

# **SUPPLEMENTAL MATERIAL**

**Table S1. Safety parameters in obese metabolic syndrome subjects before and after FMT.**

	Autologous FMT t=0	Autologous FMT t=2w	P- value	Vegan donor FMT t=0	Vegan donor FMT t=2w	P- value
Hemoglobin (mmol/l)	9.6 ± 0.4	9.2 ± 0.5	0.01	9.5 ± 0.6	9.6 ± 0.6	0.54
Thrombocytes (*10 <sup>9</sup> /l)	229.1 ± 20.8	239.1 ± 39.2	0.23	239.9 ± 48.3	243.2 ± 56.9	0.71
Leucocytes (*10 <sup>9</sup> /l)	6.3 ± 1.2	6.0 ± 0.8	0.28	5.6 ± 1.2	5.6 ± 0.9	0.87
CRP (mg/ml)	1.9 [1.2 – 4.5]	3.6 [1.2 – 5.1]	0.59	1.5 [0.8 – 4.3]	2.2 [1.0 – 5.8]	0.51
Creatinine (umol/l)	80.4 ± 13.1	81.4 ± 14.0	0.57	85.7 ± 10.7	85.0 ± 9.0	0.61
Bilirubin (iU/l)	10.0 ± 4.5	10.1 ± 3.3	0.87	9.3 ± 2.1	9.5 ± 3.0	0.74
ALT (iU/l)	37.2 ± 12.9	29.4 ± 8.4	0.01	35.1 ± 8.4	34.9 ± 13.3	0.93
AST (iU/l)	30.2 ± 11.6	24.1 ± 5.2	0.14	26.7 ± 5.4	26.4 ± 12.9	0.92
AP (iU/l)	74.8 ± 18.2	71.0 ± 16.5	0.13	71.1 ± 17.1	58.9 ± 26.7	0.19
γGT (iU/l)	44.2 ± 26.5	33.7 ± 13.7	0.08	49.8 ± 26.0	46.9 ± 34.9	0.62
Glucose (mmol/l)	6.18 ± 0.9	6.0 ± 0.6	0.61	5.8 ± 0.5	5.9 ± 0.6	0.62
Insulin (miU/l)	107.7 ± 45.5	121.0 ± 76.5	0.38	146.0 ± 63.7	140.7 ± 64.8	0.78
HbA1C (mmol/mol)	38.7 ± 3.6	38.3 ± 3.9	0.22	36.9 ± 5.1	37.4 ± 3.5	0.48
Total cholesterol (mmol/l)	5.3 ± 0.8	5.0 ± 0.7	0.04	5.3 ± 0.9	5.3 ± 0.9	0.94
LDL-c (mmol/l)	3.1 ± 1.3	3.2 ± 0.5	0.68	3.5 ± 0.7	3.5 ± 0.8	0.85
HDL-c (mmol/l)	1.2 ± 0.2	1.2 ± 0.2	0.78	1.1 ± 0.2	1.2 ± 0.2	0.47
Triglycerides (mmol/l)	1.3 [1.1 – 1.6]	1.0 [0.7 – 1.5]	0.005	1.3 [1.0 – 1.6]	1.3 [1.0 – 2.2]	0.92

Data are depicted as means + SDs or medians + IQRs, based on their distribution. A p-value < 0.05

was considered significant. ALT = alanine transaminase; AP = alkaline phosphatase; AST = aspartate transaminase; CRP = c-reactive protein; FMT = fecal microbiota transplantation; γGT = gamma-glutamyltransferase; HbA1c = glycated hemoglobin; HDL-c = high-density lipoprotein cholesterol; IQR = interquartile range; LDL-c = low-density lipoprotein cholesterol; SD = standard deviation

**Table S2. Daily nutritional intake in lean vegan donors and obese metabolic syndrome subjects.**

	Metabolic syndrome patients All (n=19)	Vegan donors (n=8)	P-value
Calories (kcal/day)	2038.7 ± 381.9	2068.3 ± 264.6	0.86
Fat (g/day)	76.1 ± 16.3	72.8 ± 17.7	0.75
Carbohydrates (g/day)	203.9 ± 70.0	245.0 ± 46.5	0.20
Protein (g/day)	84.7 ± 16.5	69.2 ± 5.5	0.09
Fiber (g/day)	18.0 ± 4.2	43.4 ± 19.2	<0.001

Shown is daily dietary intake, divided in 5 food constituents, as calculated from a 7-day dietary record.

Data are depicted as means + SDs. A p-value < 0.05 was considered significant

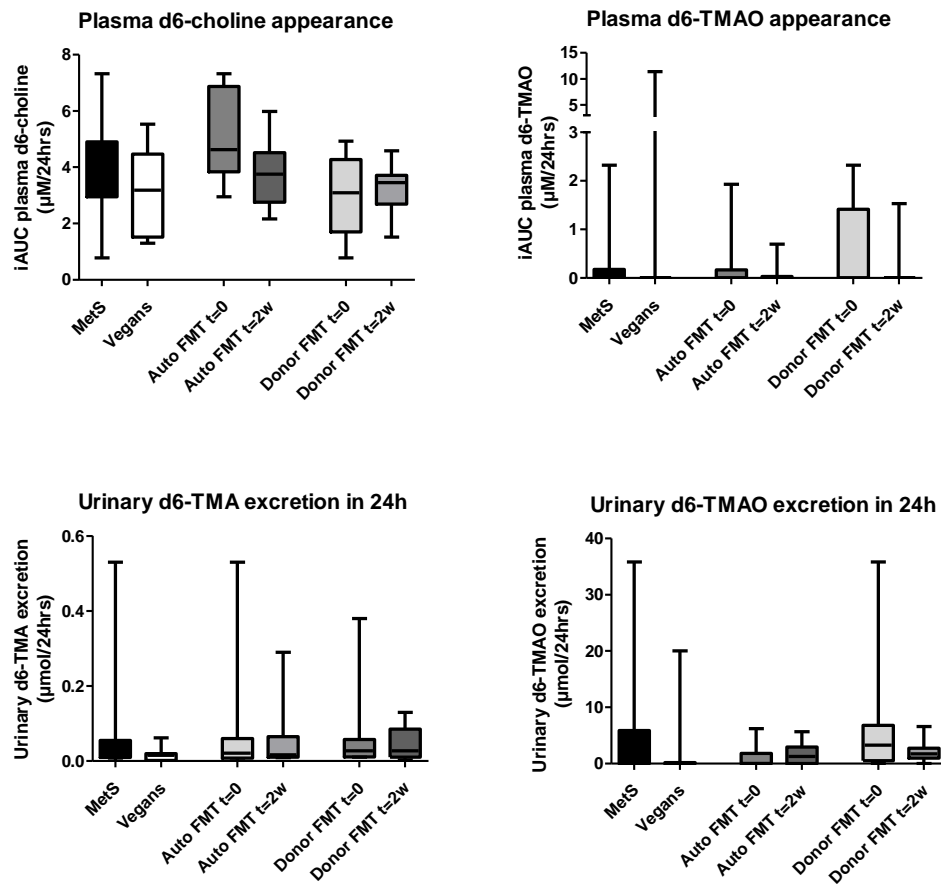
**Table S3. Daily nutritional intake of obese metabolic syndrome subjects before and after FMT.**

	Autologous FMT t=0	Autologous FMT t=2w	P-value	Vegan donor FMT t=0	Vegan donor FMT t=2w	P-value
Calories (kcal/day)	1951.6 ± 379.8	1728.7 ± 289.8	0.13	2010.4 ± 343.2	2128.6 ± 499.1	0.33
Fat (g/day)	72.7 ± 13.7	59.2 ± 7.6	0.13	75.5 ± 17.1	74.3 ± 18.2	0.86
Carbohydrates (g/day)	178.3 ± 56.1	184.9 ± 65.3	0.53	209.7 ± 71.4	218.8 ± 94.6	0.51
Protein (g/day)	89.2 ± 19.4	76.8 ± 12.7	0.11	78.2 ± 9.4	82.1 ± 13.1	0.32
Fiber (g/day)	17.4 ±5.9	18.1 ± 4.6	0.51	17.8 ± 3.2	17.1 ± 4.3	0.56

Shown is daily dietary intake, divided in 5 food constituents, as calculated from a 7-day dietary record.

Data represent dietary recording of metabolic syndrome subjects, in the autologous and vegan FMT group, both before and after treatment. Data are depicted as means + SDs. A p-value < 0.05 was considered significant. FMT = fecal microbiota transplantation

**Figure S1. D6-choline plasma and urine metabolites.**



Graphs showing the 24-hour appearance of d6-choline in plasma (A), the 24-hour appearance of d6-TMAO (from d6-choline) in plasma (B) and the total urinary excretion of d6-TMAO and d6-TMA in the 24 hours following oral ingestion of 250mg d6-labeled choline (C-D). Data are depicted as box-and-whisker plots. No significant differences were found. Auto FMT = autologous fecal microbiota transplantation; Donor FMT = lean vegan donor fecal microbiota transplantation; iAUC = incremental area under the curve; MetS = obese omnivorous metabolic syndrome patients; TMA = trimethylamine; TMAO = trimethylamine-N-oxide; Vegans = lean vegan FMT donors

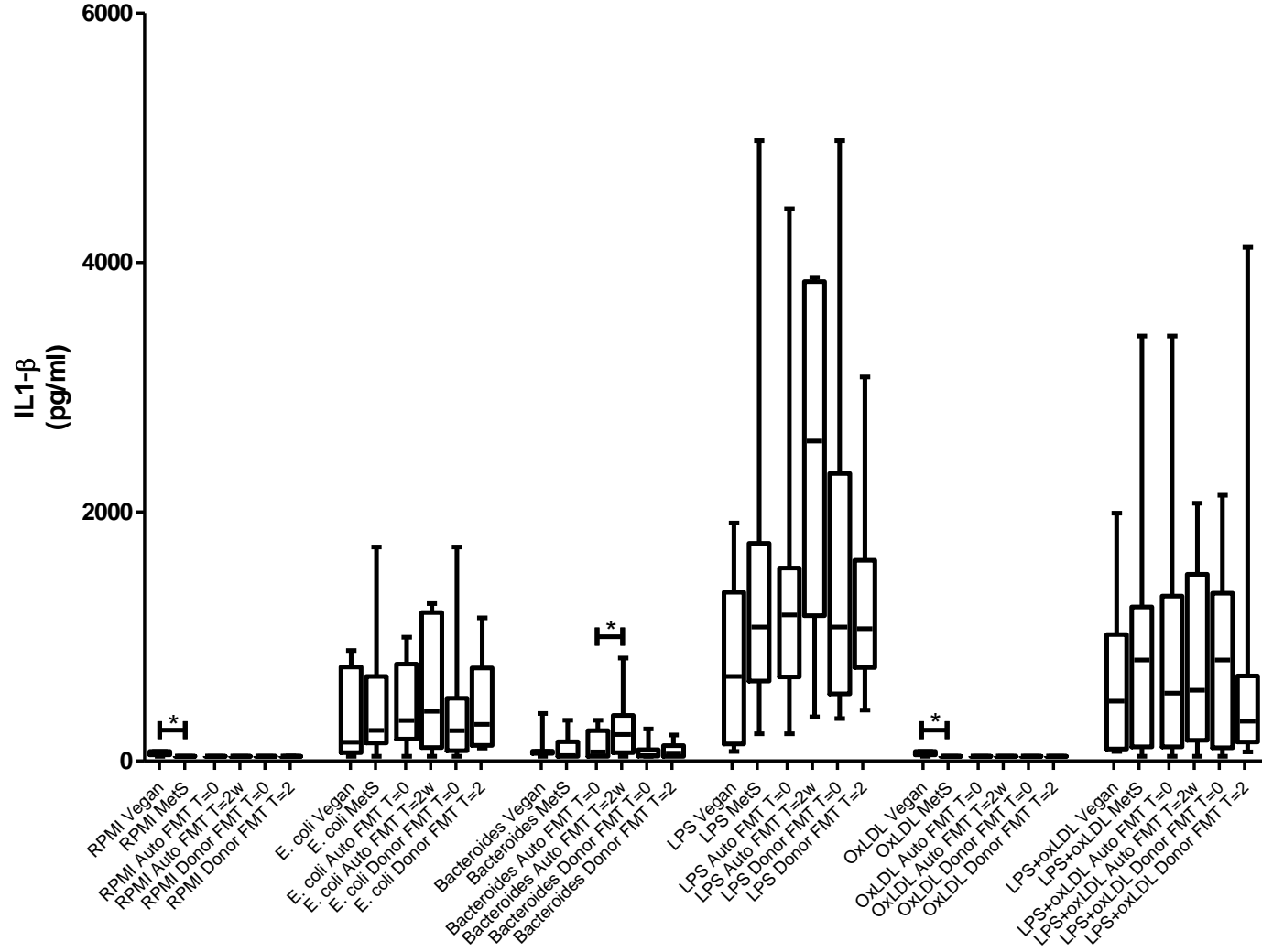
**Figure S2A-D. Monocyte cytokine production after lean vegan donor or autologous FMT.**

Depicted is the ex vivo monocyte production of 4 different cytokines (A: IL1- $\beta$ ; B: IL6; C: IL10; D: TNF- $\alpha$ ), after in total 6 stimuli of which RPMI served as the control stimulus. Data are depicted as box-and-whisker plots. A p-value < 0.05 was considered significant and is marked with an asterisk.

Auto = autologous fecal microbiota transplantation; Allo = lean vegan donor fecal microbiota transplantation; e. coli = Escherichia coli; IL = interleukin; LPS = lipopolysaccharide; oxLDL = oxidized low-density lipoprotein; RPMI = Roswell Park Memorial Institute medium; TNF $\alpha$  = tumor-necrosis factor  $\alpha$

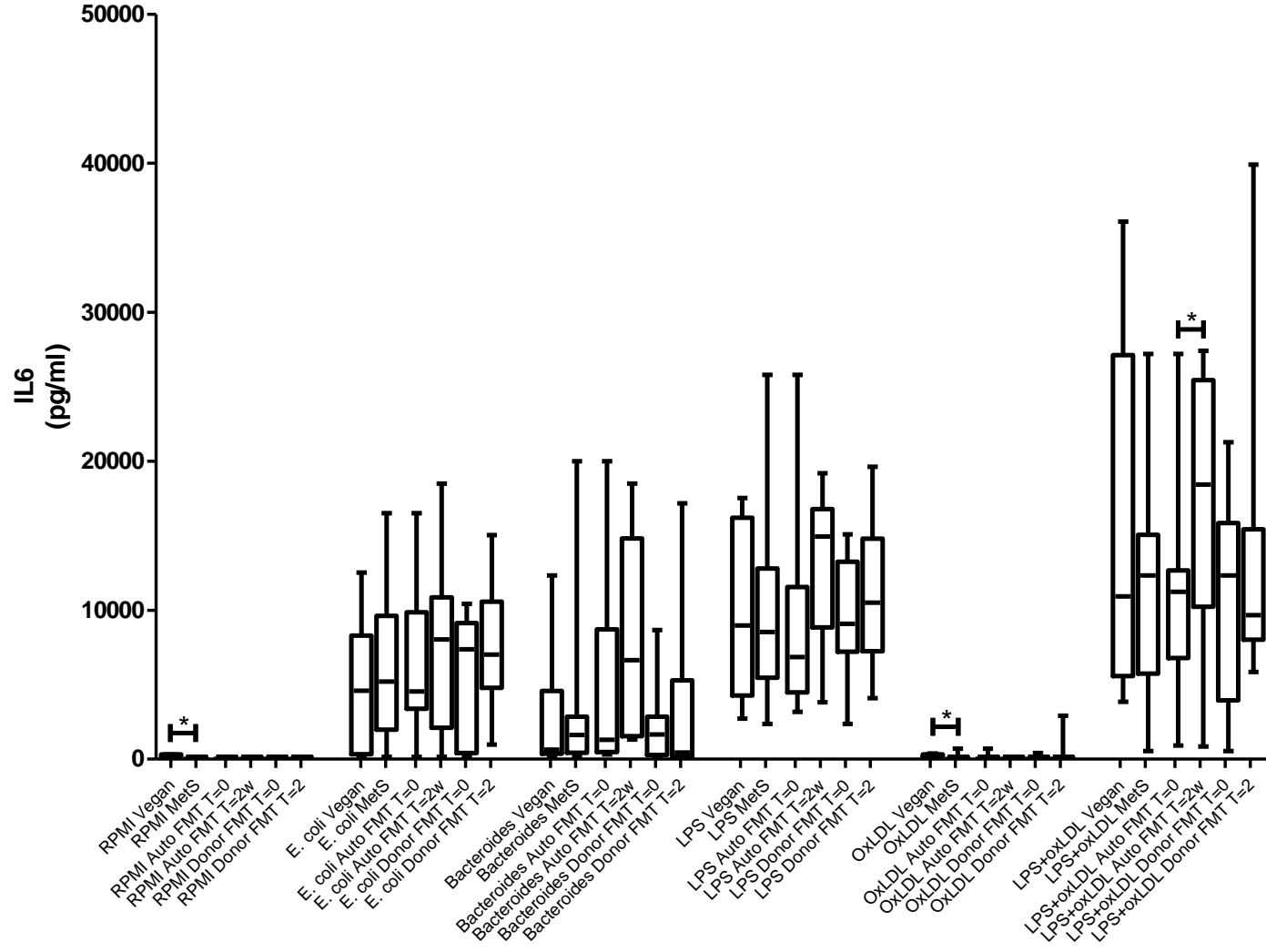
A.

IL1- $\beta$



B.

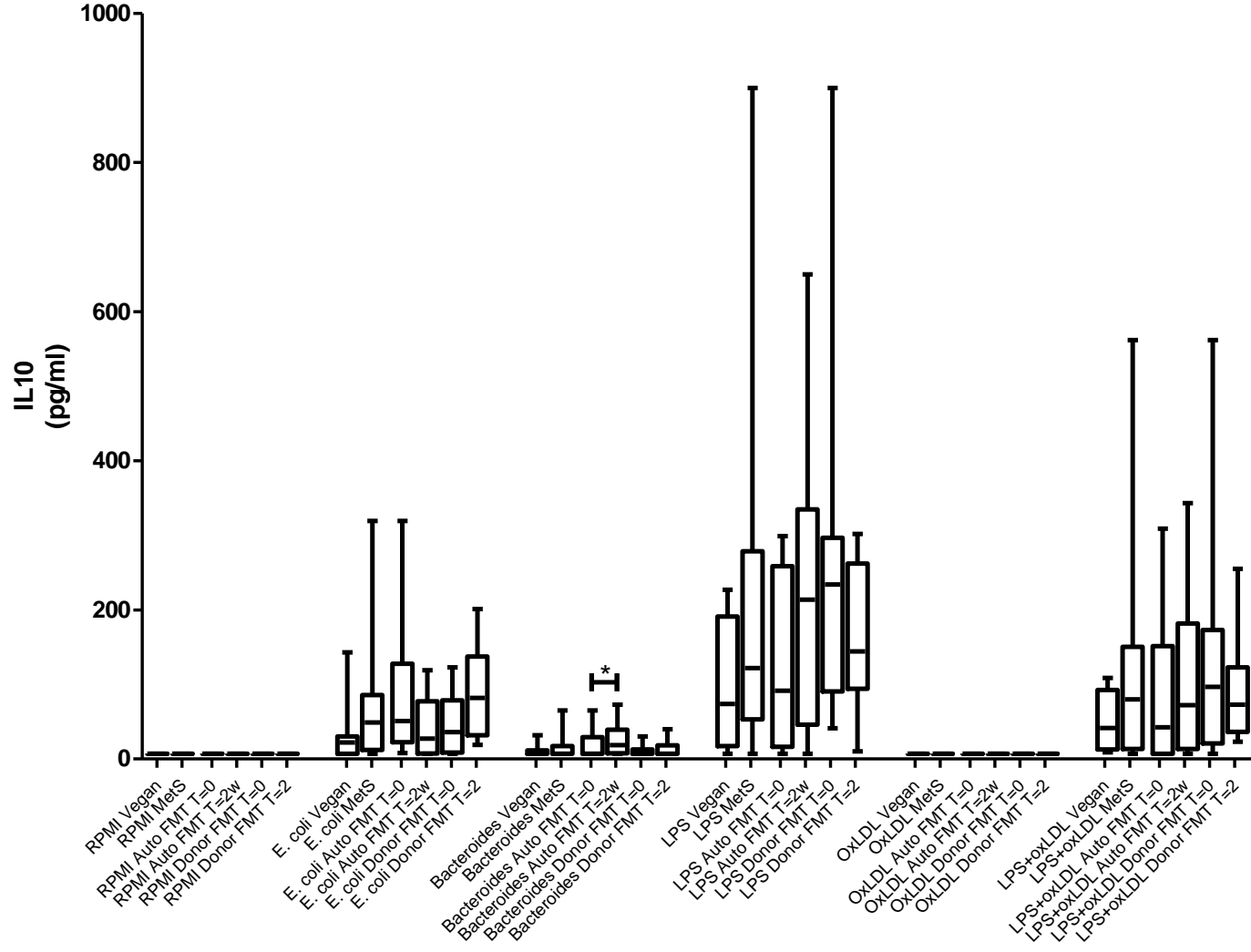
IL6





C.

IL10



D.

TNF- $\alpha$

