

Table S1A:
Identification of characteristic hepatic metabolites between dw/dw and dw/+ rats
in positive ion mode

Compound ID	Name	FC	P value	VIP
Com_1718_pos	Guanidinoethyl sulfonate	0.40343 1	0.0000 01	2.2353 73
Com_6221_pos	(±)8-HEPE	1.82177 4	0.0000 11	2.2153 93
Com_4545_pos	5'-S-Methyl-5'-thioadenosine	0.29657 4	0.0000 21	2.1300 18
Com_3110_pos	α-Lactose	7.69713 3	0.0001 46	2.1108 69
Com_1472_pos	Melezitose	10.6782 36	0.0001 11	2.0971 64
Com_2322_pos	Maltotetraose	8.69675 8	0.0000 83	2.0616 24
Com_451_pos	Trehalose	11.2565 38	0.0002 60	2.0382 73
Com_3187_pos	Prostaglandin F2alpha	2.16587 9	0.0005 68	2.0039 52
Com_2484_pos	Palmitoyl acid	1.42509 1	0.0007 82	1.9813 08
Com_7263_pos	ACar 18:0	0.23096 3	0.0002 62	1.9745 12
Com_1371_pos	2-hydroxy-6-[(8Z,11Z)-pentadeca-8,11,14-trien-1-yl]benzoic acid	2.18739 4	0.0008 74	1.9497 98
Com_1986_pos	1,5,8-Trihydroxy-9-oxo-9H-xanthen-3-yl beta-D-glucopyranoside	6.03674 4	0.0006 83	1.9077 45
Com_770_pos	S-Adenosylmethionine	0.36707 0	0.0004 89	1.8940 53
Com_2453_pos	Methenolone	2.20563 8	0.0015 98	1.8816 06
Com_28348_pos	ACar 17:1	0.53071 8	0.0037 81	1.8468 59
Com_3740_pos	5'-Deoxy-5'-(Methylthio)Adenosine	0.38949 9	0.0008 56	1.8388 38
Com_6170_pos	4-(2,3-dihydro-1,4-benzodioxin-6-yl)butanoic acid	1.67283 6	0.0014 34	1.7778 26
Com_299_pos	4-Guanidinobutyric acid	0.35469 5	0.0037 63	1.7738 00
Com_434_pos	Glucose 1-phosphate	2.17457 5	0.0020 29	1.7689 68

Com_2170_pos	12-Oxo phytodienoic acid	1.818165	0.004611	1.760996
Com_436_pos	D-(+)-Maltose	4.595602	0.002819	1.746025
Com_9179_pos	Nicotinamide adenine dinucleotide phosphate (NADP+)	0.346458	0.001227	1.700825
Com_2697_pos	Carnosine	4.744752	0.012230	1.692362
Com_1010_pos	ACar 18:1	0.384977	0.006422	1.689771
Com_553_pos	4-Guanidinobutanoic acid	0.414936	0.007557	1.644407
Com_11528_pos	FNK	0.570309	0.002603	1.639635
Com_2187_pos	Thymine	3.230204	0.003014	1.621536
Com_23_pos	Creatine	2.258425	0.015668	1.612065
Com_7217_pos	11-Deoxy prostaglandin F1 α	0.462173	0.001132	1.601388
Com_537_pos	Taurocholic acid sodium salt hydrate	2.042670	0.010421	1.595935
Com_3893_pos	(-)-Epigallocatechin	0.579598	0.005520	1.595553
Com_722_pos	2-[(7-methyl-2,3-dihydro-1H-inden-4-yl)oxy]pyridin-3-amine	14.919803	0.023031	1.595428
Com_612_pos	ACar 18:2	0.540509	0.010172	1.565325
Com_4340_pos	Uracil 1-beta-D-arabinofuranoside	1.568596	0.001720	1.563338
Com_27868_pos	Bilirubin	0.642375	0.025406	1.555111
Com_46_pos	Tauro-alpha-Muricholic acid sodium salt	1.916331	0.013113	1.553119
Com_12059_pos	Gly-Tyr-Ala	2.709915	0.002903	1.553007
Com_3131_pos	(5E)-7-methylidene-10-oxo-4-(propan-2-yl)undec-5-enoic acid	0.392330	0.014175	1.531869
Com_18_pos	Acetylcholine	0.349346	0.009767	1.524496
Com_3729_pos	Ala-Val	2.135037	0.004681	1.514120
Com_73_pos	Benzoyllecgonine	0.27248	0.0045	1.5004

		2	33	33
Com_7449_pos	Pyridoxal 5'-phosphate	0.598079	0.002350	1.491047
Com_7152_pos	PC (4:0/16:2)	2.510183	0.013209	1.486732
Com_11281_pos	3-hydroxy-2-[5-nitro-2-(1-pyrrolidiny)benzyl]propanenitrile	1.601304	0.004534	1.484181
Com_3777_pos	N-lactoyl-phenylalanine	1.668238	0.004959	1.476622
Com_1253_pos	tert-Butyl N-[1-(aminocarbonyl)-3-methylbutyl]carbamate	3.456190	0.005265	1.472847
Com_15831_pos	AQH	1.749531	0.006418	1.456168
Com_692_pos	7-Ketodeoxycholic acid	1.190138	0.034018	1.450584
Com_4482_pos	PC (18:5e/2:0)	3.548000	0.015263	1.449641
Com_16_pos	Phosphocholine	0.333349	0.009843	1.447560
Com_33667_pos	PC (16:2e/2:0)	1.523111	0.018921	1.443803
Com_2536_pos	Dehydrocholic acid	1.355182	0.020273	1.438183
Com_2149_pos	LPC 18:3	0.811984	0.008415	1.434608
Com_7783_pos	LPC 16:2	0.756174	0.000048	1.418085
Com_3142_pos	Guanidinosuccinic acid	1.978362	0.007090	1.399654
Com_2818_pos	APK	0.544268	0.006555	1.399179
Com_4729_pos	ACar 22:6	0.538453	0.012848	1.390688
Com_4119_pos	2-[(3S)-1-Benzyl-3-pyrrolidiny]-1,3-benzothiazole	2.089680	0.008556	1.382464
Com_412_pos	ACar 20:4	0.592803	0.019273	1.379605
Com_3841_pos	ACar 16:1	0.504687	0.020996	1.372478
Com_2614_pos	Homoarginine	0.588066	0.031079	1.368246
Com_45754_pos	L-Leucyl-L-alanine Hydrate	1.792285	0.006172	1.367845

Com_346_pos	β -Nicotinamide mononucleotide	0.50679 3	0.0175 47	1.3677 65
Com_2878_pos	2-(2-amino-3-methylbutanamido)-3-phenylpropanoic acid	4.91992 0	0.0083 20	1.3636 22
Com_7785_pos	Coenzyme Q2	0.53836 3	0.0315 83	1.3594 99
Com_3266_pos	PC (14:1e/3:0)	2.63388 2	0.0080 64	1.3581 86
Com_5211_pos	3-(1-benzylpiperidin-4-yl)-3H-[1,2,3]triazolo[4,5-b]pyridine	0.39718 3	0.0065 84	1.3511 91
Com_1042_pos	N-Acetylglucosamine 1-phosphate	0.45492 7	0.0212 37	1.3507 05
Com_5719_pos	(\pm)-Abscisic acid	0.52398 7	0.0112 48	1.3060 33
Com_2288_pos	Ala-Ile	2.17780 7	0.0132 46	1.2897 06
Com_81_pos	LPC 22:6	0.78644 4	0.0099 98	1.2861 96
Com_6872_pos	L-Cystathionine	1.62568 1	0.0432 03	1.2727 31
Com_189_pos	L-Cysteine-glutathione gisulfide	1.70774 1	0.0264 78	1.2699 33
Com_7496_pos	Asp-Phe methyl ester	1.78400 4	0.0078 04	1.2519 44
Com_250_pos	Stearamide	0.64203 7	0.0318 04	1.2478 35
Com_148_pos	Riboflavin	0.65929 5	0.0212 04	1.2458 21
Com_11121_pos	Choline Glycerophosphate	1.66355 5	0.0116 23	1.2361 99
Com_28217_pos	ACar 15:0	0.64675 2	0.0467 78	1.2339 16
Com_1925_pos	2-Arachidonoyl glycerol	3.56620 2	0.0082 90	1.2326 06
Com_2347_pos	(\pm)13-HpODE	1.52588 5	0.0471 18	1.2322 46
Com_11829_pos	Traumatic acid	1.54164 1	0.0306 56	1.2309 77
Com_4663_pos	ACar 18:3	0.51442 6	0.0197 77	1.2288 00
Com_2605_pos	Gly-Tyr	1.58186 6	0.0207 31	1.2275 29
Com_966_pos	PC (14:1e/2:0)	2.56066	0.0311	1.2002

s		6	45	21
Com_3492_pos	Ala-Gln	1.63225 3	0.0232 12	1.1723 52
Com_3045_pos	INK	1.80157 7	0.0203 75	1.1608 18
Com_7519_pos	4-(3,4-dimethoxyphenyl)-3-methyl-1H-pyrazol-5-amine	0.48657 1	0.0382 21	1.1416 31
Com_5380_pos	Ala-Leu	2.02186 4	0.0445 69	1.1095 17

Table S1B:

Identification of characteristic hepatic metabolites between dw/dw and dw/+ rats in negative ion mode

Compound_ID	Name	FC	Pvalue	VIP
Com_1444_neg	D-Ribulose 1,5-bisphosphate	0.27488 7	0.0000 02	2.3898 39
Com_1996_neg	Lactobionic acid	0.38917 5	0.0000 35	2.3232 32
Com_721_neg	5-Phosphoribosyl 1-pyrophosphate	0.53558 2	0.0002 87	1.9195 39
Com_3512_neg	11-Deoxy prostaglandin F2	0.34601 7	0.0002 91	2.0900 66
Com_139_neg	Adenosine diphosphate ribose	39.2442 58	0.0003 25	2.2639 96
Com_458_neg	7-Ketolithocholic acid	0.02956 6	0.0003 28	2.2203 36
Com_4190_neg	Prostaglandin H2	0.43727 8	0.0003 70	2.3422 66
Com_52_neg	3'-Adenosine monophosphate (3'-AMP)	1.73955 7	0.0004 76	1.9373 05
Com_1653_neg	Maltotriose	9.53563 0	0.0007 10	2.1637 70
Com_1344_neg	Pyridoxal-5'-phosphate	0.50369 1	0.0009 61	1.7965 56
Com_2395_neg	NAD+	0.46164 0	0.0011 26	2.0286 28
Com_2612_neg	Deoxyguanosine	0.57279 4	0.0014 54	1.6749 29
Com_121_neg	D-Raffinose	21.0493	0.0015	1.9575

eg		16	23	03
Com_1807_ neg	Pyridoxal 5'-phosphate hydrate	0.52889 7	0.0020 58	1.6067 93
Com_3537_ neg	Estradiol	0.39685 9	0.0023 00	1.9736 27
Com_2988_ neg	6-Sialyllactose	4.88581 1	0.0023 35	2.0279 45
Com_208_n eg	2-deoxyglucose-6-phosphate	0.65781 9	0.0030 80	1.6536 52
Com_3077_ neg	2,3-dinor Prostaglandin E1	0.44952 6	0.0034 84	1.8909 68
Com_3461_ neg	Tyrosylalanine	2.24299 5	0.0037 88	1.5823 99
Com_2205_ neg	Hypotaurine	0.48643 9	0.0038 75	1.5077 83
Com_916_n eg	Guanosine	0.58316 8	0.0039 76	1.2823 48
Com_882_n eg	Reduced nicotinamide adenine dinucleotide	2.49063 8	0.0044 83	1.8582 52
Com_5242_ neg	(1E)-1,7-bis(4-hydroxyphenyl)hept-1-en-3-one	0.66089 2	0.0047 13	1.1641 66
Com_2800_ neg	N1-[1-(3-isopropenylphenyl)-1-methylethyl]-3-oxo butanamide	3.53330 2	0.0056 62	1.5416 31
Com_136_n eg	N-Acetyl-D-glucosamine 1-phosphate	0.61060 6	0.0056 78	1.6818 43
Com_5639_ neg	Ala-trp	1.57257 8	0.0060 47	1.1578 17
Com_3805_ neg	Phe-Pro	2.24907 6	0.0063 17	1.4815 89
Com_2466_ neg	Feruloyl Putrescine	4.74028 3	0.0067 44	1.5522 59
Com_39_ne g	Deoxycholic Acid	0.02133 8	0.0068 20	1.9039 84
Com_396_n eg	Citric acid	0.38717 7	0.0091 12	1.5846 18
Com_2599_ neg	Capryloylglycine	0.47056 2	0.0111 81	1.7078 29
Com_2666_ neg	Benzyl cinnamate	1.67139 2	0.0113 67	1.3916 71
Com_1764_ neg	Taurochenodeoxycholic acid	0.58287 1	0.0117 38	1.4703 72
Com_641_n eg	Dihydrosesoside	0.34342 4	0.0126 05	1.4998 85

Com_4997_ neg	FAHFA 18:1	0.51743 7	0.0127 21	1.2975 38
Com_466_n eg	Orotic acid	0.35787 5	0.0148 98	1.3475 35
Com_3491_ neg	trans-10-Heptadecenoic Acid	0.54366 7	0.0154 09	1.5199 19
Com_5534_ neg	Guanine	1.99668 8	0.0156 63	1.5107 69
Com_3822_ neg	13,14-Dihydro prostaglandin E1	0.59785 3	0.0162 67	1.6952 13
Com_1681_ neg	Stercobilin	0.56812 8	0.0163 80	1.5205 25
Com_944_n eg	Chenodeoxycholic Acid	0.17166 6	0.0193 46	1.6215 92
Com_974_n eg	3-Indoxyl sulphate	0.54968 0	0.0195 18	1.3914 18
Com_3494_ neg	13,14-dihydro-15-keto-tetranor Prostaglandin F1	0.48426 4	0.0204 28	1.6712 98
Com_1199_ neg	Adenine	0.64704 2	0.0250 57	1.5969 74
Com_2357_ neg	9(Z),11(E)-Conjugated linoleic acid	0.55278 8	0.0256 69	1.5721 29
Com_5187_ neg	7,8-Dihydrofolate	0.45227 6	0.0264 21	1.3813 80
Com_1106_ neg	Dodecanedioic acid	0.49648 4	0.0277 20	1.4714 75
Com_1533_ neg	Asp-Phe	1.81586 7	0.0313 73	1.0786 22
Com_230_n eg	Glycolithocholic acid	0.03249 6	0.0353 95	1.3431 22
Com_1374_ neg	L-Anserine	6.65019 1	0.0452 01	1.5874 12
Com_486_n eg	4-(octyloxy)benzoic acid	0.60295 7	0.0470 20	1.0986 89