

Table S1. Immune functions [Natural killer (NK) anti-tumor cytotoxic activity, lymphoproliferative response to the mitogens lypopolicchararide (LPS) and concanavalin A (ConA), phagocytic index (PI) and phagocytic efficacy (PE)], and oxidative stress parameters [oxidized glutathione (GSSG)/reduced glutathione (GSH) ratio and glutathione reductase (GR) and glutathione peroxidase (GPx) activities] values (mean and SEM) of the female (F) and male (M) mice at the start of the study (age 8 weeks) and after two weeks of carrageenan intake (CGN10w) or PBS in the controls (C10w).

Function	FC8w	FC10w	FCGN10w	MC8w	MC10w	MCGN10w
NK (%)	51.79 (3.48)	45.16 (2.90)	35.72 (1.65)	42.84 (2.45)	45.14 (2.87)	35.70 (3.92)
LPS (%)	104.40 (3.65)	107.18 (3.39)	101.29 (2.68)	104.11 (3.46)	108.21 (3.16)	89.75 (6.11)
ConA (%)	102.43 (3.12)	114.99 (2.60)	104.70 (1.22)	105.25 (3.33)	118.38 (2.84)	94.67 (3.02)
PI	ND	576.12 (33.94)	340.67 (43.88)	ND	579.14 (59.29)	390.37 (26.27)
PF	ND	83.75 (1.00)	76.62 (1.29)	ND	84.25 (0.84)	78.86 (1.03)
GSSG/GSH	ND	0.06 (0.02)	0.36 (0.14)	ND	0.25 (0.11)	0.38 (0.18)
GR	ND	9.25 (2.44)	1.94 (0.53)	ND	3.36 (0.69)	1.01 (0.52)
GPx	ND	34.03 (10.01)	27.21 (9.90)	ND	14.38 (7.89)	17.06 (7.89)

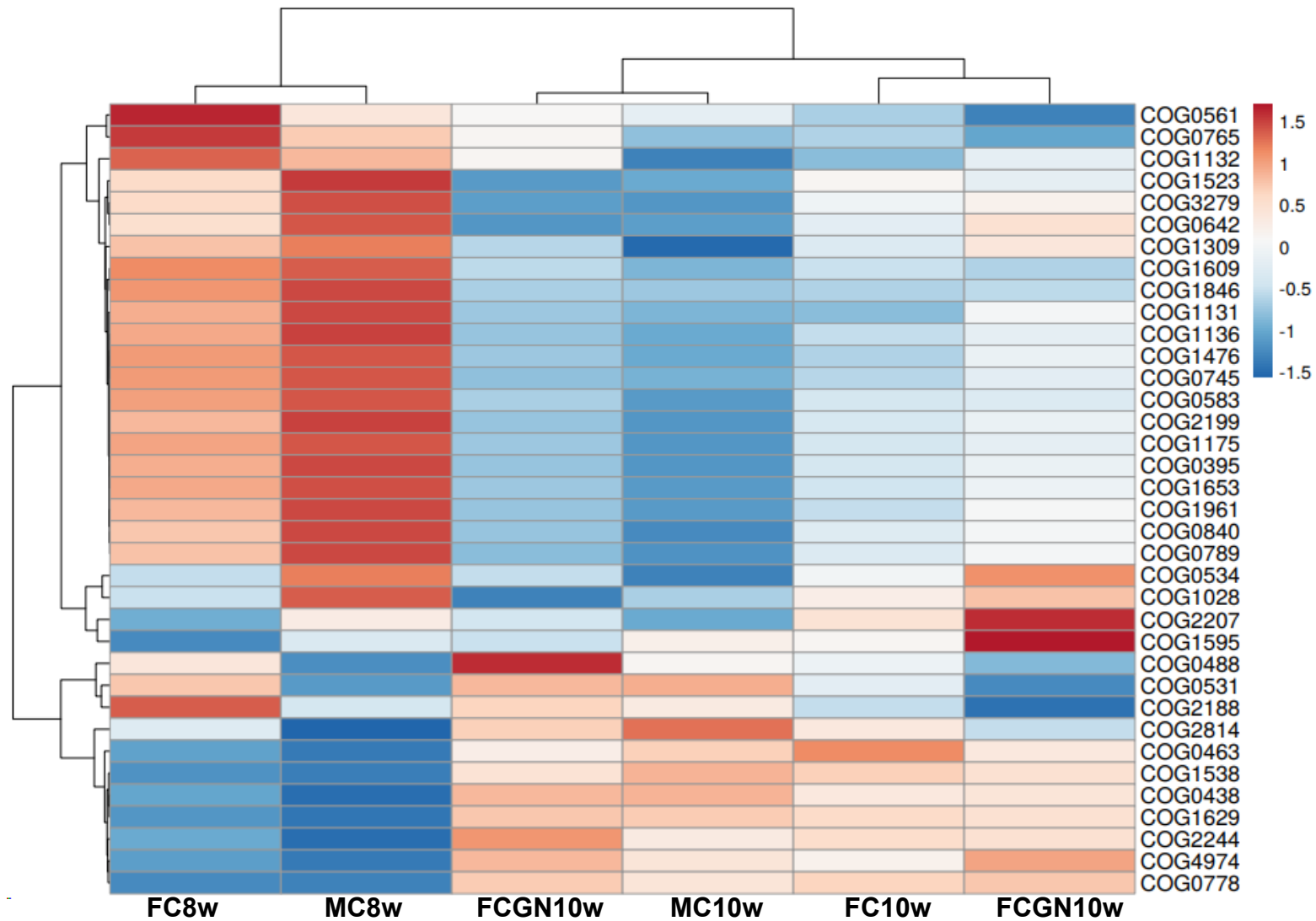


Fig. S1. Heatmap of the top 36 abundant clusters of orthologous genes (COG) predicted by PICRUSt2 analysis from the 16S rRNA gene sequencing data of the faecal microbiota from the female (F) and male (M) mice at the start of the study (age 8 weeks) and after two weeks of carrageenan intake (CGN10w) or PBS in the controls (C10w).

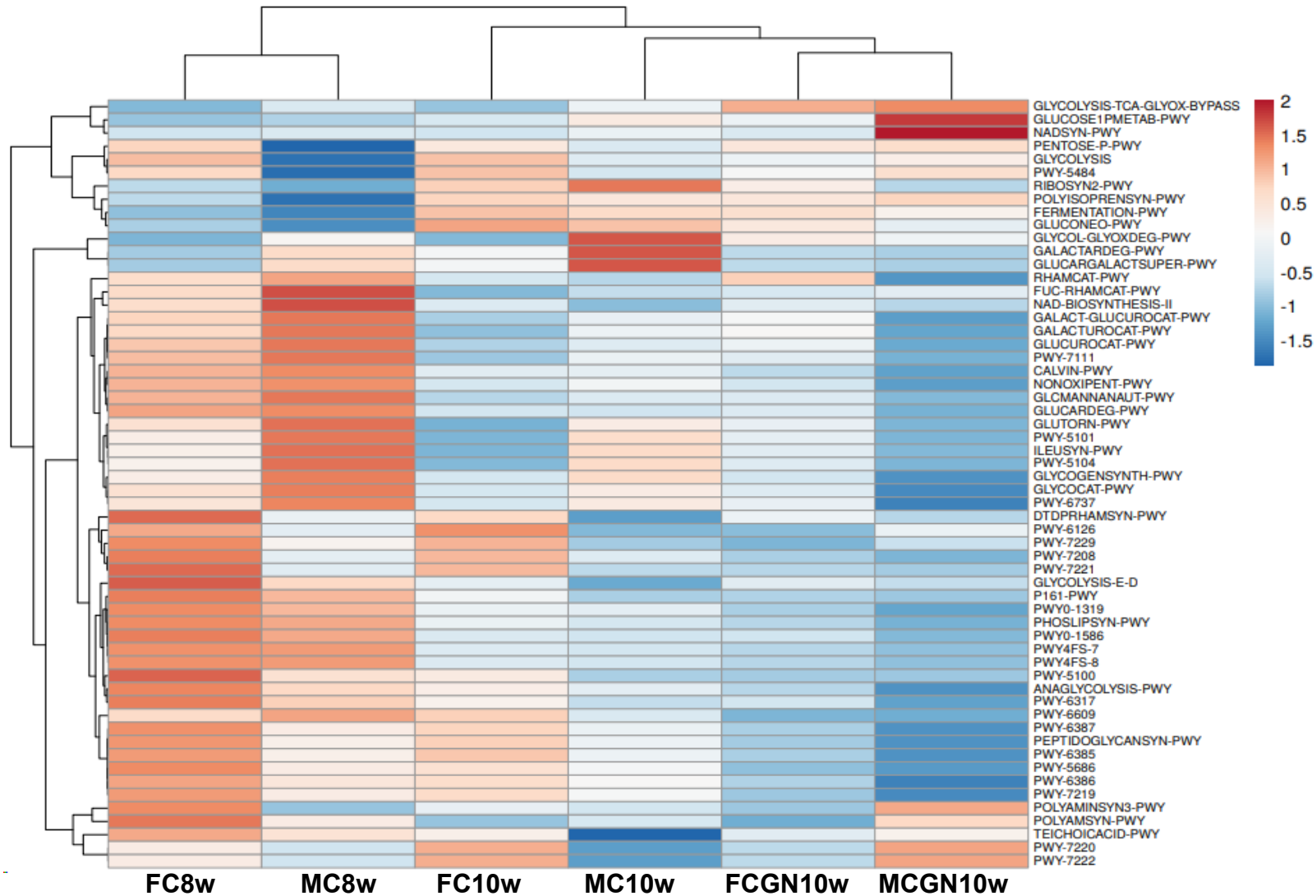


Fig. S2. Heatmap of the top 57 abundant pathways (PWY) predicted by PICRUSt2 analysis from the 16S rRNA gene sequencing data of the faecal microbiota from the female (F) and male (M) mice at the start of the study (age 8 weeks) and after two weeks of carrageenan intake (CGN10w) or PBS in the controls (C10w).

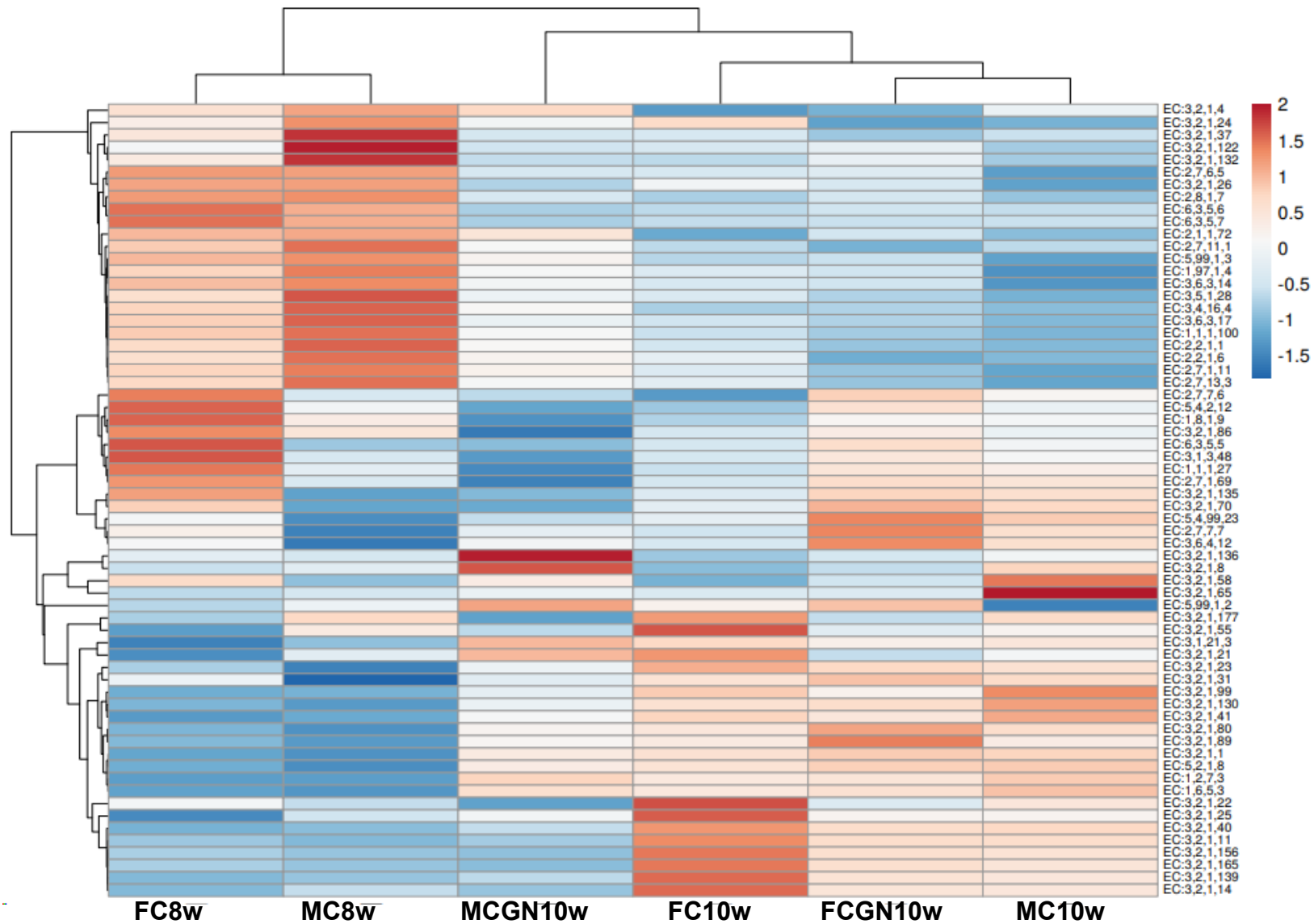
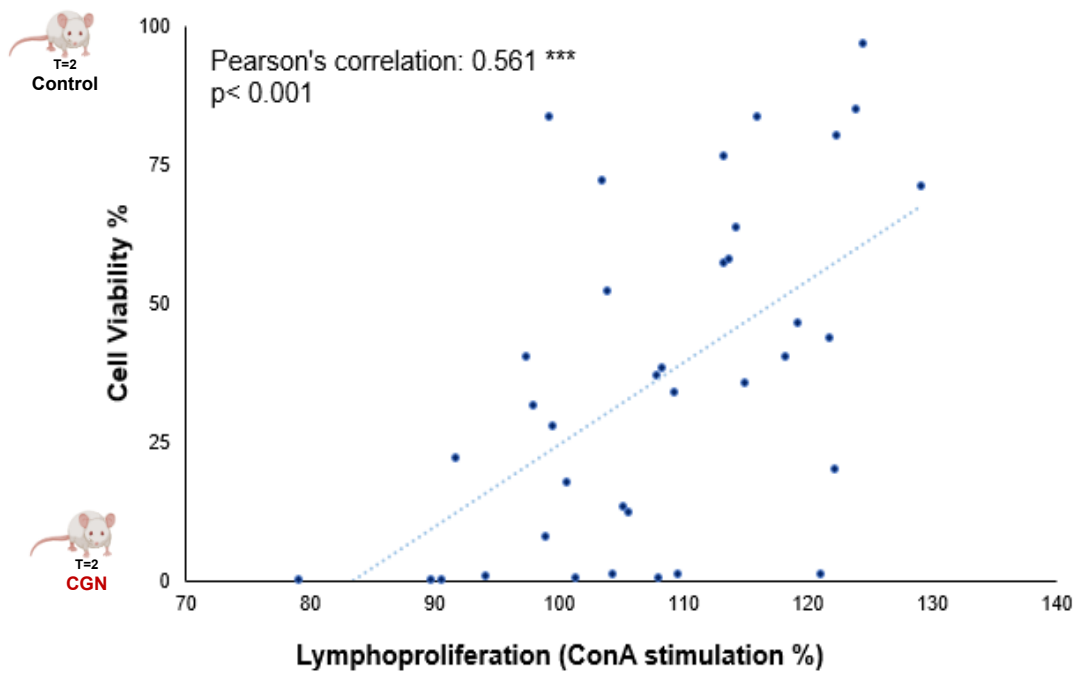


Fig. S3. Heatmap of the top 65 abundant enzymes (EC number) predicted by PICRUSt2 analysis from the 16S rRNA gene sequencing data of the faecal microbiota from the female (F) and male (M) mice at the start of the study (age 8 weeks) and after two weeks of carrageenan intake (CGN10w) or PBS in the controls (C10w)

A



B

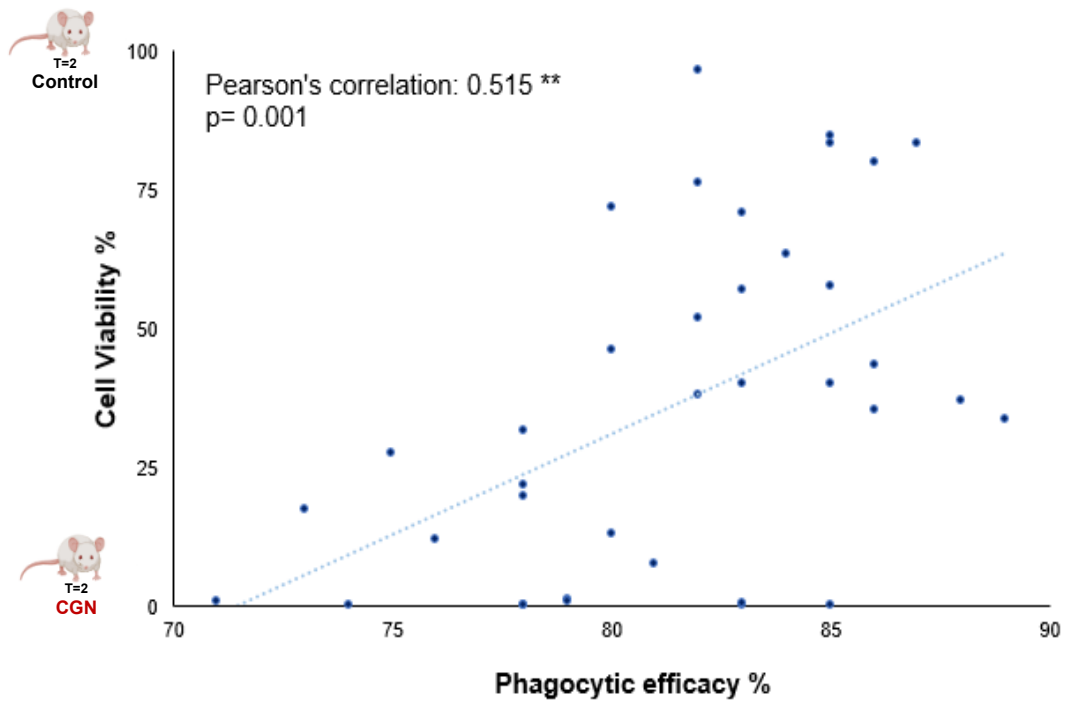


Figure S4. Correlation between Caco-2 viability and (A) the lymphoproliferative response to the mitogen concanavalin A (ConA stimulation), and (B) the peritoneal macrophage phagocytic efficacy.