

SUPPLEMENTARY TABLES

Supplementary Table 1. Relative abundance (%) of gut microbiota with water (WT, AD) and PAW-fed (WT+PAW, AD+PAW) mice.

Genus	AD	AD+PAW	WT	WT+PAW
Desulfovibrionaceae_ge	0.0023% ± 0.0019%	2.9352% ± 4.6567%	0.0039% ± 0.0029%	0.2052% ± 0.3204%
Desulfovibrio	0.0499% ± 0.0438%	0.0079% ± 0.0038%	0.0225% ± 0.0133%	0.0242% ± 0.0284%
Erysipelatoclostridium	0.0143% ± 0.0288%	0.1179% ± 0.1370%	0.1262% ± 0.0959%	0.0499% ± 0.0505%
Candidatus_Stoquefichus	0.0107% ± 0.0161%	0.0690% ± 0.0681%	0.0064% ± 0.0067%	0.0220% ± 0.0252%
Allobaculum	0.0011% ± 0.0016%	1.8756% ± 2.3010%	0.0011% ± 0.0009%	0.1375% ± 0.1974%
Ruminococcus_1	0.1829% ± 0.1388%	1.2133% ± 1.8986%	0.0399% ± 0.0404%	0.0143% ± 0.0233%
Akkermansia	0.1055% ± 0.0767%	1.3044% ± 1.6261%	0.3007% ± 0.6173%	0.1414% ± 0.1392%
Mucispirillum	0.0392% ± 0.0651%	0.0273% ± 0.0649%	0.0047% ± 0.0056%	0.0007% ± 0.0012%
Lachnospiraceae_FCS020_group	0.1033% ± 0.1265%	0.0312% ± 0.0178%	0.1182% ± 0.0861%	0.3206% ± 0.2779%
Tyzzereella	0.0393% ± 0.0214%	0.0152% ± 0.0103%	0.0170% ± 0.0107%	0.0304% ± 0.0196%
Helicobacter	4.3627% ± 1.4373%	2.0233% ± 2.2687%	0.8982% ± 0.5357%	1.9475% ± 1.4251%

Supplementary Table 2. Relative abundance (%) Genus level of wildtype (WT) and AD mice gut microbiota with PAW treatment (WT+PAW, AD+PAW) and fecal microbiota transplantation (WT+FMT, AD+FMT).

Genus	AD+PAW	AD+FMT	WT+PAW	WT+FMT
Desulfovibrionaceae_ge	4.323%	3.287%	1.345%	2.070%
Desulfovibrio	0.016%	0.016%	0.018%	0.023%
Erysipelatoclostridium	0.004%	0.008%	0.002%	0.008%
Candidatus_Stoquefichus	0.012%	0.013%	0.020%	0.017%
Allobaculum	0.192%	0.073%	0.912%	0.087%
Ruminococcus_1	0.051%	0.101%	0.030%	0.131%
Akkermansia	0.383%	0.094%	0.155%	0.897%
Mucispirillum	0.227%	0.077%	0.240%	0.011%
Lachnospiraceae_FCS020_group	0.003%	0.001%	0.013%	0.002%
Tyzzereella	0.237%	0.089%	0.067%	0.043%
Helicobacter	0.834%	0.924%	0.395%	0.166%

Supplementary Table 3. The standardized uptake value ratio (SUVR) in the cerebellum of each brain region (Mean \pm SEM) from wildtype (WT) and AD mice fed with water (WT, AD), PAW (WT+PAW, AD+PAW) and FMT (WT+FMT, AD+FMT).

Region	WT	WT+PAW	WT+FMT	AD	AD+PAW	AD+FMT
Cortex	0.960 \pm 0.024	0.967 \pm 0.024	0.955 \pm 0.013	1.127 \pm 0.046	1.044 \pm 0.040	1.043 \pm 0.045
Hippocampus	1.026 \pm 0.021	1.030 \pm 0.019	0.962 \pm 0.020	1.175 \pm 0.048	1.083 \pm 0.031	1.024 \pm 0.042
Striatum	0.988 \pm 0.017	0.993 \pm 0.017	1.044 \pm 0.025	1.077 \pm 0.029	1.045 \pm 0.031	1.096 \pm 0.036
Forebrain bundle	1.008 \pm 0.017	1.005 \pm 0.018	0.958 \pm 0.023	1.147 \pm 0.060	1.024 \pm 0.028	1.029 \pm 0.034

Supplementary Table 4. The protein concentration (pg/mg) of cytokines extracted from cortex and hippocampus of WT and AD fed with water (WT, AD), PAW (WT+PAW, AD+PAW) and FMT (WT+FMT, AD+FMT) mice were measured by enzyme-linked immunosorbent assay (ELISA) (Mean \pm SEM).

Cytokine	Region	WT	WT+PAW	WT+FMT	AD	AD+PAW	AD+FMT
IL-6	Cortex	121 \pm 9	150 \pm 28	156 \pm 27	133 \pm 26	119 \pm 28	110 \pm 9
	Hippocampus	75 \pm 11 ^a	62 \pm 25 ^a	64 \pm 4 ^a	154 \pm 56 ^b	74 \pm 8 ^a	67 \pm 8 ^a
TNF- α	Cortex	238 \pm 34	316 \pm 61	354 \pm 42	179 \pm 79	320 \pm 90	361 \pm 68
	Hippocampus	652 \pm 172 ^a	87 \pm 50 ^b	130 \pm 45 ^b	688 \pm 150 ^a	99 \pm 53 ^b	194 \pm 53 ^b
IL-1 β	Cortex	177 \pm 25 ^a	43 \pm 6 ^b	54 \pm 10 ^b	298 \pm 46 ^c	211 \pm 21 ^a	220 \pm 41 ^a
	Hippocampus	1471 \pm 32 ^a	783 \pm 146 ^b	813 \pm 71 ^b	1595 \pm 147 ^a	1110 \pm 61 ^b	1120 \pm 104 ^b

^{a,b,c}Different superscripts within a row (between columns) indicate significant differences between groups ($p < 0.05$).