)

*FDR: 9.102e-02*  
*Coefficient: -5.61e-01*  
*Value: Sham*



13-HODE + 9-HODE





taurocholate sulfate\*

