

Figure S1. Heatmap of the hierarchical clustering of the samples based on the relative abundance of the 20 selected genera after Kruskal Wallis analysis showing an abundance greater than 0.01%. Bacterial genera are listed above, samples according to treatment groups are listed on the right. The intensity of the colour of the heatmap is directly proportional to the relative abundance of the genera in each sample.

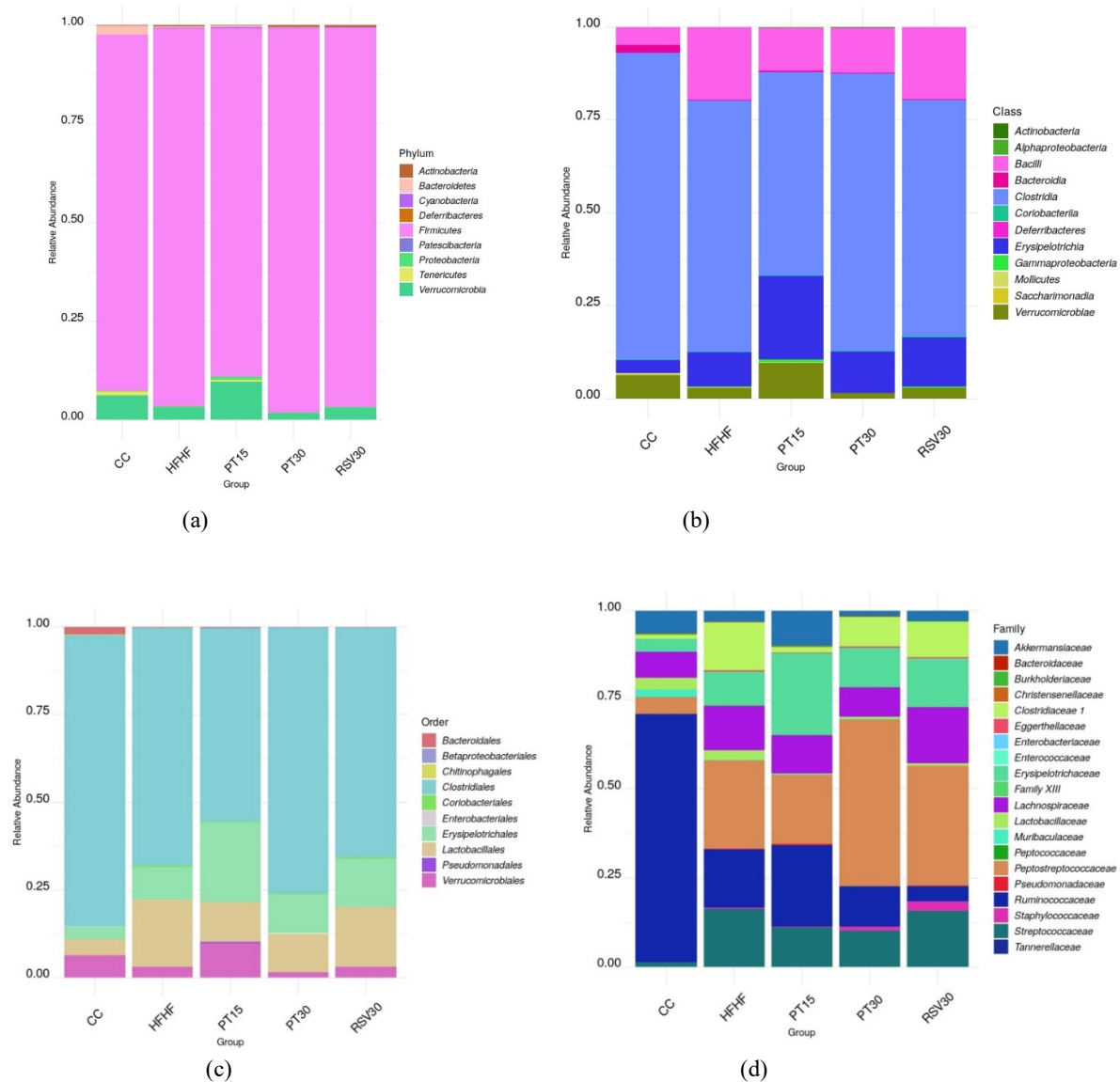


Figure S2. Relative abundances of (a) phylum, (b) class, (c) order and (d) family according to the different treatments.

Table S1: Spearman Correlation values for twenty discriminatory microbes related with liver damage.

Spearman correlation (r) values for 20 discriminatory Genus related with liver damage characterised by liver steatosis and inflammation parameters, and elevated transaminase levels			
Variable 1	Variable 2	Correlation (r)	p.adj (FDR)
<i>Blautia</i>	ALT	0.456905175597148	0.0180360723239981
<i>Fournierella</i>	ALT	0.416353941957414	0.0389835629570789
<i>Lactococcus</i>	ALT	0.52120191789825	0.00492451746094747
<i>Terrisporobacter</i>	ALT	0.611175077303858	8.66644929389796e-4
<i>Blautia</i>	AST	0.485063737451547	0.0100078883391401

<i>Lactococcus</i>	AST	0.556824073996308	0.00303483835150668
<i>Blautia</i>	Ballooning	0.506701084120134	6.50045561060904e-4
<i>Clostridium sensu stricto 1</i>	Ballooning	0.399274404867425	0.00815074074166622
<i>Fournierella</i>	Ballooning	0.32678422434165	0.0324738190945253
<i>Lachnoclostridium</i>	Ballooning	0.42845489633695	0.00429358989764311
<i>Lactococcus</i>	Ballooning	0.641968602991658	3.34976633708161e-5
<i>Terrisporobacter</i>	Ballooning	0.588020222656075	8.37668895258329e-5
<i>Fournierella</i>	Liver Weight	0.426385732285916	0.0370155680478647
<i>Lactococcus</i>	Liver Weight	0.453863681371537	0.020913493492184
<i>Terrisporobacter</i>	Liver Weight	0.521975844971278	0.00496338730413576
<i>Blautia</i>	Lobular inflammation	0.336973541655533	0.0270227000645993
<i>Lactococcus</i>	Lobular inflammation	0.506822768267648	6.50045561060904e-4
<i>Terrisporobacter</i>	Lobular inflammation	0.541055036004834	2.81028543074804e-4
<i>Blautia</i>	NAS score	0.409026553265179	0.0068714937576886
<i>Clostridium sensu stricto 1</i>	NAS score	0.354496977848419	0.0199176477787257
<i>Lachnoclostridium</i>	NAS score	0.349225752077074	0.0218271863553631
<i>Lactococcus</i>	NAS score	0.58423332832943	8.37668895258329e-5
<i>Terrisporobacter</i>	NAS score	0.549779348383312	2.28394345757734e-4
<i>Blautia</i>	Steatosis	0.386775022144831	0.0103938821319651
<i>Faecalitalea</i>	Steatosis	0.403629068521024	0.00749476364086627
<i>Fournierella</i>	Steatosis	0.445357211226763	0.00294376771826156
<i>Lachnoclostridium</i>	Steatosis	0.484333232553877	0.00120422475551721
<i>Lactococcus</i>	Steatosis	0.636035422574594	3.34976633708161e-5
<i>Terrisporobacter</i>	Steatosis	0.491349671076064	9.98618417613977e-4

Table S2: Spearman Correlation values for twenty discriminatory microbes related with liver protection.

Spearman correlation (r) values for 20 discriminatory Genus with hepatic protective effect characterised by lower liver steatosis and inflammation parameters, and lower transaminase levels			
Variable 1	Variable 2	Correlation (r)	p.adj (FDR)
<i>Firmicutes bacterium CAG:822</i>	ALT	-0.417339416581321	0.0389835629570789
<i>Ruminiclostridium 9</i>	ALT	-0.5916941817391	0.00105754588294675
<i>Ruminococcaceae NK4A214 group</i>	ALT	-0.521656161342467	0.00492451746094747
<i>Ruminococcaceae UCG-005</i>	ALT	-0.468785894945028	0.0136054216330726
<i>Ruminococcus 2</i>	ALT	-0.48840473847162	0.0100078883391401
<i>[Eubacterium] coprostanoligenes group</i>	Ballooning	-0.428173598793031	0.00429358989764311
<i>Akkermansia</i>	Ballooning	-0.383277082920363	0.0109348909855553
<i>Firmicutes bacterium CAG:822</i>	Ballooning	-0.554182351850268	2.06168282444313e-4
<i>Ruminiclostridium 9</i>	Ballooning	-0.613663089646971	4.3998502874691e-5
<i>Ruminococcaceae NK4A214 group</i>	Ballooning	-0.547989579216341	2.2940995554084e-4
<i>Ruminococcaceae UCG-005</i>	Ballooning	-0.584852345526097	8.37668895258329e-5
<i>Ruminococcaceae UCG-014</i>	Ballooning	-0.496008208867376	8.91575109677521e-4
<i>Ruminococcus 2</i>	Ballooning	-0.459917678016176	0.00228391154431472
<i>Firmicutes bacterium CAG:822</i>	Liver weight	-0.474331420798181	0.0136054216330726
<i>Ruminiclostridium 9</i>	Liver weight	-0.514532107152007	0.00569455907519946
<i>Ruminococcaceae NK4A214 group</i>	Liver weight	-0.54998725009252	0.00359570396687811
<i>Ruminococcaceae UCG-005</i>	Liver weight	-0.488379111010587	0.0100078883391401
<i>Ruminococcus 2</i>	Liver weight	-0.542801811635185	0.00376485846649832
<i>[Eubacterium] coprostanoligenes group</i>	Lobular inflammation	-0.562312372531265	1.63452882657477e-4
<i>Akkermansia</i>	Lobular inflammation	-0.444866306822603	0.00294376771826156
<i>Firmicutes bacterium CAG:822</i>	Lobular inflammation	-0.563387000915688	1.63452882657477e-4
<i>Ruminiclostridium 9</i>	Lobular inflammation	-0.623866430848481	3.34976633708161e-5
<i>Ruminococcaceae NK4A214 group</i>	Lobular inflammation	-0.625525016600599	3.34976633708161e-5
<i>Ruminococcaceae UCG-005</i>	Lobular inflammation	-0.602408820445455	6.21092576291637e-5
<i>Ruminococcaceae UCG-014</i>	Lobular inflammation	-0.447076157178561	0.00294376771826156
<i>Ruminococcus 2</i>	Lobular inflammation	-0.509401945836366	6.44739593936389e-4
<i>Streptococcus</i>	Lobular inflammation	-0.520810793917342	4.56212709823645e-4
<i>[Eubacterium] coprostanoligenes group</i>	NAS score	-0.454008477379222	0.00262632218245361
<i>Akkermansia</i>	NAS score	-0.388604026601062	0.0102955256891605
<i>Firmicutes bacterium CAG:822</i>	NAS score	-0.479757323766302	0.001341786668558
<i>Ruminiclostridium 9</i>	NAS score	-0.589217851844443	8.37668895258329e-5
<i>Ruminococcaceae NK4A214 group</i>	NAS score	-0.531065291934024	3.84124959355149e-4
<i>Ruminococcaceae UCG-005</i>	NAS score	-0.561899654044453	1.63452882657477e-4
<i>Ruminococcaceae UCG-014</i>	NAS score	-0.407314770973406	0.00700175669740708
<i>Ruminococcus 2</i>	NAS score	-0.44579687036522	0.00294376771826156
<i>Streptococcus</i>	NAS score	-0.38635231212271	0.0103938821319651
<i>[Eubacterium] coprostanoligenes group</i>	Steatosis	-0.368765603329902	0.0148985375369191
<i>Akkermansia</i>	Steatosis	-0.341572208304602	0.0250846086243554
<i>Firmicutes bacterium CAG:822</i>	Steatosis	-0.446825387794474	0.00294376771826156
<i>Ruminiclostridium 9</i>	Steatosis	-0.520667118388604	4.56212709823645e-4
<i>Ruminococcaceae NK4A214 group</i>	Steatosis	-0.528226786711421	4.0336297394543e-4
<i>Ruminococcaceae UCG-005</i>	Steatosis	-0.521519098403502	4.56212709823645e-4

<i>Ruminococcaceae</i> UCG-014	Steatosis	-0.440269540647754	0.00325671440712877
<i>Ruminococcus</i> 2	Steatosis	-0.461421862154589	0.00225815307369592