Supplementary Figures

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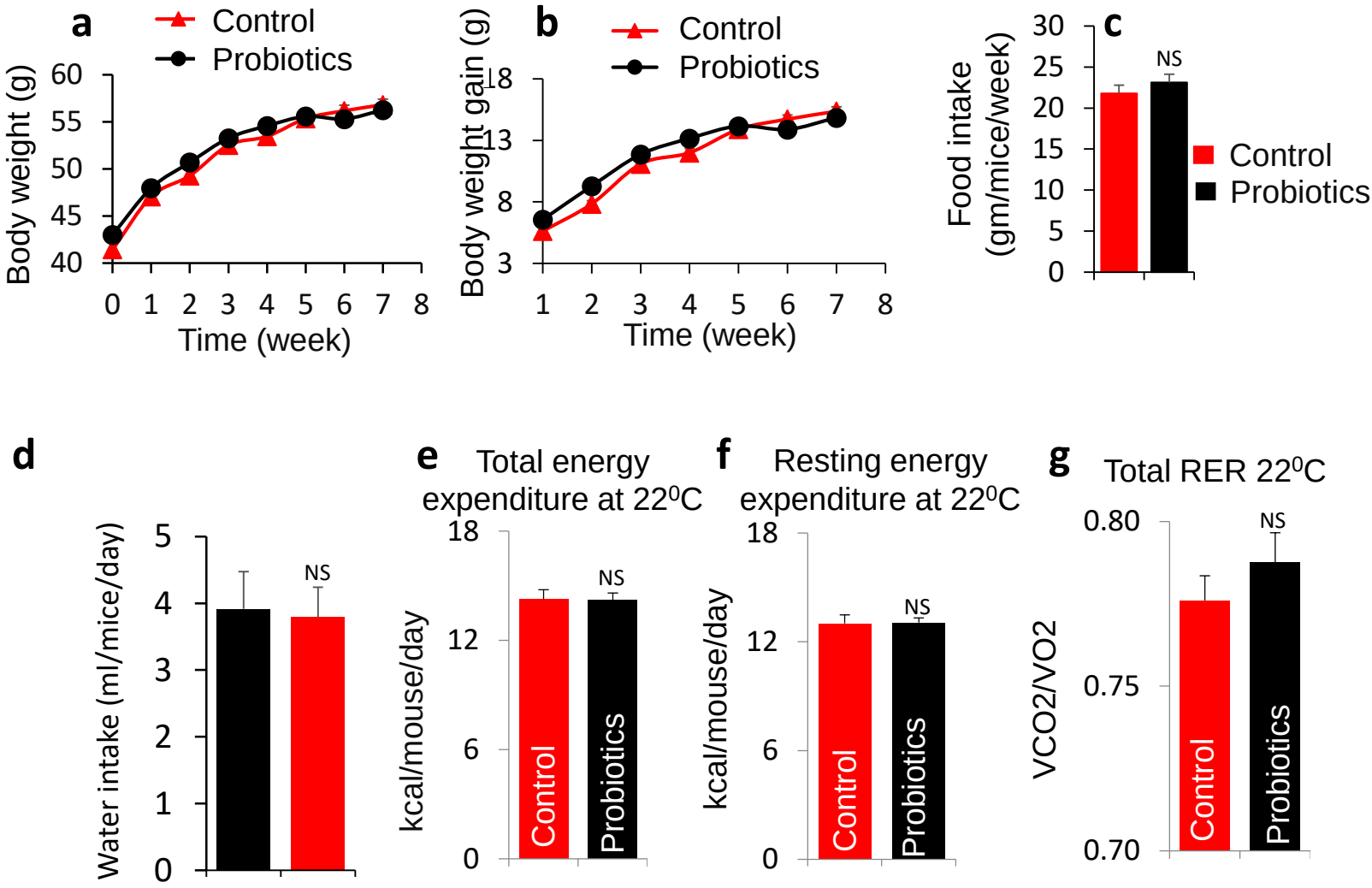
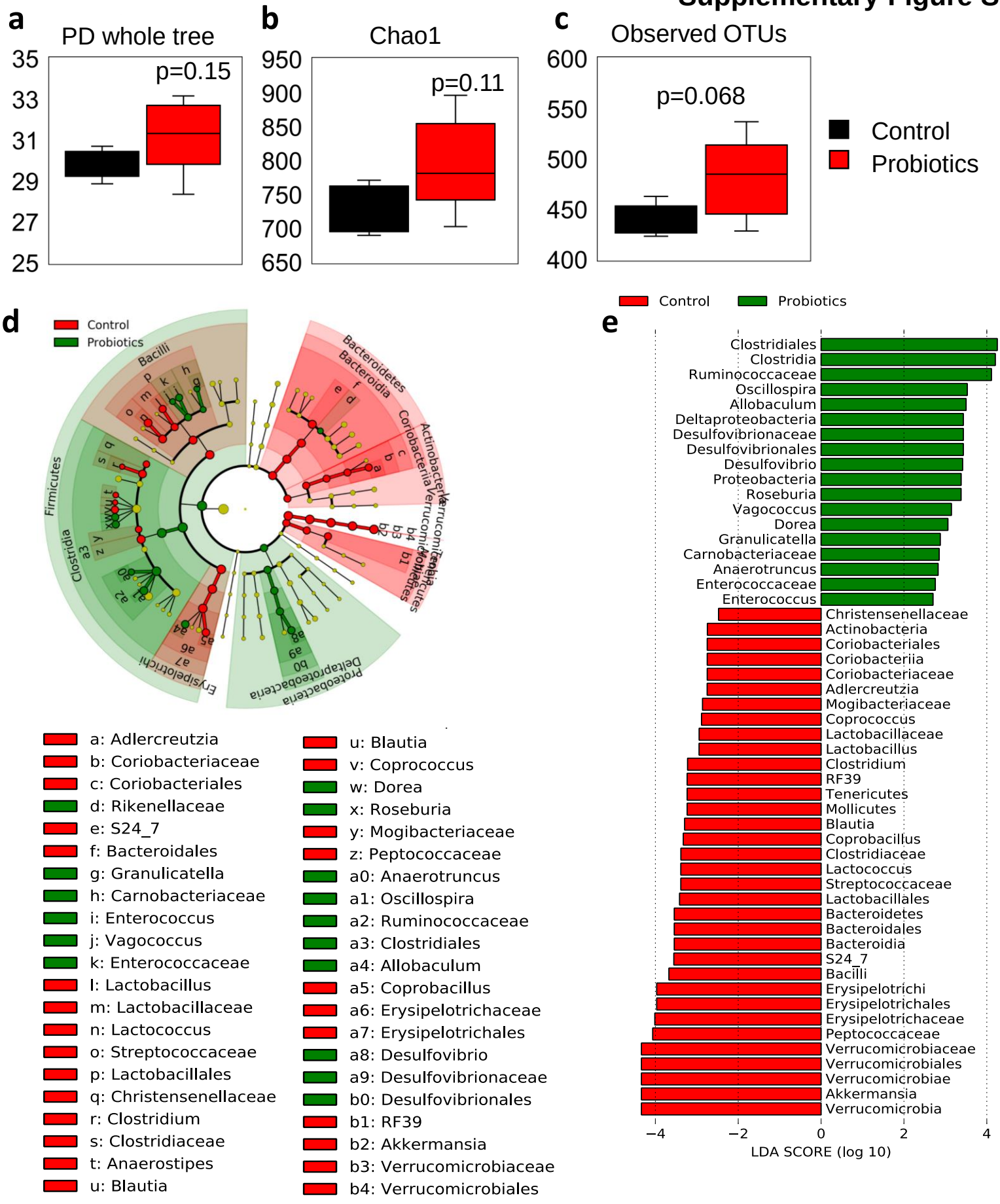
Supplementary Figure S1



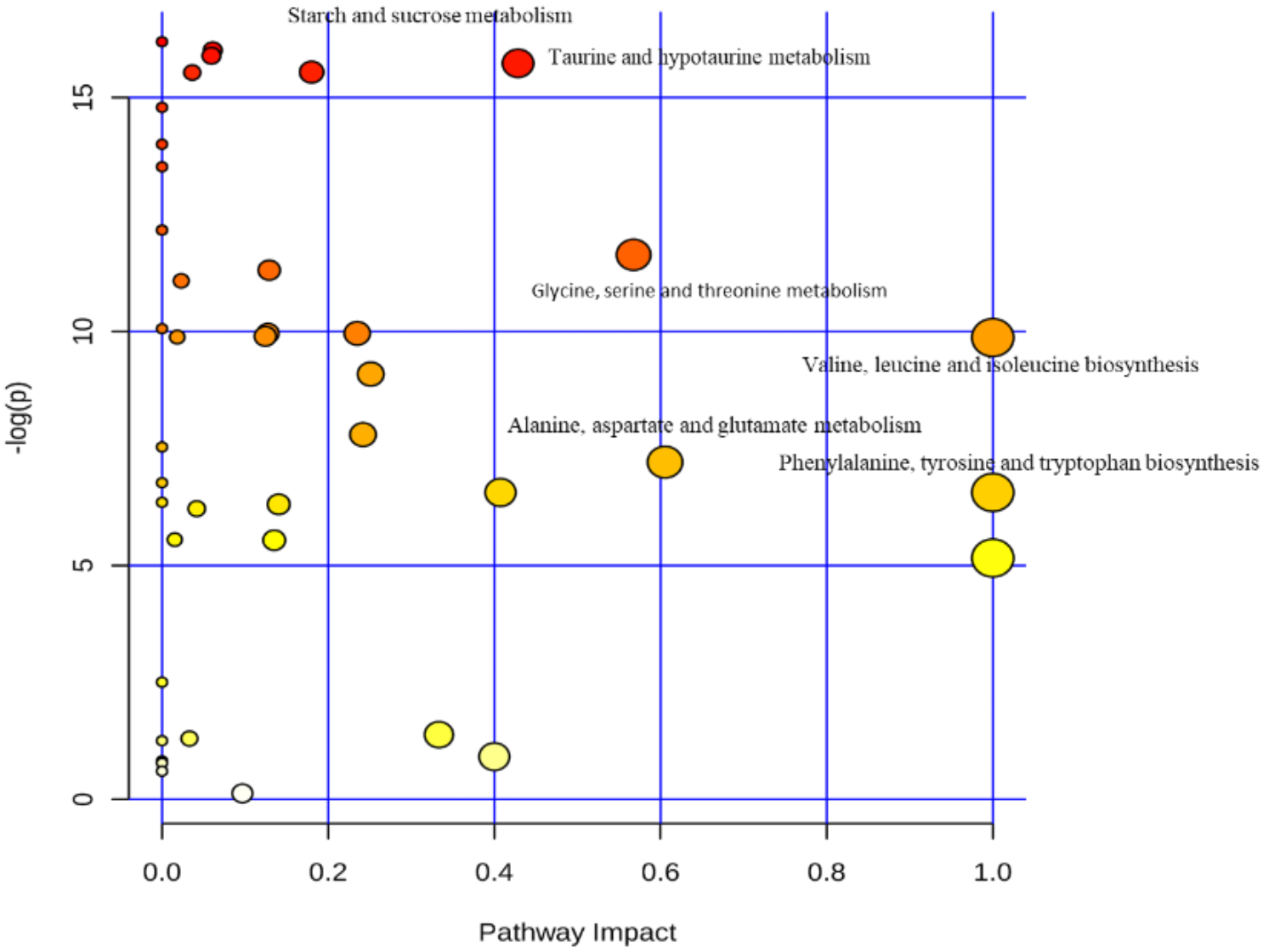
Supplementary Figure S1. Probiotic cocktail (black) feeding show no significant impact on body weight (a), body weight gain (b), food intake (c), water intake (d), total (e) and resting (f) energy expenditure and respiratory exchange ratio (REF) (g) compared to their controls (red). Values are presented graph bar as means of n= 5-8 mice per group and error bars are SEM. ns: not significant; kcal: kilo calories; VO2: volume of oxygen consumption and VCO2: volume of carbon dioxide release.

Supplementary Figure S2



Supplementary Figure S2. Probiotic feeding modulated gut microbiome alpha-diversity indices like phylogenetic diversity (PD) whole tree (a), Chao1 (b) and observed operational taxonomic units (OUTs) (c), and changes in microbial signature shown by LefSe cladogram and differential bacteria abundances, compared to control older mice feces. Values are presented graph bar as means of n= 5 mice per group and error bars are SEM.

Supplementary Figure S3

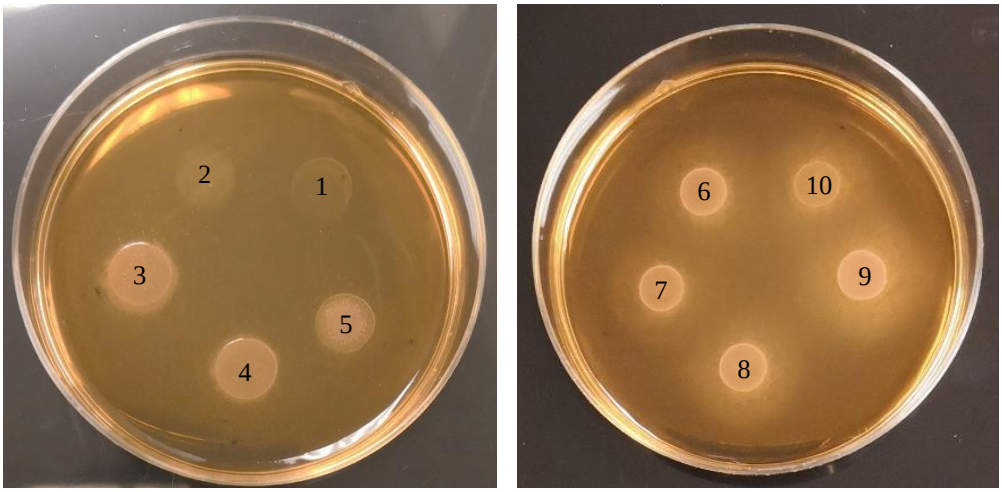


Supplementary Figure S3. Kyoto Encyclopedia of Genes and Genomes (KEGG) pathways analysis plot using pathway enrichment analysis and pathway impact values show the major significantly affected after probiotics feeding were taurine and hypotaurine metabolism.

a

Supplementary Figure S4

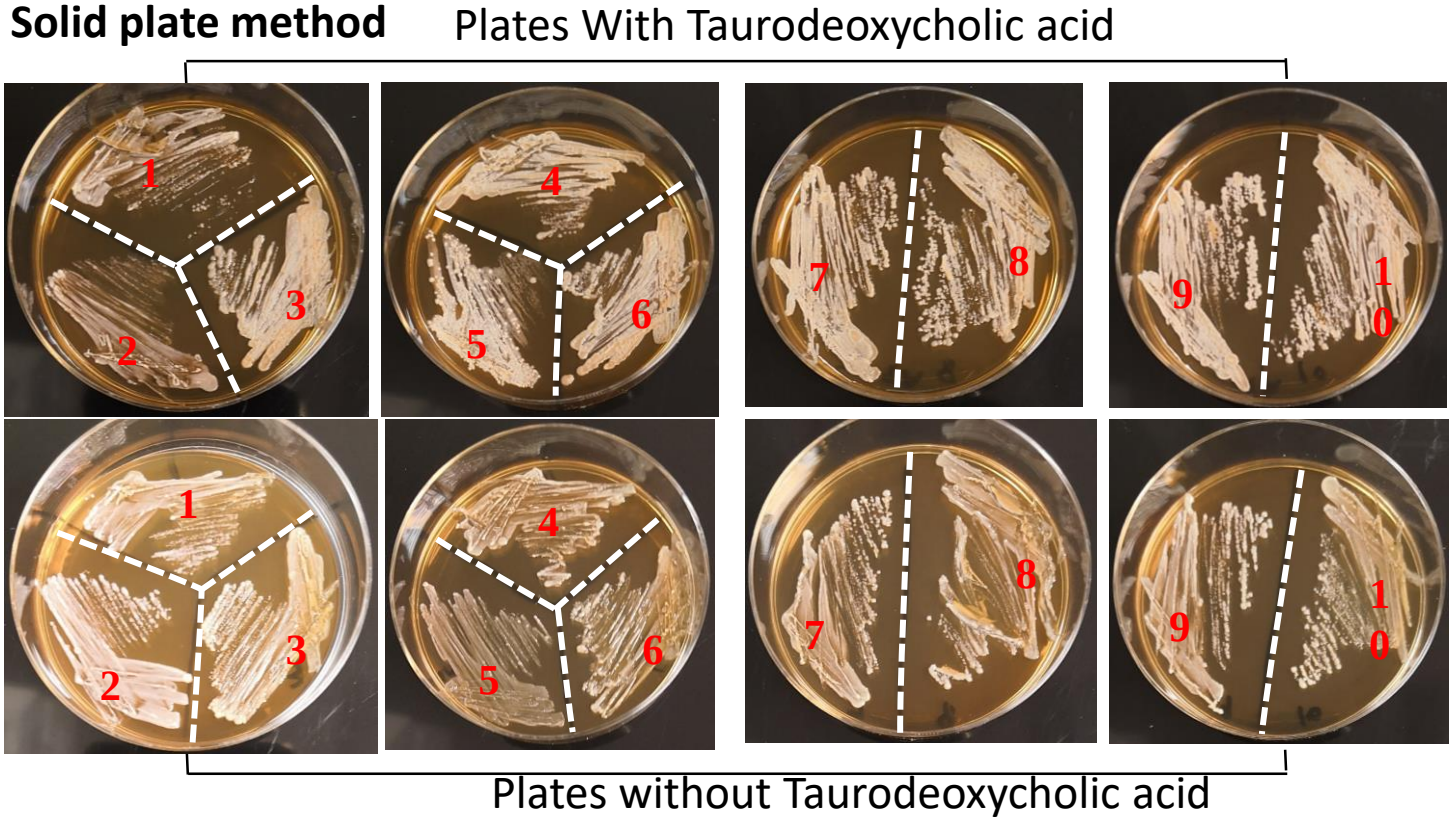
Soft plate method



1. *L. paracasei* D3-5
2. *L. rhamnosus* D4-4
3. *L. plantarum* D6-2
4. *L. rhamnosus* D7-5
5. *L. plantarum* D13-4
6. *E. rafnosus* D24-1
7. *E. INBio* D24-2
8. *E. avium* D25-1
9. *E. avium* D25-2
10. *E. avium* D26-1

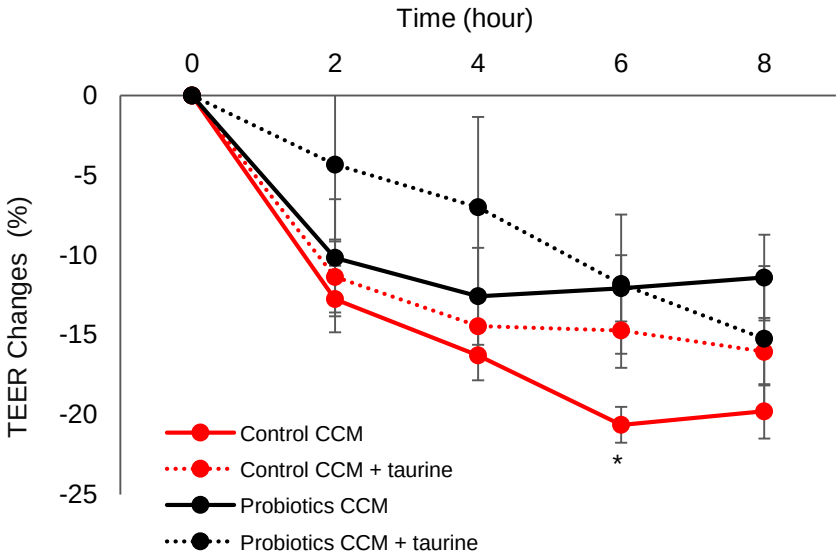
b

Solid plate method



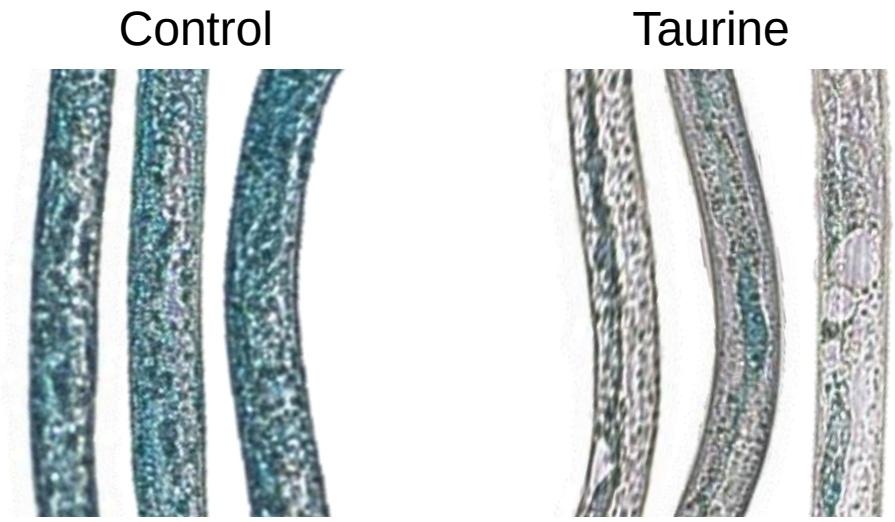
Supplementary Figure S4. BSH activity in probiotic strains using soft plate (a) and solid plate (b) methods.

Supplementary Figure S5



Supplementary Figure S5. Taurine supplementation in cecal conditioned media (CCM) in control significantly reduced changes in TEER of Caco2 cells monolayer.

Supplementary Figure S6



Supplementary Figure S6. Smurf assay showing leaky gut with higher blue color leaked in abdominal cavity of control worms compared to taurine treated animals (blue dye in gastrointestinal cavity lining). This assay was repeated 2-3 times with 20-30 worms/ repeat with leaky gut versus normal gut were visualized and counted.

Supplementary Tables

Table S1. Primer details and sequences used in this study.		
SYBR green primers		
Gene name	Forward Primer (5'→3')	Reverse Primer (5'→3')
18S	gcaattattccccatgaacg	ggcctcactaaaccatccaa
mIL6	ccaagaggtgagtgcttccc	ctgttgttcagactctctccct
mTnf-a	ccctcacactcagatcatcttct	gctacgacgtgggctacag
mTgf-b1	ctcccgtggcttctagtgc	gccttagtttggacaggatctg
mIL10	gctcttactgactggcatgag	cgcagctctaggagcatgtg
mIL-1b	gcaactgttcctgaactcaact	atcttttggggtccgtcaact
hIL-10	ctgtgaaaacaagagcaaggc	gaagcttctgttggctccc
hTGFb1	gcagcacgtggagctgta	cagccggttgctgaggta
mTjp1	gccgctaagagcacagcaa	tccccactctgaaaatgagga
mOcln	ttgaaagtccacctccttacaga	ccggataaaaagagtacgctgg
hTjp1	caacatacagtgacgcttcaca	cactattgacgtttccccactc
hOcln	acaagcggttttatccagagtc	gtcatccacaggcgaagttaat
Taqman primers		
Gene Name	Probe ID	
IL6	Hs00174131-m1	
TNF	Hs00174128-m1	
18S	Hs9999990_s1	
TJP1	Hs01551861_m1	
IL6	Hs00174131-m1	

Table S2. Primary and secondary antibodies details used in this study.		
Primary antibodies		
Antibody name	*Cat #*	*Company*
Zo-1	8193S	Cell signaling
Ocln	71-1500	Invitrogen
Tubulin	T6074-200	Sigma
Secondary antibodies		
Antibody name	*Cat #*	*Company*
Anti-Rabbit-HRP	70745	Cell Signaling
Anti-Mouse-HRP	A2219	Santa Cruz Biotechnology