

**Table S1:** Correlation analysis of the carnitine-related metabolites in all participants

Model 1	Carnitine	$\gamma$ BB	TMAO	TML
Carnitine	-	0.38**	0.13*	0.23**
$\gamma$ BB	0.38**	-	0.29**	0.33**
TMAO	0.13*	0.29**	-	0.50**
Age	0.02	0.14**	0.08	0.23**
BMI	0.17**	0.02	0.13*	0.10

Pearson's r is indicated in the table. \*  $p < 0.05$ , \*\*  $p < 0.001$ . For this analysis, Pearson's correlation was applied after the log transformation of blood levels of carnitine and the metabolites.