Supplemental Table 1: Experimental animal groups, abbreviations and Blood pressure (BP) index.

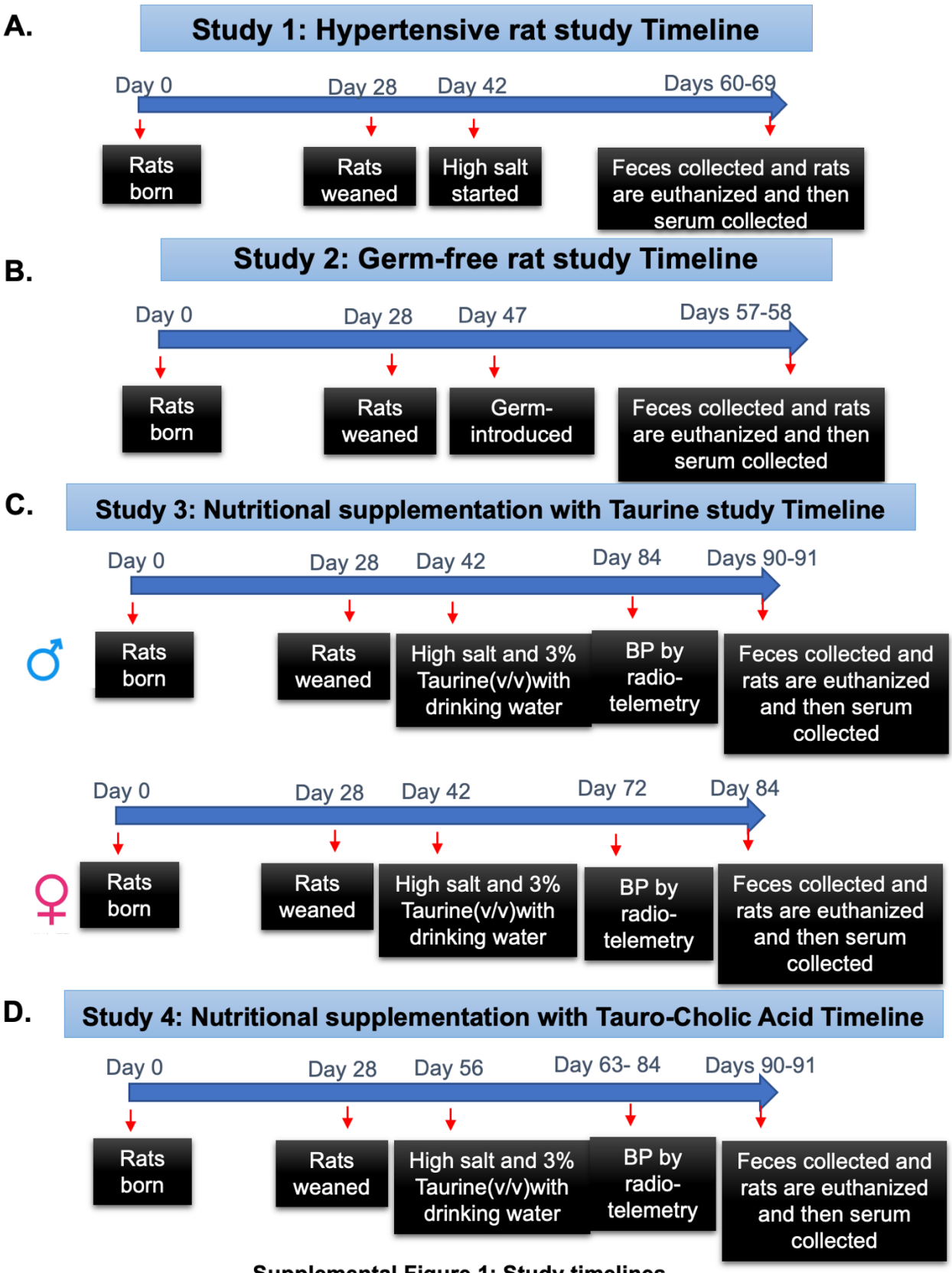
Group	Abbreviation	BP index
Low salt male S	LSM	2
High salt male S	HSM	4
Low salt female S	LSF	2
High salt female S	HSF	4
Low salt male R	LRM	1
High salt male R	HRM	1
Low salt female R	LRF	1
High salt female R	HRF	1

Supplement Table 2: CARDIA participant characteristics for individuals with serum bile acids profile at Year 30 (2015-16).

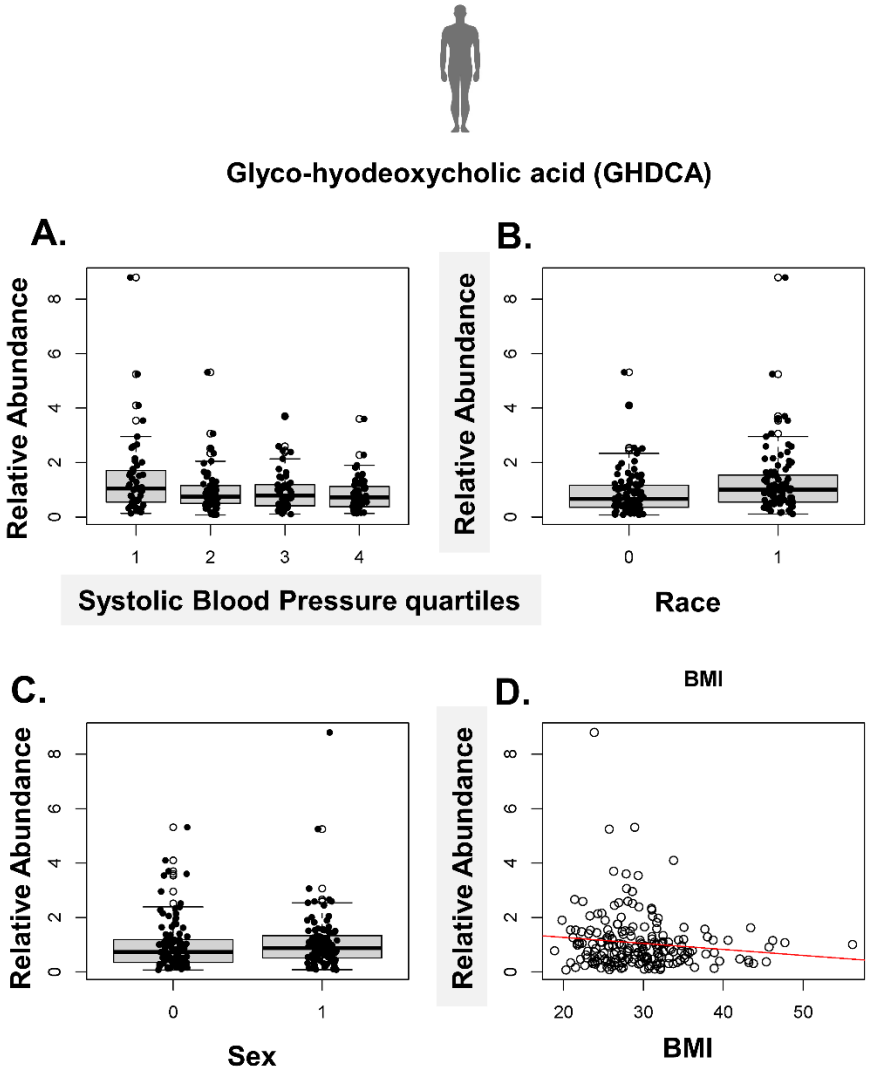
Characteristic	**Mean (SD)**
Sample Size, n	240
Age, years	55.1 (3.4)
Males, %	50
African-Americans, %	50
Educational Attainment, years	15.9 (2.5)
Field Center, %	
Birmingham, AL	13.8
Chicago, IL	57.5
Minneapolis, MN	18.3
Oakland, CA	10.4

Supplemental Table 3: Multivariable adjusted models of bile acids with respect to systolic blood pressure in CARDIA. Model 1 : Bile acid association with systolic blood pressure; Model 2: Model 1 additionally adjusted for gender, race, study center, age and educational attainment; Model3: Model 2 additionally adjusted for use of cholesterol lowering drugs, BMI and urine creatinine.

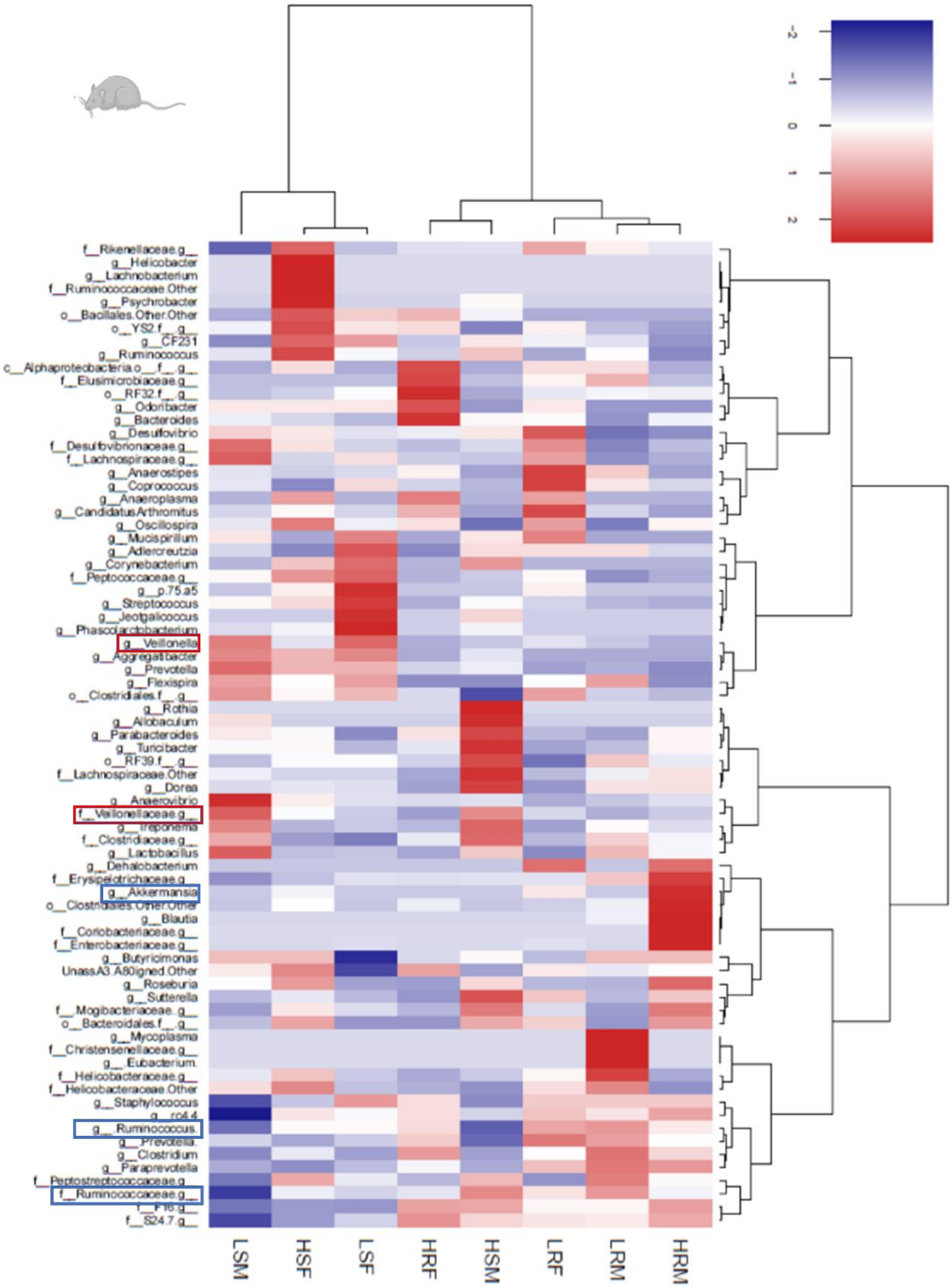
				Model 1			Model2			Model3		
		Abbreviation	Mean (SD)	Beta Coeff	pValue	adjusted P	Beta Coeff	pValue	adjusted P	Beta Coeff	pValue	adjusted P
CA	Cholic acid	CA	1.73 (2.11)	0.4439	0.3321	0.6694	0.5945	0.1846	0.7491	0.4601	0.3059	0.7231
CDCA	Chenodeoxycholic acid	CDCA	2.49 (3.79)	0.2006	0.4166	0.6694	0.3518	0.1483	0.7491	0.3106	0.2170	0.7231
CDCA_24G	Chenodeoxycholic acid 24 glucuronide	CDCA_24G	4.75 (6.14)	0.1526	0.3419	0.6694	0.0956	0.5452	0.8357	0.1009	0.5227	0.7969
GDCA	glycodeoxycholic acid	GDCA	1.29 (1.09)	-1.1361	0.1864	0.6058	-0.7982	0.3411	0.8208	-1.0173	0.2364	0.7231
GHCA	glycohyocholic acid	GHCA	0.78 (1.11)	0.9976	0.2367	0.6694	0.4134	0.6235	0.8357	0.4677	0.5926	0.8001
GHDCA	Glycohyodeoxycholic acid	GHDCA	1.06 (1.02)	-3.4137	0.0007	0.0187	-3.0991	0.0022	0.0562	-3.3270	0.0013	0.0331
GLCA	Glycolithocholic acid	GLCA	0.67 (0.80)	-1.8279	0.1168	0.5059	-1.7986	0.1170	0.7491	-2.3809	0.0462	0.4000
GLCA_3S	Glycolithocholic acid 3 sulfate	GLCA_3S	39.76 (23.61)	0.0308	0.4377	0.6694	0.0113	0.7707	0.8357	0.0368	0.3831	0.7924
GUDCA	Glycoursocholic acid	GUDCA	1.44 (2.09)	1.1571	0.0158	0.1371	0.9351	0.0451	0.3908	0.7086	0.1372	0.7083
HCA	Hyocholic acid	HCA	8.31 (7.33)	-0.2175	0.0994	0.5059	-0.1623	0.2065	0.7491	-0.1895	0.1635	0.7083
HDCA	Hyodeoxycholic acid	HDCA	1.83 (1.64)	-0.3534	0.5367	0.7344	-0.1641	0.7691	0.8357	-0.2588	0.6434	0.8001
LCA	Lithocholic acid	LCA	1.38 (1.15)	-1.2789	0.1145	0.5059	-0.9134	0.2633	0.7606	-1.3088	0.1325	0.7083
LCA_3S	Lirhocholic acid 3 sulfate	LCA_3S	0.51 (1.08)	0.2400	0.7811	0.8123	0.2949	0.7255	0.8357	0.3269	0.6979	0.8001
muroCA	Murocholic acid	muroCA	0.53 (0.87)	0.1058	0.9214	0.9214	0.0778	0.9411	0.9411	0.2243	0.8321	0.9015
NorCA	Norcholic acid	NorCA	3.44 (2.34)	-0.2026	0.6220	0.7351	-0.1259	0.7506	0.8357	-0.2697	0.5132	0.7969
TαMCA	Tauro α muricholic acid	T_MCA	0.99 (0.77)	-1.6700	0.1697	0.6058	-0.8822	0.4610	0.8357	-1.3641	0.3040	0.7231
UCA	ursocholic acid	UCA	5.02 (7.71)	0.0638	0.6010	0.7351	0.1440	0.2305	0.7491	0.0897	0.4595	0.7969
UDCA	Ursodeoxycholic acid	UDCA	8.79 (9.15)	-0.0428	0.6869	0.7441	-0.0913	0.3823	0.8283	-0.1092	0.3005	0.7231
βCA	β cholic acid	X_CA	0.41 (0.69)	0.7134	0.5983	0.7351	0.6307	0.6305	0.8357	-0.0520	0.9689	0.9724
ωMCA	ω muricholic acid	X_MCA	1.09 (1.07)	-0.5866	0.5005	0.7230	-0.3750	0.6612	0.8357	-0.6517	0.4737	0.7969
βMCA	β muricholic acid	X_MCA.1	1.25 (1.41)	-0.2944	0.6766	0.7441	-0.3233	0.6438	0.8357	-0.2664	0.7078	0.8001
βUCA	β ursocholic acid	X_UCA	2.93 (4.56)	0.1819	0.4192	0.6694	0.1661	0.4508	0.8357	0.1016	0.6475	0.8001
βUDCA	β ursodeoxycholic acid	X_UDCA	0.37 (0.45)	1.6249	0.4327	0.6694	1.9106	0.3473	0.8208	1.7116	0.3962	0.7924
6,7_diketoLCA	6,7-diketolithocholic acid	X6.7_diketoLCA	6.91 (8.77)	-0.0881	0.4244	0.6694	-0.0096	0.9297	0.9411	-0.0039	0.9724	0.9724
7_ketoDCA	7-Ketodeoxycholic acid	X7_ketoDCA	4.61 (4.20)	-0.2070	0.3566	0.6694	-0.0642	0.7714	0.8357	-0.1343	0.5517	0.7969
7_ketoLCA	7-Ketolithocholic acid	X7_ketoLCA	1.71 (1.47)	-1.6267	0.0091	0.1179	-1.4326	0.0205	0.2663	-1.4811	0.0207	0.2688



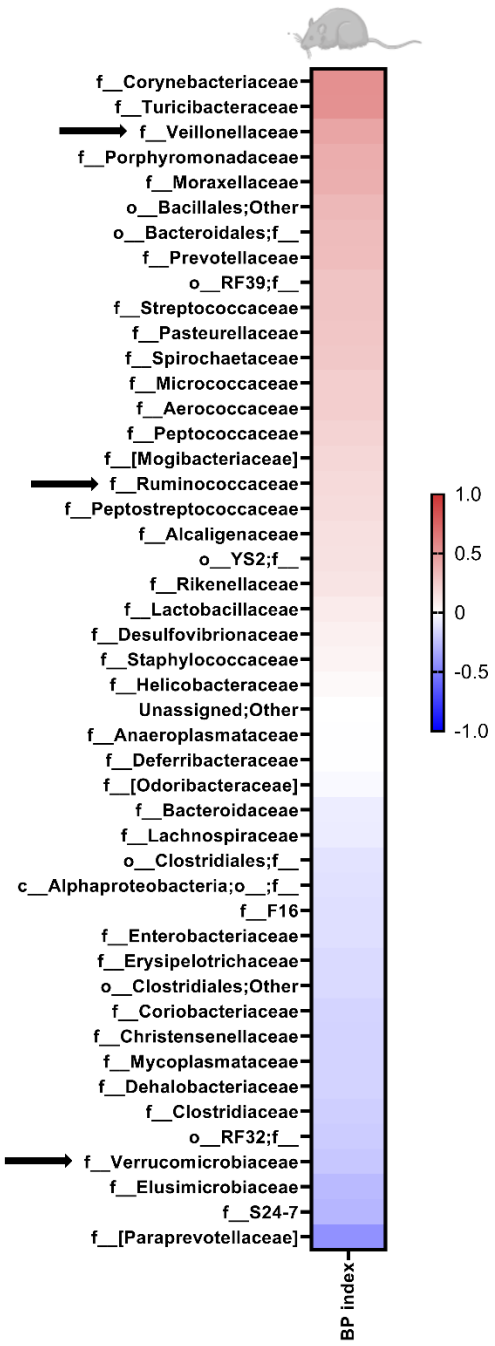
Supplemental Figure 1: Study timelines



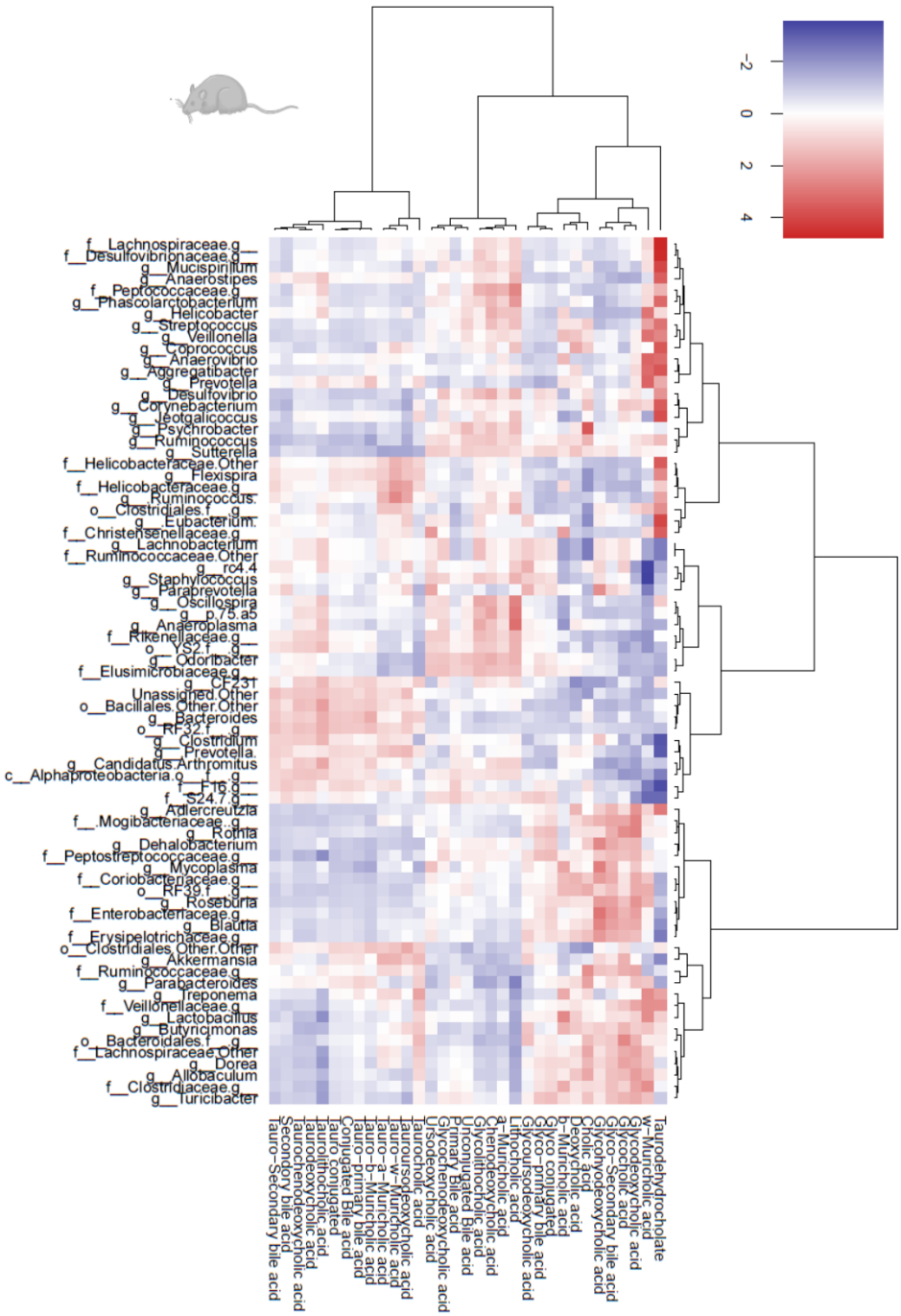
Supplemental Figure 2: A. Distribution of bile acid GHDCA with respect to quartiles of systolic blood pressure (Sbp_quart 1: 86.3-109.3, 2: 109.3-199.2, 3: 127.6, 4: 127.6-169.8). B. Distribution of bile acid GHDCA with respect to Race (0: Black, 1: White). C. Distribution of bile acid GHDCA with respect to Gender (0: Male, 1: Female). D. Distribution of bile acid GHDCA with respect to BMI.



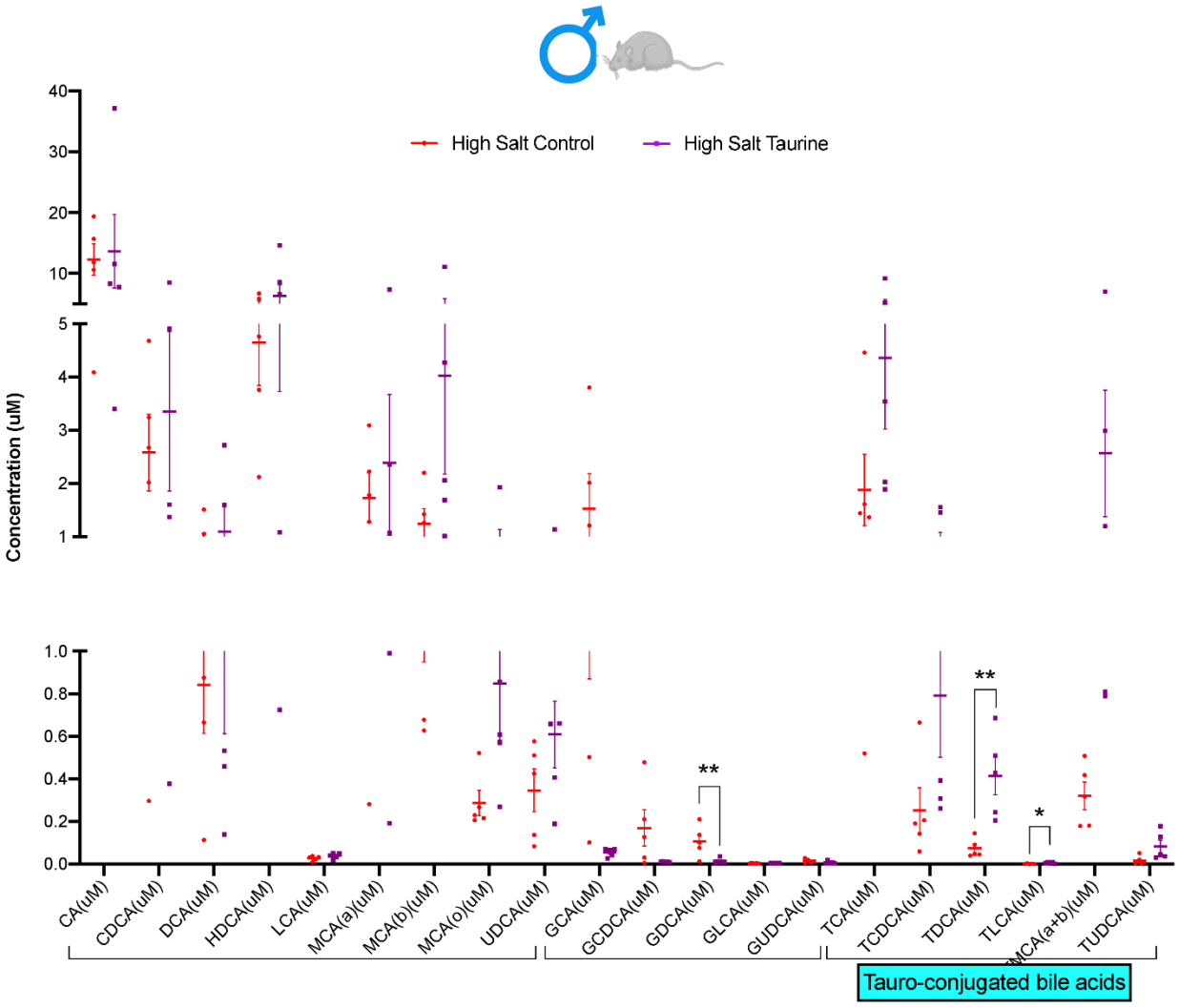
Supplemental Figure 3: Heatmap showing distribution of microbial genus across the hypertensive and normotensive rats. Purple boxes show microbiota that are found positively associated with systolic blood pressure CARDIA study. Alternatively, blue boxes are found negatively associated with systolic blood pressure in CARDIA study.



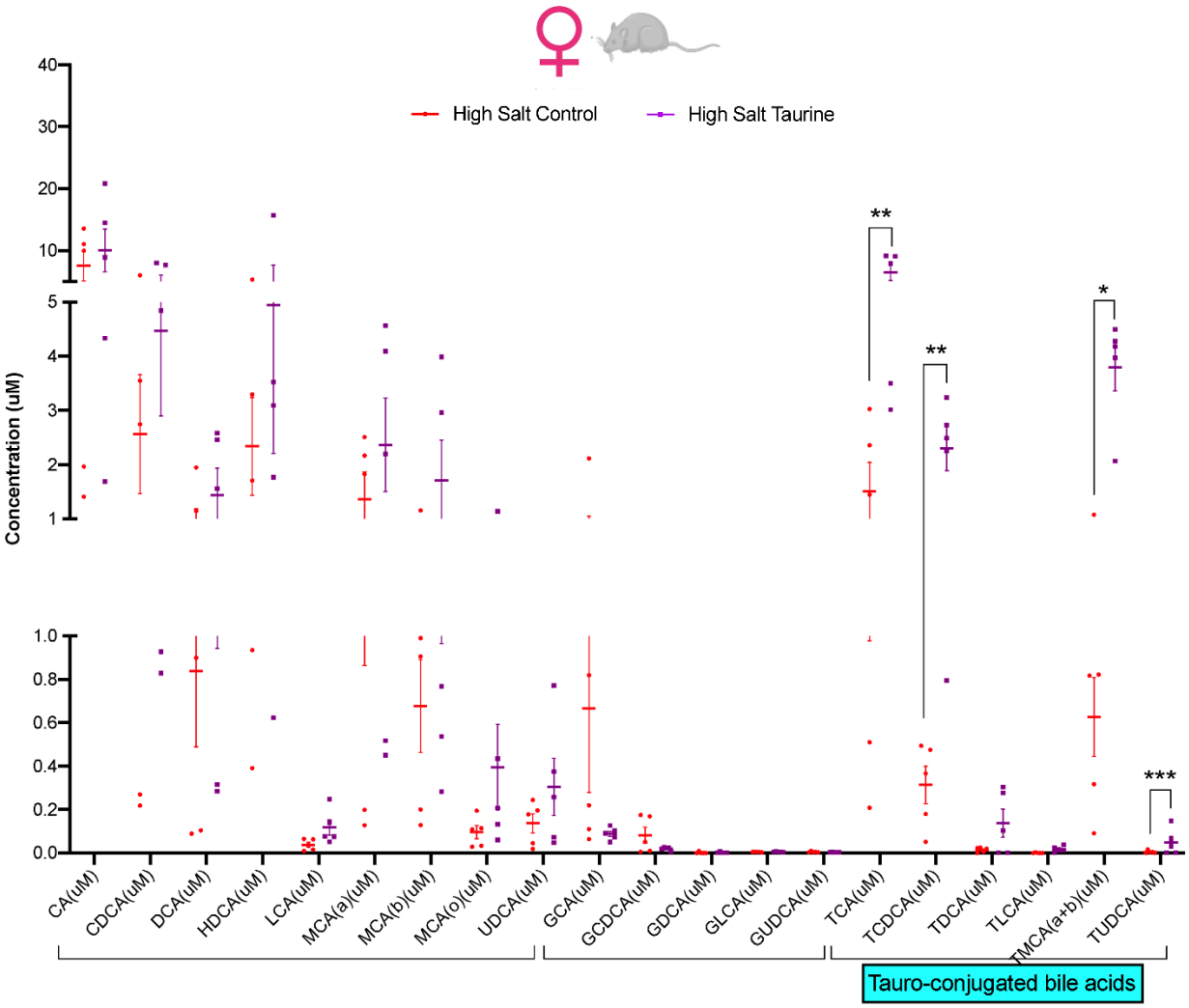
Supplemental Figure 4: Heatmap showing correlation matrix between microbial families and blood pressure in rats. Red color shows positive correlation and blue color shows negative correlation.



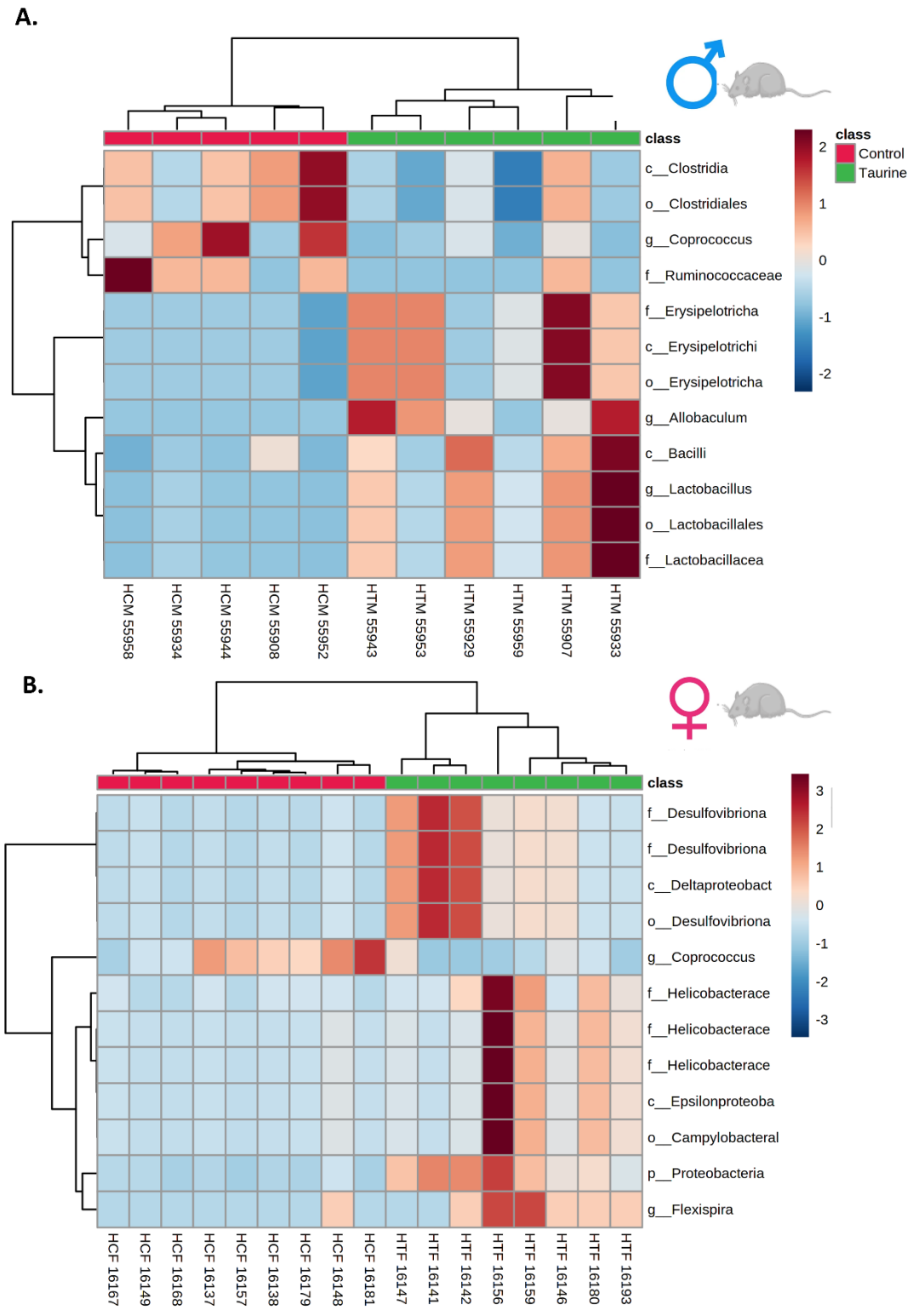
Supplemental Figure 5: Heatmap of correlation matrix between bileacids and microbial genus. Red color indicates positive correlation and blue color indicates negative correlation.



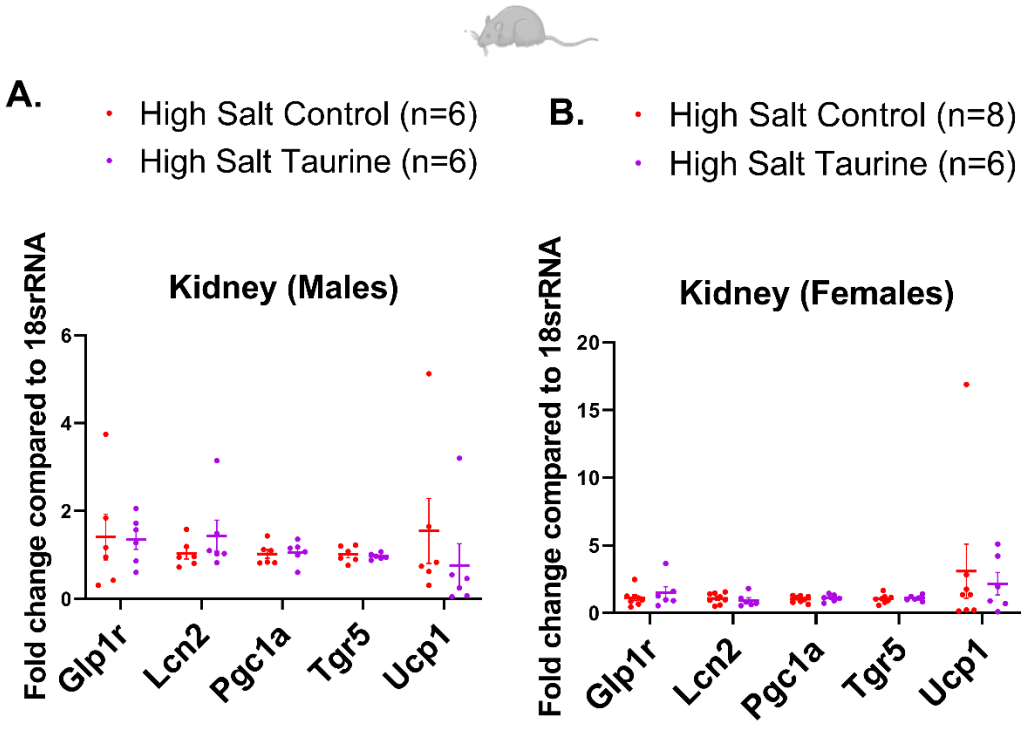
Supplemental Figure 6: Bile acid concentrations in male high salt control and taurine fed group. (*p<0.05, **p<0.01).



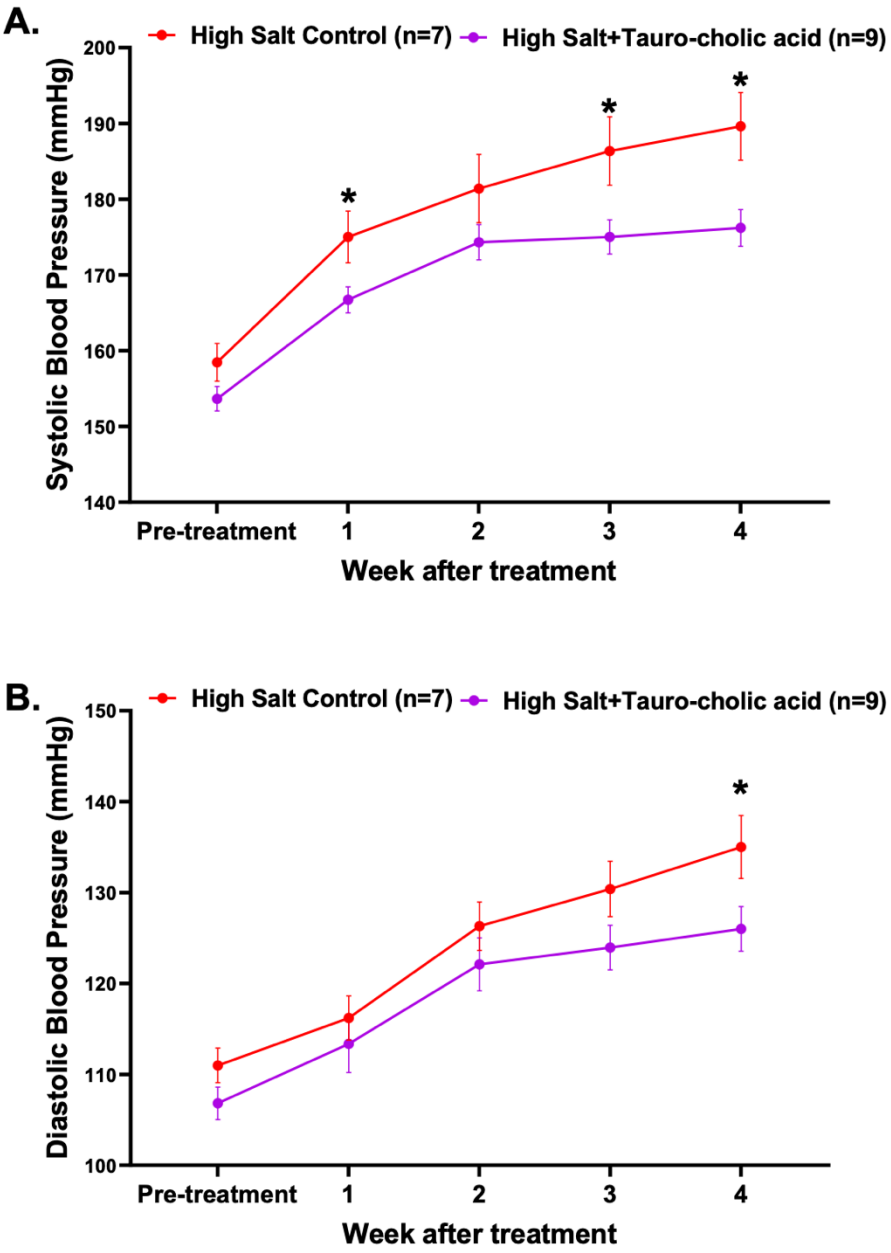
Supplemental Figure 7: Bile acid concentrations in female high salt control and taurine fed group. (*p<0.05, **p<0.01).



Supplemental Figure 8 : Significantly altered microbiota between Control and Taurine fed (A) male rats and (B) female rats.



Supplemental Figure 9: Bile acid relevant gene expression between high salt control and taurine feeding (A) male rats (B) female rats.



Supplemental Figure 10. Eight-week-old Dahl S rats were fed tauro-cholic acid (7.5 uM) with high salt diet. Blood pressure was measured by radiotelemetry. 24-hour average systolic (A) and diastolic (B) were reported over multiple time-points in high salt control (red) and high salt with tauro-cholic acid (purple) rats. Blood pressure data were presented as Mean ± SEM. (*$p<0.05$).