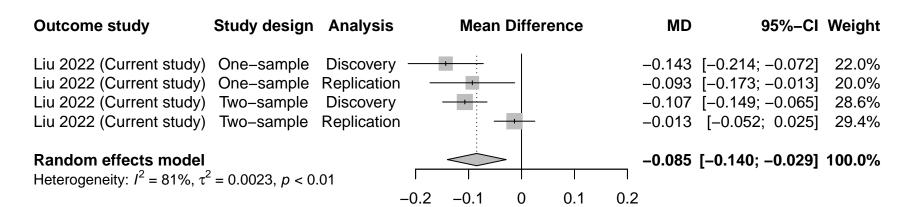
Alistipes (Genus) abundance (SD) on Triglycerides in Xiaomin Liu 2022

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Outcome study	Study design	Analysis	Mean Difference	MD	95%-CI Weight						
Liu 2022 (Current study Liu 2022 (Current study Liu 2022 (Current study Liu 2022 (Current study Ishigaki 2020	One-sample Two-sample	Discovery Replication		-0.293 [-0.4 -0.238 [-0.4 -0.150 [-0.4 -0.094 [-0.4 -0.024 [-0.4]	365; -0.110] 16.7% 225; -0.076] 20.8% 169; -0.020] 20.8%						
Random effects model Heterogeneity: $I^2 = 89\%$, n		01	-0.2 0 0.2	-0.150 [-0.2	245; –0.055] 100.0%						

Alistipes (Genus) abundance (SD) on VB5 in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean Diffe	erence	MD	95%-CI	Weight
Liu 2022 (Current study)	One-sample	Discovery				[-0.364; -0.165]	22.1%
Liu 2022 (Current study)	One-sample	Replication	 		-0.090	[-0.186; 0.007]	22.6%
Liu 2022 (Current study)	Two-sample	Discovery	_		-0.179	[-0.247; -0.110]	26.7%
Liu 2022 (Current study)	Two-sample	Replication			-0.086	[-0.141; -0.031]	28.6%
Random effects model					-0.151	[-0.232; -0.070]	100.0%
Heterogeneity: $I^2 = 75\%$, τ^2	$p^2 = 0.0052, p < 0$.01					
-	•		-0.3 -0.1 0	0.1 0.2 0.3			

Faecalibacterium prausnitzii (Species) abundance (SD) on Selenium in Xiaomin Liu 2022



raceae bacterium 9_1_43BFAA (unc. Species in Family) abundance (SD) on Uric acid in Xiaomi **Outcome study** Study design Analysis Mean Difference MD 95%-CI Weight



Random effects model

Heterogeneity: $I^2 = 90\%$, $\tau^2 = 0.0096$, $\rho < 0.01$

-0.1 0 0.1 0.2 0.3 -0.3

0.111 [0.018; 0.203] 100.0%

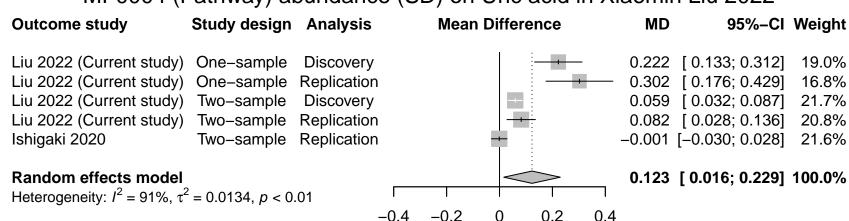
MF0004 (Pathway) abundance (SD) on Alanine in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean D	ifference	MD	95%-CI	Weight
Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery		-	- 0.187 0.104	[0.078; 0.233] [0.088; 0.286] [0.073; 0.135] [0.033; 0.130]	13.0% 39.1%
Random effects model Heterogeneity: $I^2 = 41\%$, τ^2	$p^2 = 0.0009, p = 0.0009$	16	-0.2 -0.1	0 0.1 0.2	0.118	[0.076; 0.159]	100.0%

MF0004 (Pathway) abundance (SD) on Progesterone in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean Difference	MD	95%-CI Weight
Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery	·	-0.199 [-0 -0.204 [-0 -0.122 [-0 -0.072 [-0	303; -0.106] 18.0% 150; -0.095] 31.6%
Random effects model Heterogeneity: $I^2 = 73\%$, τ			0.3 -0.2 -0.1 0 0.1	-0.139 [-0.2 0.2 0.3	200; -0.078] 100.0%

MF0004 (Pathway) abundance (SD) on Uric acid in Xiaomin Liu 2022



MF0010 (Pathway) abundance (SD) on Alanine in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean D	ifference	MD	95%-CI	Weight
Liu 2022 (Current study Liu 2022 (Current study Liu 2022 (Current study Liu 2022 (Current study	One-sample Two-sample	Replication Discovery			0.196 0.123	[0.123; 0.307] [0.096; 0.296] [0.066; 0.180] [0.054; 0.165]	
Random effects mode Heterogeneity: $I^2 = 43\%$,).3 –0.2 –0.1	0 0.1 0.2 0	0.148 .3	[0.099; 0.198]	100.0%

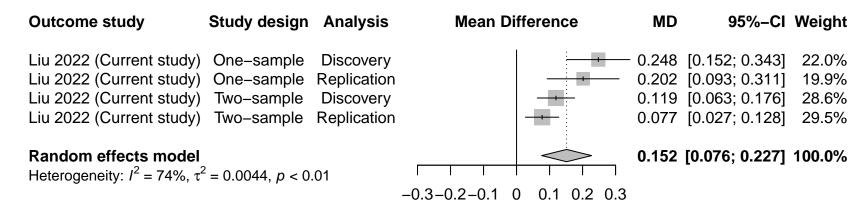
MF0010 (Pathway) abundance (SD) on Progesterone in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean Diff	erence	MD	95%-CI	Weight
Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery			-0.119 -0.115	[-0.370; -0.185] [-0.219; -0.019] [-0.166; -0.064] [-0.086; 0.014]	22.4% 27.2%
Random effects model Heterogeneity: $I^2 = 86\%$, τ^2		.01	-0.3 -0.1 0	0.1 0.2 0.3	-0.132	[-0.230; -0.034]	100.0%

MF0048 (Pathway) abundance (SD) on Glutamic acid in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean Difference	MD	95%-CI	Weight
Liu 2022 (Current study Liu 2022 (Current study Liu 2022 (Current study Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery		0.092 0.131	[0.133; 0.305] [-0.001; 0.185] [0.077; 0.185] [-0.041; 0.060]	23.2% 22.4% 27.0% 27.4%
Random effects model Heterogeneity: $I^2 = 86\%$, 1			0.3 -0.2 -0.1 0 0.1 0.2 0	0.109	[0.024; 0.195]	100.0%

MF0049 (Pathway) abundance (SD) on Glutamic acid in Xiaomin Liu 2022



Mobiluncus (Genus) abundance (SD) on Alanine in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean Difference	MD	95%-CI Weight
Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery		-0.213 -0.131	[-0.214; -0.053] 21.8% [-0.303; -0.124] 19.8% [-0.182; -0.081] 29.0% [-0.112; -0.014] 29.3%
Random effects model Heterogeneity: $I^2 = 68\%$, τ			0.3 -0.2 -0.1 0 0.1	-0.128 0.2 0.3	[-0.187; -0.069] 100.0%

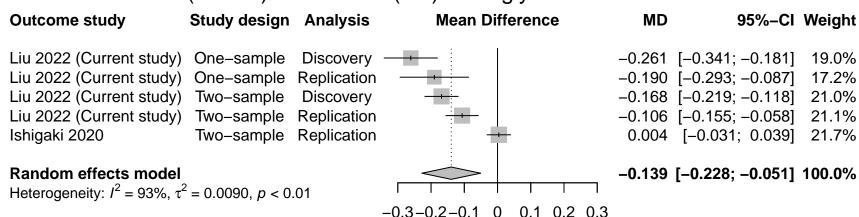
Mobiluncus curtisii (Species) abundance (SD) on Alanine in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean	Difference	MD	95%-CI	Weight
Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery	-	+	-0.071	[-0.160; -0.048]	17.6% 30.3%
Random effects model Heterogeneity: $I^2 = 60\%$, τ^2	$p^2 = 0.0013, p = 0.$	06	-0.1	0 0.1	-0.070	[-0.120; -0.020]	100.0%

Oscillibacter (Genus) abundance (SD) on Alanine in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean D	Difference	MD	95%-CI	Weight
Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery	-		-0.126 -0.108	-0.188; -0.048] -0.207; -0.046] -0.154; -0.063] [-0.047; 0.025]	27.9%
Random effects model Heterogeneity: $I^2 = 82\%$, τ		.01	0.2 -0.1	0 0.1	-0.085 [-0.140; -0.029]	100.0%

Oscillibacter (Genus) abundance (SD) on Triglycerides in Xiaomin Liu 2022



Pseudomonadales (Order) abundance (SD) on 5-methyltetrahydrofolic acid in Xiaomin Liu 2022

Moan Difference

-0.2 -0.1 0 0.1 0.2

MD

95% CI Woight

Study docion Analysis

Outcome study

Outcome study	Study design	Allalysis	wean Difference	IVID	95%-Ci weight
Liu 2022 (Current study)	One-sample	Discovery	-	-0.186 [-0.2	272; –0.100] 15.4%
Liu 2022 (Current study)	One-sample	Replication		-0.106 [-0.	197; –0.016] 13.9%
Liu 2022 (Current study)	Two-sample	Discovery	- i	-0.126 [- 0.	184; -0.068] 33.4%
Liu 2022 (Current study)	Two-sample	Replication	-	-0.098 [-0.	153; -0.043] 37.4%
Random effects model				-0.122 [-0.1	155; -0.088] 100.0%
Heterogeneity: $I^2 = 1\%$, $\tau^2 =$	= 0, p = 0.39				

Salmonella (Genus) abundance (SD) on 5-methyltetrahydrofolic acid in Xiaomin Liu 2022

Outcome study	Study design	Analysis	Mean Differe	ence MD	95%-CI	Weight
Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study) Liu 2022 (Current study)	One-sample Two-sample	Replication Discovery	-	-0.130 -0.140	[-0.301; -0.091] [-0.243; -0.017] [-0.215; -0.066] [-0.199; -0.045]	15.1% 35.0%
Random effects model Heterogeneity: $I^2 = 0\%$, τ^2		_(3-02-01-0	-0.143	[-0.187; -0.099]	100.0%

Streptococcus parasanguinis (Species) abundance (SD) on Strontium in Xiaomin Liu 2022

