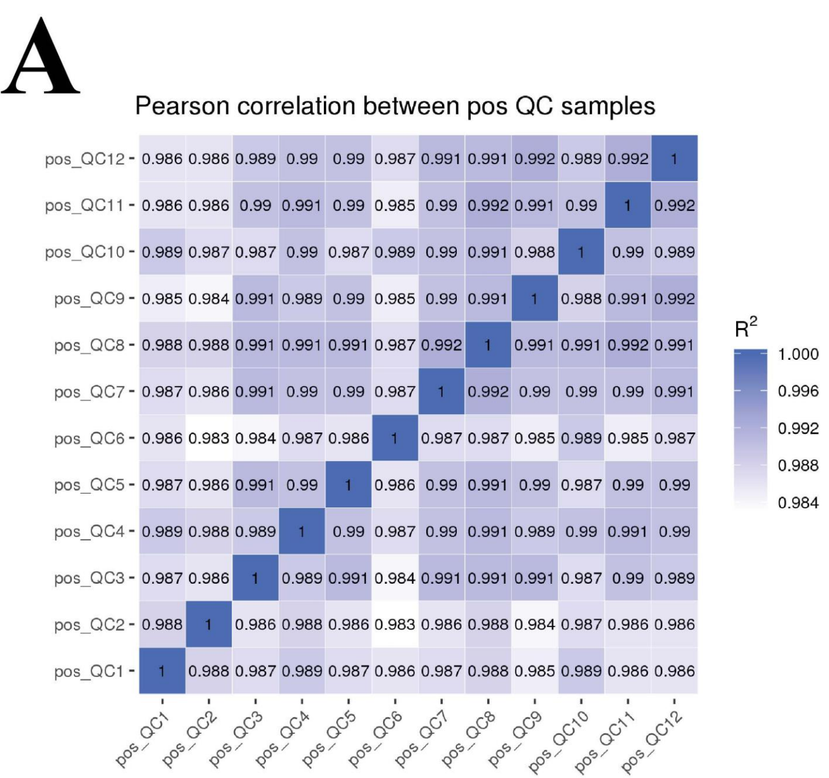
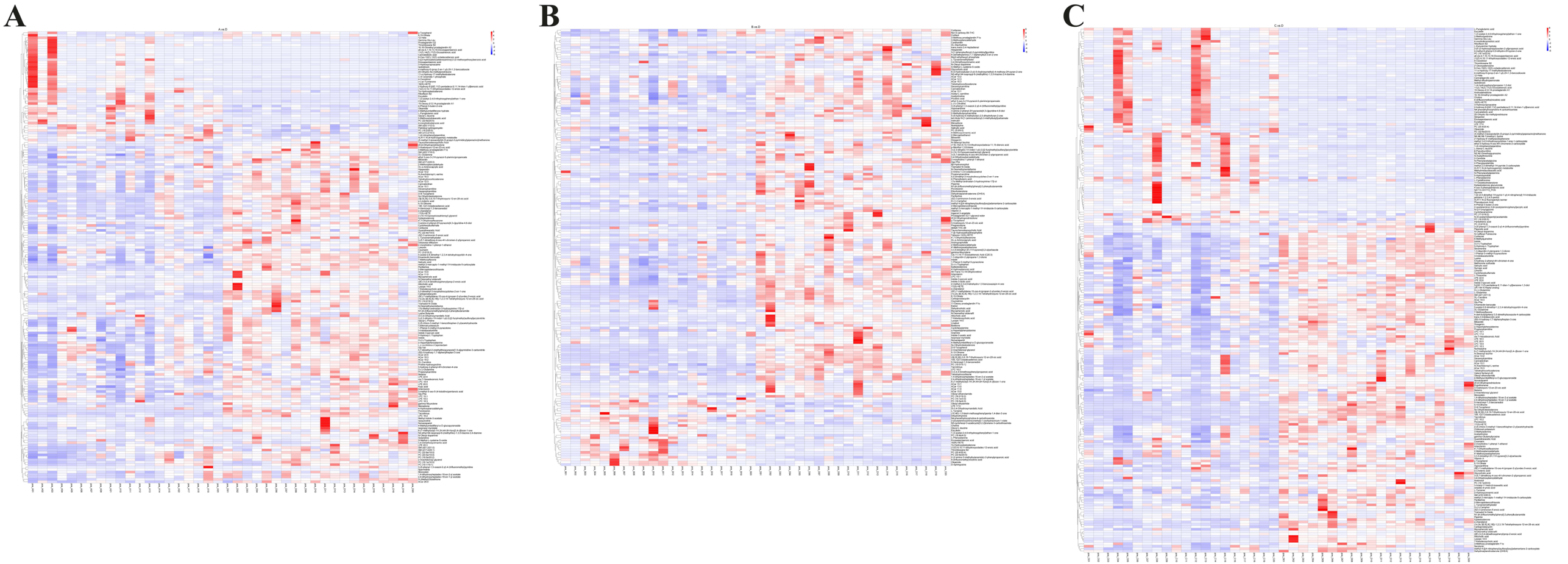
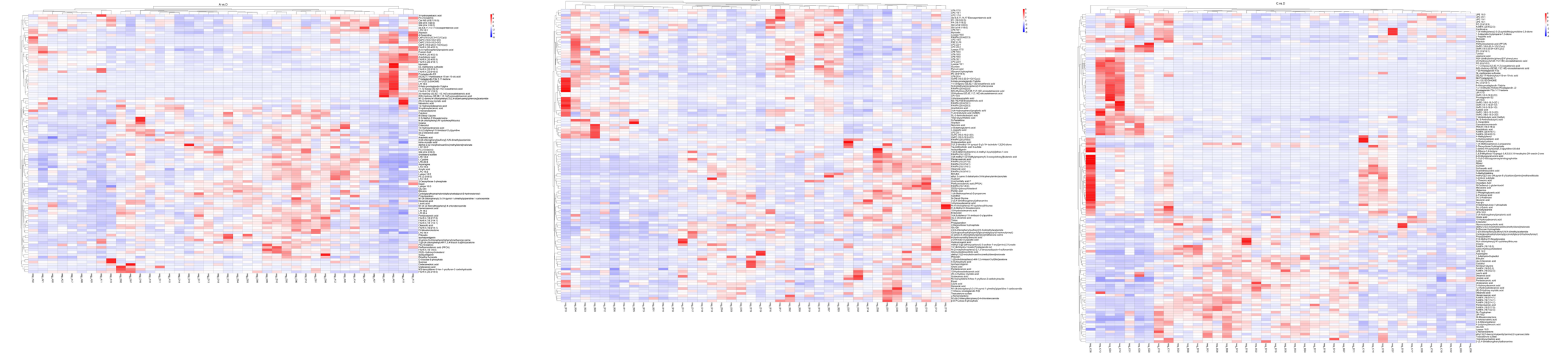


Supplementary Figure 1 Quality control analysis (A) Pearson correlation between quality control samples (positive mode) (B) principal component (PC) plot of five groups (positive mode, 2 dimensions) (C) PC plot of five groups (positive mode, 3 dimensions) (D) Pearson correlation between QC samples (negative mode) (E) PC plot of five groups (negative mode, 2 dimensions) (F) PC plot of five groups (negative mode, 3 dimensions)





Supplementary Figure 2 Heatmaps of differential metabolites (A) IgA nephropathy (IgAN) vs controls pair (positive mode) (B) membranous nephropathy (MN) vs controls pair (positive mode) (C) diabetic nephropathy (DN) vs controls pair (positive mode) (D) IgAN vs controls pair (negative mode) (E) MN vs controls pair (negative mode) (F) DN vs controls pair (negative mode)

Supplementary table 1 List of differential metabolites in three comparison pairs (positive mode)

ID	Name	A.vs.D	B.vs.D	C.vs.D	
Com_1954_pos	9,10-Dihome		1	1	1
Com_11256_pos	4-Hydroxybenzoic acid		0	1	0
Com_5536_pos	2-Mercaptobenzothiazole		1	1	1
Com_1577_pos	Isopropyl myristate		1	1	0
Com_8103_pos	Picolinic acid		0	1	0
Com_36_pos	Eicosapentaenoic acid		1	1	1
Com_8744_pos	D-¦Д-Tocopherol		1	1	1
Com_3920_pos	2-(acetylamino)-3-[4-(acetylamino)phenyl]acrylic acid		0	0	1
Com_6728_pos	Ergothioneine		0	0	1
Com_4699_pos	(11E,15Z)-9,10,13-trihydroxyoctadeca-11,15-dienoic acid		0	1	0
Com_4929_pos	methyl 2,5-dimethyl-1H-pyrrole-3-carboxylate		0	0	1
Com_7987_pos	S-(Methyl)Glutathione		1	0	0
Com_11945_pos	delta8-THC-d9		0	1	0
Com_3271_pos	2-Mercaptoethanol		0	1	0
Com_8257_pos	Perillartine		1	1	1
Com_12595_pos	N-Stearoyl taurine		0	1	1
Com_766_pos	PC (20:5e/18:0)		1	0	0
Com_3914_pos	ethyl 3-oxo-3-(1H-pyrazol-5-ylamino)propanoate		1	1	0
Com_2123_pos	LPC 16:2		1	1	1
Com_9502_pos	PC (20:4/20:4)		0	1	1
Com_4977_pos	Allocholic acid		1	1	1
Com_2835_pos	PC (18:1e/22:6)		0	0	1
Com_3934_pos	3-Methoxybenzaldehyde		0	1	0
Com_2716_pos	Prostaglandin E2-1-glyceryl ester		0	1	0
Com_3010_pos	2-Phenylacetamide		0	0	1
Com_13017_pos	Oleoyl ethylamide		0	1	0
Com_5498_pos	1-[2-(2,5-dimethyl-1H-pyrrol-1-yl)-4-nitrophenyl]-1H-imidazole		0	0	1
Com_39_pos	Choline		1	1	1
Com_8264_pos	5,5-dimethyl-3-morpholinocyclohex-2-en-1-one		1	1	0
Com_6359_pos	5,7-dimethyl-2-(methylthio)pyrazolo[1,5-a]pyrimidine-3-carbonitrile		1	0	0
Com_3031_pos	Ingenol-3-angelate		0	1	0
Com_1817_pos	Acetylcholine		0	1	1
Com_6166_pos	Tacrolimus		1	1	1
Com_377_pos	Monoolein		1	0	1
Com_3902_pos	PC (22:6e/18:0)		1	0	0
Com_2794_pos	Methyl dihydrojasmonate		0	0	1
Com_9496_pos	Emamectin benzoate		1	0	1
Com_8562_pos	Picrotoxinin		1	1	1
Com_481_pos	Decanoylcarnitine		1	1	1
Com_3838_pos	1,4-dihydroxyheptadec-16-en-2-yl acetate		1	1	1
Com_826_pos	SM (d20:1/12:0)		1	0	0
Com_1486_pos	ACar 11:0		1	1	0
Com_1198_pos	L-Threonine		0	0	1
Com_10003_pos	ethyl 5-hydroxy-4-oxo-4H-chromene-2-carboxylate		0	0	1
Com_6355_pos	Styrene		0	0	1
Com_12452_pos	¦Б-Zearalanol		1	1	1
Com_2314_pos	3-[1-(phenylsulfonyl)-2-pyrrolidinyl]pyridine		0	1	0
Com_5589_pos	Diosgenin		0	1	1
Com_3915_pos	LPE 20:5		1	0	1
Com_7602_pos	20 ¦B-Dihydroprednisolone		1	1	1
Com_923_pos	Tetrahydrocorticosterone		1	1	1
Com_506_pos	Methionine sulfoxide		0	0	1
Com_12542_pos	Oleoyl ethanolamide		0	1	1
Com_4394_pos	5-Hydroxy-L-Tryptophan		1	0	1
Com_8788_pos	ACar 15:1		0	1	0
Com_1852_pos	Hesperetin		1	1	0
Com_929_pos	16,16-Dimethyl prostaglandin A2		1	0	1
Com_2576_pos	(5Z)-3-aminonon-5-enoic acid		1	1	1
Com_211_pos	L-Tyrosine		0	1	1
Com_3232_pos	Tetranor-12(S)-HETE		0	1	0
Com_11525_pos	Solanidine		1	0	0
Com_6306_pos	Sinomenine		0	0	1
Com_777_pos	ACar 18:2		1	0	0
Com_5653_pos	3-Indoleacetonitrile		1	0	1
Com_3103_pos	PC (18:2/18:2)		0	1	0
Com_2721_pos	Propionylcarnitine		1	1	1
Com_7039_pos	Indole-3-pyruvic acid		1	1	1
Com_3734_pos	methyl 3,4,5-trihydroxycyclohex-1-ene-1-carboxylate		0	0	1
Com_4859_pos	ACar 15:0		1	1	0

Com_3386_pos	LPE 18:3	1	0	1
Com_40_pos	L-Phenylalanine	0	1	1
Com_5269_pos	4-methoxy-6-(prop-2-en-1-yl)-2H-1,3-benzodioxole	1	0	1
Com_10480_pos	2'-Deoxyadenosine	0	0	1
Com_199_pos	2-Hydroxycinnamic acid	0	0	1
Com_2368_pos	PC (18:4e/4:0)	0	1	0
Com_1142_pos	2-Oxindole	0	0	1
Com_1378_pos	(5E)-7-methylidene-10-oxo-4-(propan-2-yl)undec-5-enoic acid	1	1	1
Com_3614_pos	Androstenedione	0	0	1
Com_312_pos	N-Phenylacetylglutamine	0	0	1
Com_998_pos	Indole	1	1	1
Com_5189_pos	5-Methoxyindoleacetic acid	1	0	0
Com_160_pos	Hypoxanthine	0	1	1
Com_6870_pos	5-(6-hydroxy-6-methyloctyl)-2,5-dihydrofuran-2-one	0	1	0
Com_6925_pos	Glycyl-L-leucine	1	1	0
Com_2196_pos	N1-[4-(trifluoromethyl)phenyl]-2-phenylbutanamide	1	1	1
Com_1054_pos	Valeryl fentanyl-d5	0	0	1
Com_11400_pos	3-Methoxy prostaglandin F1¦Б	1	1	1
Com_8648_pos	¦Г-Tocopherol	1	1	1
Com_3550_pos	PC (14:1e/3:0)	0	1	0
Com_8362_pos	XLR11 N-(4-hydroxypentyl) metabolite	1	0	1
Com_3047_pos	1,3-dipyridin-2-ylpropane-1,3-dione	0	1	1
Com_5327_pos	3,3,5-trimethyl-3H,11H-pyrano[3,2-a]carbazole	0	1	1
Com_7315_pos	methyl 4-{[(4-nitrophenyl)sulfonyl]oxy}adamantane-2-carboxylate	0	1	1
Com_5433_pos	ACar 26:0	1	0	0
Com_1968_pos	Cannabigerolic acid	0	0	1
Com_1683_pos	L-(+)-Citrulline	0	1	0
Com_2142_pos	DL-¦Б-Aminocaprylic acid	1	1	0
Com_102_pos	trans-3-Indoleacrylic acid	0	0	1
Com_448_pos	all-cis-4,7,10,13,16-Docosapentaenoic acid	1	0	1
Com_3849_pos	NAT13-331713_POS	0	0	1
Com_8777_pos	Serotonin	0	0	1
Com_9650_pos	2-Methylbutyroylcarnitine	0	1	0
Com_7815_pos	4-oxo-5-phenylpentanoic acid	0	0	1
Com_6475_pos	Dehydrocholic acid	0	1	0
Com_6120_pos	Oxymatrine	0	1	0
Com_6496_pos	octadec-9-ynoic acid	0	0	1
Com_2940_pos	5-Hydroxyindole	0	0	1
Com_1500_pos	2-Amino-1,3,4-octadecanetriol	0	1	0
Com_37_pos	Mycophenolic acid	1	1	1
Com_9273_pos	5-acetyl-2,6-dimethyl-1,2,3,4-tetrahydropyridin-4-one	1	0	1
Com_4486_pos	Linalool	0	1	0
Com_6176_pos	SM (d21:2/21:0)	1	0	1
Com_7648_pos	PC (18:5e/4:0)	0	1	0
Com_2660_pos	8,15-Dihete	1	1	1
Com_3330_pos	2-(5-chloro-3-methyl-1-benzothiophen-2-yl)acetohydrazide	1	0	1
Com_7638_pos	Tramadol N-Oxide	1	1	1
Com_1525_pos	6-Methylquinoline	0	0	1
Com_6153_pos	2,4-dihydroxyheptadec-16-en-1-yl acetate	1	1	1
Com_5000_pos	Cortisone	1	1	1
Com_925_pos	2-(2-amino-3-methylbutanamido)-3-phenylpropanoic acid	0	1	0
Com_12370_pos	2-morpholino-1-phenyl-1-ethanol	1	1	1
Com_4991_pos	1-(4-nitrophenyl)piperidine	1	0	1
Com_1658_pos	5-hydroxy-2-phenyl-4H-chromen-4-one	1	0	1
Com_433_pos	Pipecolic acid	0	0	1
Com_5199_pos	2-methyl-2,3,4,5-tetrahydro-1,5-benzoxazepin-4-one	0	1	0
Com_351_pos	DL-Glutamine	1	0	1
Com_3607_pos	(+)-ar-Turmerone	1	0	0
Com_5971_pos	¦Б-Linolenic acid	1	1	1
Com_6863_pos	(5S)-5-hydroxy-1,7-diphenylheptan-3-one	1	0	1
Com_266_pos	Isotretinoin	1	0	1
Com_963_pos	SM (d17:2/25:0)	1	0	0
Com_7910_pos	Carbaprostacyclin	1	1	1
Com_3018_pos	N-Phenylacetylglycine	0	0	1
Com_9011_pos	N-(2-Furoyl)glycine	0	0	1
Com_4850_pos	Indirubin	0	1	0
Com_1475_pos	3,4-Dimethoxycinnamic acid	1	1	0
Com_7687_pos	gamma-Muurolene	1	1	0
Com_4180_pos	ACar 20:4	1	0	0
Com_9649_pos	17(S)-HETE	1	1	1
Com_5967_pos	PC (16:1e/16:0)	1	0	0

Com_812_pos	D-Sphingosine	0	1	0
Com_2298_pos	Dehydroepiandrosterone (DHEA)	0	1	1
Com_1087_pos	Gly-Val	1	0	0
Com_2993_pos	N-Desmethylvenlafaxine	1	1	0
Com_7048_pos	Menadione	1	1	0
Com_10102_pos	Limonin	1	0	1
Com_8271_pos	N-Oleoyl dopamine	1	1	1
Com_11328_pos	N-Caffeoyl Putrescine	0	0	1
Com_100_pos	DL-Stachydrine	0	1	0
Com_6283_pos	PC (19:2/18:3)	1	0	0
Com_263_pos	15-Deoxy-¦¤12,14-prostaglandin A1	1	0	1
Com_13719_pos	Vitamin A	0	1	1
Com_9372_pos	Riboflavin B2	1	0	1
Com_3605_pos	Kojic acid	1	0	0
Com_1254_pos	LPE 22:6	0	0	1
Com_2005_pos	3-(5,7-dimethoxy-4-oxo-4H-chromen-2-yl)propanoic acid	1	1	1
Com_11651_pos	4-morpholinobenzoic acid	1	0	0
Com_4342_pos	N-(5-acetamidopentyl)acetamide	0	0	1
Com_7897_pos	3-(5-phenyl-1,3-oxazol-2-yl)-4-(trifluoromethyl)pyridine	1	1	1
Com_9058_pos	L-Tyrosinemethylester	1	1	1
Com_7003_pos	Epitestosterone	1	1	1
Com_804_pos	4-(trifluoromethyl)nicotinic acid	0	1	1
Com_6189_pos	1-(3-acetyl-2,4,6-trihydroxyphenyl)ethan-1-one	1	1	1
Com_1713_pos	Cannabidiolic acid	1	0	1
Com_3752_pos	Norverapamil	1	1	1
Com_406_pos	D-(-)-Glutamine	1	0	1
Com_3443_pos	4-Phenylbutyric acid	0	1	0
Com_6213_pos	2-Methoxybenzaldehyde	1	1	1
Com_2278_pos	¦Б-Aspartylphenylalanine	1	1	1
Com_265_pos	Palmitoyl sphingomyelin	1	0	0
Com_8718_pos	LPC 18:4	1	0	1
Com_7125_pos	Cyclohexylsulfamate	1	0	1
Com_8956_pos	L-Cystathionine	0	0	1
Com_5263_pos	Cannabicitran	1	1	1
Com_5835_pos	Spermidine	1	0	0
Com_756_pos	Indole-3-lactic acid	0	1	0
Com_213_pos	Dl-3,4-Dihydroxymandelic Acid	1	1	0
Com_12166_pos	Boldione	0	1	0
Com_1225_pos	4'-Methoxyacetophenone	0	1	1
Com_8700_pos	11-Oxoetiocholanolone	0	0	1
Com_2362_pos	Dihydrothymine	0	1	0
Com_3529_pos	(1E,4E)-1,5-bis(4-methoxyphenyl)penta-1,4-dien-3-one	0	1	0
Com_7090_pos	N2,N2-Dimethylguanosine	0	0	1
Com_3316_pos	Cantharidin	0	1	0
Com_3724_pos	(3¦B,5¦O,9¦O)-3,6,19-Trihydroxyurs-12-en-28-oic acid	1	1	1
Com_3337_pos	4-Methoxycinnamic acid	0	1	0
Com_1110_pos	Salicylic acid	1	1	1
Com_205_pos	11-¦Б-Hydroxy-17-methyltestosterone	1	0	1
Com_8021_pos	Nortriptyline	0	1	1
Com_610_pos	3-methyl-5-oxo-5-(4-toluidino)pentanoic acid	1	0	0
Com_5309_pos	Pregnenolone	0	1	0
Com_9467_pos	L-Kynurenine Hydrate	0	0	1
Com_4249_pos	Clofencet-potassium	1	0	1
Com_6396_pos	3,4-Dihydroxybenzaldehyde	0	1	1
Com_5253_pos	Esculetin	1	1	1
Com_2370_pos	ACar 13:0	0	1	0
Com_6567_pos	tert-Butyl N-[1-(aminocarbonyl)-3-methylbutyl]carbamate	0	1	0
Com_11231_pos	Phenylpyruvic Acid	0	0	1
Com_4534_pos	ACar 16:3	1	1	1
Com_13387_pos	4-Methylumbelliferone hydrate	1	0	0
Com_10989_pos	2-[5-(2-hydroxypropyl)oxolan-2-yl]propanoic acid	0	0	1
Com_10150_pos	Nor-9-carboxy-¦Д9-THC	0	1	0
Com_6984_pos	Guanidineacetic Acid	1	0	1
Com_2601_pos	7-Ketodeoxycholic acid	1	1	1
Com_5893_pos	2-Methoxyestrone	0	0	1
Com_7773_pos	Desacetyl diltiazem	1	0	0
Com_214_pos	SM (d15:2/19:0)	1	0	0
Com_6076_pos	PC (19:1/19:1)	1	0	0
Com_1170_pos	Oleamide	1	1	1
Com_8480_pos	LPC 17:2	0	0	1
Com_32_pos	Methyl indole-3-acetate	1	0	0

Com_2954_pos	ACar 12:3	1	1	0
Com_4425_pos	LPE 20:3	1	0	0
Com_4857_pos	SM (d22:1/18:0)	1	0	0
Com_3661_pos	D-(+)-Camphor	0	1	1
Com_488_pos	Gramine	0	1	0
Com_785_pos	20-Dihydro 6¦Б-methylprednisone	1	0	1
Com_7522_pos	p-Mentha-1,3,8-triene	0	1	0
Com_1286_pos	ACar 10:1	1	1	1
Com_9294_pos	PC (15:0/15:1)	0	1	0
Com_1076_pos	17¦Б-Methyl-androstan-3-hydroxyimine-17¦B-ol	1	1	0
Com_7886_pos	Cyclohexylamine	0	1	0
Com_10027_pos	(12Z)-9,10,11-trihydroxyoctadec-12-enoic acid	1	1	1
Com_3571_pos	(1¦Б,2¦Б,3¦B,5¦O,9¦O,18¦O)-1,2,3,19-Tetrahydroxyurs-12-en-28-oic acid	1	1	1
Com_12830_pos	Epitestosterone glucuronide	0	0	1
Com_688_pos	C-8 Ceramide-1-phosphate	1	0	0
Com_8371_pos	trans,trans-2,4-Heptadienal	0	1	0
Com_2526_pos	Andrographolide	0	1	0
Com_9375_pos	2'-Hydroxy-5'-methylacetophenone	0	0	1
Com_12092_pos	5-[(8Z,11Z)-pentadeca-8,11-dien-1-yl]benzene-1,3-diol	0	0	1
Com_7423_pos	UR-144 N-Heptyl analog	0	0	1
Com_6418_pos	PC (22:4e/14:0)	1	0	0
Com_11335_pos	N3-cyclohexyl-3-azabicyclo[3.2.2]nonane-3-carbothioamide	0	1	0
Com_3422_pos	Eucalyptol	0	0	1
Com_5050_pos	S-Methyl-L-cysteine-S-oxide	1	1	0
Com_9996_pos	4-(tert-butyl)phenyl 3,5-dimethylisoxazole-4-carboxylate	0	0	1
Com_1724_pos	pentane-1,2,3,4,5-pentol	0	0	1
Com_8163_pos	Taurochenodesoxycholic Acid	1	1	0
Com_698_pos	Acetyl-L-carnitine	0	1	0
Com_3885_pos	ACar 18:3	1	0	1
Com_3428_pos	4-Phenyl-3-buten-2-one	1	0	1
Com_3197_pos	Bis(2-ethylhexyl) phosphate	0	1	0
Com_10827_pos	N2-ethyl-N4-isopropyl-6-(methylthio)-1,3,5-triazine-2,4-diamine	1	1	0
Com_5377_pos	Artemisinin	1	1	1
Com_3075_pos	Stiripentol	0	0	1
Com_13382_pos	6¦B-Hydromorphol	0	1	0
Com_7932_pos	Gamma-Glu-Leu	1	0	1
Com_4815_pos	Proline-hydroxyproline	1	0	0
Com_10_pos	9-Oxo-10(E),12(E)-octadecadienoic acid	1	0	1
Com_99_pos	16(R)-HETE	1	1	1
Com_5156_pos	Coumarin	1	0	1
Com_8411_pos	cis-7-Hexadecenoic Acid	1	0	1
Com_7571_pos	4',7-Dihydroxyflavanone	1	1	1
Com_2144_pos	Lysine	0	0	1
Com_1108_pos	3-Methyladenine	0	0	1
Com_19_pos	3-(2,3-dihydro-1H-indol-1-yl)-2-[(2-furylmethyl)sulfonyl]acrylonitrile	1	1	0
Com_2136_pos	Prostaglandin G2	1	0	0
Com_7848_pos	Lysine Butyrate	1	0	0
Com_4858_pos	Glycocholic acid	0	1	1
Com_10099_pos	LPC 15:1	1	1	1
Com_11565_pos	7¦Б-Hydroxytestosterone	1	1	0
Com_11274_pos	10E,12Z-Octadecadienoic acid	1	1	1
Com_7338_pos	7-(¦B-Hydroxyethyl)theophylline	0	1	0
Com_1161_pos	Cortisol	0	1	0
Com_11357_pos	methyl 2-mercapto-1-methyl-1H-imidazole-5-carboxylate	1	1	1
Com_6799_pos	5-[(2-hydroxybenzylidene)amino]-2-(2-methoxyethoxy)benzoic acid	1	0	0
Com_6811_pos	N-Arachidonoyl-L-serine	1	0	1
Com_11754_pos	N-Desmethyl sildenafil	1	1	1
Com_147_pos	Piperine	0	1	1
Com_9616_pos	(5-methyl-3-isoxazolyl)[4-(5-propyl-2-pyrimidinyl)piperazino]methanone	1	0	1
Com_2593_pos	5-Henicosyl-1,3-benzenediol	1	1	1
Com_8911_pos	2-Arachidonoyl glycerol	1	1	1
Com_7540_pos	4-Methylumbelliferyl-¦Б-D-glucopyranoside	1	1	1
Com_3640_pos	XLR11 N-(2-fluoropentyl) isomer	0	0	1
Com_6034_pos	Etiocholanolone	0	1	0
Com_87_pos	Isoquinoline	1	0	0
Com_9257_pos	¦B-Pseudouridine	0	0	1
Com_195_pos	L-Pyroglutamic acid	1	0	1
Com_12229_pos	Cis-11,14,17-Eicosatrienoic Acid (C20:3)	0	1	0
Com_6783_pos	LPE 17:0	0	1	1
Com_5662_pos	L-(-)-¦Б-Amino-¦E-Caprolactam	1	0	0
Com_12863_pos	3-Acetyl-11-keto-¦B-boswellic acid	0	0	1

Com_4415_pos	1-Phenyl-3-methyl-5-pyrazolone	1	1	1
Com_10963_pos	5¦Б-Dihydrotestosterone	1	1	1
Com_4793_pos	PC (18:2/20:5)	1	0	1
Com_12601_pos	7-Methoxyflavone	1	0	1
Com_398_pos	PC (14:1e/20:0)	0	0	1
Com_7057_pos	Cyclohexanamine	0	0	1
Com_672_pos	PC (17:0/18:2)	0	0	1
Com_1763_pos	4-Hydroxybenzaldehyde	1	0	0
Com_7676_pos	PC (22:6e/20:5)	1	1	1
Com_5224_pos	All-Trans-13,14-Dihydroretinol	0	1	0
Com_7159_pos	6-(3-hydroxybutan-2-yl)-5-(hydroxymethyl)-4-methoxy-2H-pyran-2-one	0	1	0
Com_1546_pos	SM (d17:2/25:1)	1	0	0
Com_888_pos	Hexanoylcarnitine	1	0	0
Com_10116_pos	2-(14,15-Epoxyeicosatrienoyl) glycerol	1	1	0
Com_45_pos	D-(+)-Tryptophan	1	1	1
Com_5028_pos	Pantothenic acid	0	0	1
Com_1511_pos	Ambroxol	0	0	1
Com_1380_pos	SM (d16:3/26:0)	0	0	1
Com_11612_pos	3-amino-2-phenyl-2H-pyrazolo[4,3-c]pyridine-4,6-diol	1	1	0
Com_352_pos	L-Glutamine	0	0	1
Com_2217_pos	1-(4-hydroxyphenyl)propane-1,2-diol	0	0	1
Com_11900_pos	2-[(butylamino)(imino)methyl]-1-oxohydrazinium-1-olate	0	1	0
Com_2992_pos	N6,N6,N6-Trimethyl-L-lysine	0	0	1
Com_2277_pos	Tetrahydrocortisone	0	1	0
Com_8977_pos	4-methyl-6-phenyl-5,6-dihydro-2H-pyran-2-one	0	0	1
Com_4496_pos	11-Deoxy prostaglandin F1¦Б	0	1	0
Com_3104_pos	Gly-Phe	1	0	1
Com_3279_pos	Glycyl-L-Proline	1	0	0
Com_84_pos	DL-Carnitine	1	0	1
Com_10264_pos	6-(7-methyloctyl)-1H,3H,4H,6H-furo[3,4-c]furan-1-one	1	1	1
Com_6229_pos	L-Alanyl-L-leucine	0	0	1
Com_9781_pos	(2E)-3-(3,4-dimethoxyphenyl)prop-2-enoic acid	1	0	1
Com_6796_pos	3-Acetoxyurs-12-en-23-oic acid	1	1	1
Com_3869_pos	ACar 10:2	1	1	1
Com_273_pos	Indole-3-acetic acid	0	1	0
Com_5084_pos	3-Hydroxyropivacaine	1	0	1
Com_7380_pos	Syringic acid	0	0	1
Com_3287_pos	LPC 18:3	1	0	1
Com_650_pos	Biliverdin	1	1	1
Com_2431_pos	Methylimidazoleacetic acid	0	0	1
Com_6242_pos	Lysope 14:0	1	1	1
Com_9121_pos	LPE 22:4	1	0	1
Com_605_pos	11(Z),14(Z),17(Z)-Eicosatrienoic acid	1	0	1
Com_6750_pos	N-Acetylthreonine	0	0	1
Com_5090_pos	12-Hete	1	0	1
Com_763_pos	PC (16:0e/20:2)	1	0	0
Com_6613_pos	Estriol	0	1	0
Com_92_pos	Betaine	1	0	1
Com_11375_pos	4-Oxoretinol	1	0	1
Com_10163_pos	gamma-Glutamyltyrosine	0	0	1
Com_13958_pos	PC (3:0/16:2)	1	0	1
Com_12479_pos	N4-phenethylmorpholine-4-carbothioamide	0	1	1
Com_11094_pos	Asp-Phe	0	1	0
Com_1212_pos	4-(dimethylamino)-1,1-diphenylbut-3-en-2-one	0	1	0
Com_8213_pos	PC (9:0/9:0)	0	1	0
Com_6982_pos	4-oxododecanedioic acid	0	0	1
Com_2143_pos	Thromboxane B2	1	1	1
Com_4106_pos	2-hydroxy-6-[(8Z,11Z)-pentadeca-8,11,14-trien-1-yl]benzoic acid	1	0	1
Com_10738_pos	3-(3,4,5-trimethoxyphenyl)propanoic acid	0	1	0

Supplementary table 2 List of differential metabolites in three comparison pairs (negative mode)

ID	Name	A.vs.D	B.vs.D	C.vs.D	
Com_4097_neg	(5¦O,9¦O)-17-Hydroxykaur-15-en-19-oic acid		1	0	1
Com_3299_neg	12-Hydroxydodecanoic acid		1	1	1
Com_5599_neg	LPG 18:1		1	0	0
Com_4290_neg	FAHFA (16:1/22:3)		0	1	1
Com_4454_neg	LPA 20:4		0	1	0
Com_1385_neg	13,14-Dihydro-15-keto Prostaglandin A2		0	1	0
Com_119_neg	diethyl 2-[(2-morpholinoanilino)methylidene]malonate		1	1	1
Com_949_neg	FAHFA (20:4/20:3)		1	1	1
Com_2519_neg	D-(-)-Quinic acid		0	0	1
Com_4206_neg	N-Carbamyl-L-glutamicacid		0	0	1
Com_1800_neg	trans-Aconitic acid		1	0	0
Com_4695_neg	Histamine		0	0	1
Com_3962_neg	5'-S-Methyl-5'-thioadenosine		1	1	1
Com_1753_neg	LPI 18:2		1	0	1
Com_8737_neg	N-Acetylcysteine		0	0	1
Com_6408_neg	Isoliquiritigenin		1	1	0
Com_352_neg	L-Aspartic acid		0	1	1
Com_3746_neg	Sucrose		1	1	1
Com_54_neg	8(S)-Hydroxy-(5Z,9E,11Z,14Z)-eicosatetraenoic acid		1	1	1
Com_5369_neg	Oxoadipic Acid		0	0	1
Com_4213_neg	LPC 20:0		1	0	0
Com_4490_neg	Cholic acid		0	1	1
Com_395_neg	LPE 18:2		1	0	1
Com_4994_neg	D-Glucose 6-phosphate		1	0	1
Com_977_neg	¦Б-ketoisovaleric acid		0	0	1
Com_3135_neg	L-Cystine		1	0	0
Com_4973_neg	PC (2:0/18:1)		0	0	1
Com_3725_neg	Phloretin		1	1	0
Com_5151_neg	OxPC (18:0-18:2+2O)		1	1	1
Com_4190_neg	Xanthosine		0	0	1
Com_4456_neg	3-Phosphoglyceric acid		0	0	1
Com_80_neg	20-Hydroxy-(5Z,8Z,11Z,14Z)-eicosatetraenoic acid		1	1	1
Com_142_neg	Dl-Mevalonolactone		1	0	1
Com_3169_neg	4-(hydroxymethyl)benzoic acid		0	1	0
Com_3524_neg	2,4-Dibromophenol		0	0	1
Com_3401_neg	ethyl 3-[(1-benzyl-4-piperidyl)amino]-2-cyanoacrylate		0	0	1
Com_4920_neg	LPS 18:0		0	1	0
Com_2192_neg	(R)-3-Hydroxy myristic acid		1	1	1
Com_169_neg	Lysopc 17:0		0	1	0
Com_7532_neg	FAHFA (22:6/16:0)		1	0	0
Com_302_neg	Propylparaben		1	1	1
Com_312_neg	D-Pantethine		0	1	0
Com_1958_neg	Jasmonic acid		0	0	1
Com_5034_neg	FAHFA (18:3/22:3)		0	0	1
Com_527_neg	Bilirubin		1	1	1
Com_6669_neg	Myricetin		1	1	1
Com_1201_neg	Taurolithocholic acid 3-sulfate		0	1	0
Com_23_neg	11,12-Epoxy-(5Z,8Z,11Z)-icosatrienoic acid		1	1	1
Com_3738_neg	LPI 17:0		0	0	1
Com_945_neg	Xylitol		0	0	1
Com_5519_neg	2-[(4-chlorophenyl)sulfonyl]-N,N-dimethylacetamide		1	1	1
Com_3976_neg	¦Г-Glutamylglutamic acid		0	1	0
Com_7174_neg	3-O-¦B-D-Glucopyranosylandrographolide		0	0	1
Com_1296_neg	Dodecanedioic acid		1	1	0
Com_1219_neg	DL-3-Aminoisobutyric acid		0	1	1
Com_6936_neg	1,3-dipyridin-3-ylpropane-1,3-dione		0	0	1
Com_5173_neg	Glu-Gln		1	1	1
Com_2566_neg	N-(4-chlorophenyl)-N'-cyclohexylthiourea		1	1	1
Com_290_neg	LPE 18:0		0	1	1
Com_3767_neg	FAHFA (20:2/18:0)		1	1	0
Com_4_neg	Linoleic acid		0	0	1
Com_598_neg	D-(-)-Arabinose		0	0	1
Com_1141_neg	Acrylic acid		1	0	0
Com_2251_neg	1-{[5-(4-chlorophenyl)-4H-1,2,4-triazol-3-yl]thio}acetone		1	1	0
Com_6708_neg	FAHFA (16:0/2:0)		0	0	1
Com_8133_neg	(2-amino-5-chlorophenyl)(phenyl)methanone oxime		1	1	0
Com_52_neg	LPC 18:0		0	1	0
Com_15_neg	Arachidonic acid		1	1	1
Com_9074_neg	PEtOH (18:2-18:2)		0	0	1

Com_384_neg	4-Methylphenol	0	0	1
Com_1104_neg	LPC 18:2	1	0	0
Com_7762_neg	OxPI (16:0-18:2+1O)	0	0	1
Com_4598_neg	Ribitol	0	0	1
Com_726_neg	3-amino-1H-pyrazolo[4,3-c]pyridine-4,6-diol	0	0	1
Com_339_neg	Decanoic acid	1	1	1
Com_4384_neg	3,8,9-trihydroxy-10-propyl-3,4,5,8,9,10-hexahydro-2H-oxecin-2-one	0	0	1
Com_133_neg	DL-Tryptophan	0	0	1
Com_6109_neg	Ouabain	0	1	0
Com_4933_neg	Lysopa 16:0	0	1	0
Com_817_neg	cholesteryl sulfate	1	0	0
Com_211_neg	3-Indoxyl sulphate	0	0	1
Com_5542_neg	PC (2:0/18:3)	0	1	1
Com_3411_neg	D-Sedoheptulose 7-phosphate	0	0	1
Com_2665_neg	Dimethyl fumarate	1	0	0
Com_5604_neg	LPC 19:1	0	1	1
Com_763_neg	Gluconic acid	0	0	1
Com_3643_neg	cis-5,8,11,14,17-Eicosapentaenoic acid	1	1	0
Com_7173_neg	13,14-Dihydro-15-keto Prostaglandin J2	0	0	1
Com_2371_neg	1-(4-methylphenyl)-3-(2-pyridylthio)pyrrolidine-2,5-dione	0	0	1
Com_1353_neg	SM (d14:1/18:0)	1	1	0
Com_1774_neg	LPA 18:2	1	0	0
Com_7482_neg	22(S)-Hydroxycholesterol	1	1	1
Com_1781_neg	N1-(3-amino-4-chlorophenyl)-2-[2,4-di(tert-pentyl)phenoxy]acetamide	1	0	0
Com_979_neg	PC (16:0/22:5)	1	1	0
Com_5547_neg	Inosine	1	0	1
Com_1447_neg	LPI 20:4	1	0	0
Com_2464_neg	ethyl 2-cyano-3-(tetrahydro-3-thiophenylamino)acrylate	0	1	0
Com_1899_neg	Pentacosanoic acid	1	1	1
Com_8429_neg	Isorhapontigenin	1	1	0
Com_4758_neg	Trolox	1	1	0
Com_272_neg	4-Oxoproline	1	0	1
Com_279_neg	N1-[4-(2-thienylthio)phenyl]-4-chlorobenzamide	1	1	0
Com_6990_neg	Lysope 16:0	1	0	1
Com_4843_neg	Tyrosol	0	0	1
Com_3520_neg	3-Methylhistidine	0	0	1
Com_6885_neg	3-(4-Hydroxyphenyl)propionic acid	1	1	1
Com_2707_neg	DL-methionine sulfoxide	1	0	1
Com_5574_neg	SM (d14:2/18:0)	1	0	0
Com_1683_neg	6¦B-Prostaglandin I1	0	0	1
Com_3967_neg	Punicic Acid	1	0	0
Com_1830_neg	11¦B-Prostaglandin F2¦Б	0	0	1
Com_2876_neg	LPC 22:5	0	1	0
Com_430_neg	Perfluorooctanoic acid (PFOA)	1	1	1
Com_1007_neg	N-[4-(diethylamino)phenyl]-N'-phenylurea	0	1	1
Com_1383_neg	FAHFA (20:4/18:1)	1	1	1
Com_8992_neg	N'2-benzylidene-5-hex-1-ynylfuran-2-carbohydrazide	1	1	0
Com_5888_neg	Heneicosanoic acid	1	0	1
Com_443_neg	Pyruvic acid	0	1	0
Com_517_neg	Corchorifatty acid F	0	1	0
Com_376_neg	PE (2:0/18:0)	1	0	0
Com_2112_neg	Undecanoic acid	1	1	1
Com_2377_neg	2-(1H-indol-3-yl)acetic acid	0	1	0
Com_3915_neg	N-Oleoyl Glycine	1	1	1
Com_3431_neg	LPC 22:4	0	1	0
Com_3351_neg	Allantoin	1	1	1
Com_926_neg	FAHFA (18:2/14:1)	1	1	1
Com_1174_neg	1-[2,6-di(tert-butylamino)-4-methyl-3-pyridyl]ethan-1-one	0	1	0
Com_3854_neg	Cannabichromevarin	0	0	1
Com_239_neg	FAHFA (18:1/18:2)	1	0	0
Com_6082_neg	FAHFA (22:5/18:1)	1	0	0
Com_832_neg	11-Deoxy prostaglandin F2¦B	0	1	0
Com_1516_neg	PC (18:5e/2:0)	1	0	0
Com_243_neg	FAHFA (18:2/17:0)	1	1	1
Com_4233_neg	Cer-NS (d18:1/16:0)	1	0	0
Com_4985_neg	3-[4-methyl-1-(2-methylpropanoyl)-3-oxocyclohexyl]butanoic acid	0	1	0
Com_6723_neg	FAHFA (16:0/14:1)	1	1	1
Com_2606_neg	Azelaic acid	0	0	1
Com_978_neg	LPC 17:0	0	1	0
Com_3573_neg	Asparagine	1	0	1
Com_1911_neg	10-Hydroxydecanoic acid	1	1	1

Com_637_neg	¦Д-Ribono-1,4-lactone	0	0	1
Com_8860_neg	3-(4,5-diphenyl-1H-imidazol-2-yl)pyridine	1	1	0
Com_4566_neg	N-(2-morpholinophenyl)-2,1,3-benzoxadiazole-4-sulfonamide	0	1	0
Com_3190_neg	Glycoursodeoxycholic acid	0	1	1
Com_6217_neg	OxPE (16:0-20:3+1O(1Cyc))	1	1	1
Com_13_neg	(+/-)12(13)-DiHOME	1	0	1
Com_6378_neg	4-(octyloxy)benzoic acid	0	0	1
Com_2255_neg	PC (2:0/16:1)	0	0	1
Com_5986_neg	¦Г-Nonanolactone	1	1	1
Com_225_neg	Pentadecanoic acid	0	1	1
Com_69_neg	8Z,11Z,14Z-Eicosatrienoic acid	0	1	0
Com_98_neg	Lauric acid	1	1	1
Com_1189_neg	Lysope 18:1	0	1	0
Com_9333_neg	Equol	1	1	0
Com_803_neg	Nervonic acid	0	1	0
Com_3541_neg	4-Pyridoxic acid	0	0	1
Com_665_neg	LPE 20:4	1	0	0
Com_4816_neg	3-Hydroxysebacic acid	1	0	1
Com_1056_neg	18-¦B-Glycyrrhetinic acid	0	1	1
Com_2238_neg	OxPI (18:0-20:3+1O(1Cyc))	1	0	1
Com_1968_neg	methyl {[(2-oxo-2H-pyran-6-yl)carbonyl]amino}methanethioate	0	0	1
Com_3484_neg	5-Sulfosalicylic acid	0	1	0
Com_3765_neg	Guanidinosuccinic acid	0	0	1
Com_911_neg	6-Keto-prostaglandin f1alpha	1	1	1
Com_325_neg	LPI 16:0	1	1	1
Com_3357_neg	Glycerol-3-phosphate	0	1	0
Com_1771_neg	LPC 20:2	0	1	0
Com_5175_neg	2-Hydroxymyristic acid	0	1	0
Com_533_neg	PAF C-16	0	1	0
Com_6247_neg	OxPI (18:0-18:2+2O)	0	0	1
Com_4965_neg	FAHFA (16:1/8:0)	1	1	1
Com_101_neg	Testosterone sulfate	0	1	1
Com_3493_neg	FAHFA (20:4/22:5)	1	1	0
Com_667_neg	Arachidic acid	1	0	0
Com_1244_neg	LPC 20:1	0	1	1
Com_7540_neg	OxPI (18:1-18:2+1O)	0	0	1
Com_436_neg	1,5-Anhydro-D-glucitol	0	0	1
Com_2846_neg	2-Deoxyribose 5-phosphate	1	1	1
Com_480_neg	Lysopc 18:2	1	0	0
Com_1760_neg	Asp-glu	0	0	1
Com_6618_neg	LPA 16:1	0	1	0
Com_6456_neg	PE (6:0/18:0)	0	0	1
Com_3384_neg	PA (18:1/18:2)	0	1	0
Com_8614_neg	OxPE (18:0-18:2+2O)	0	0	1
Com_2785_neg	LPG 16:0	0	0	1
Com_1751_neg	Mevalonic acid	1	0	1
Com_1218_neg	¦r-Aminobutyric acid (GABA)	0	1	1
Com_2159_neg	3-Hydroxydecanoic acid	1	1	1
Com_7258_neg	LPA 17:0	0	1	0
Com_7141_neg	Enterodiol	1	1	1
Com_1021_neg	¦B-D-Glucopyranuronic acid	0	0	1
Com_892_neg	cis-2-Decenoic acid	1	1	1
Com_704_neg	Prostaglandin E2	1	0	1
Com_3127_neg	OxPC (16:0-18:2+2O)	1	1	1
Com_2040_neg	LPA 18:0	0	1	0
Com_451_neg	Perillic acid	0	1	0
Com_7863_neg	¦B-D-Fructose 6-phosphate	0	1	0
Com_7093_neg	Oleanolic acid	1	1	1
Com_3160_neg	Sulfoacetic acid	0	0	1
Com_675_neg	Hydrocinnamic acid	0	1	0
Com_2991_neg	FAHFA (18:1/14:1)	1	1	1
Com_328_neg	Prostaglandin F2¦Б 1-11-lactone	1	0	1
Com_4364_neg	1-(4-Methoxyphenyl)-2-propanone	0	1	1
Com_5866_neg	LPS 18:1	1	1	1
Com_5320_neg	2-(1,3-dimethyl-1H-pyrazol-5-yl)-1H-isoindole-1,3(2H)-dione	0	1	0
Com_3489_neg	methyl 5-{[2-(ethoxycarbonyl)-3-oxohex-1-enyl]amino}-2-furoate	0	1	0
Com_5196_neg	Calcitriol	1	1	1
Com_827_neg	PS (18:0/20:4)	1	0	0
Com_6152_neg	Cyclo(glycyltryptophylprolylglycylvalylglycyl-¦B-hydroxytyrosyl)	1	1	1
Com_7662_neg	N1-(4-chlorophenyl)-3-(1H-pyrrol-1-ylmethyl)piperidine-1-carboxamide	1	1	0
Com_1038_neg	LPA 16:0	1	0	0

Com_432_neg	L-Threonic acid	0	0	1
Com_5566_neg	2-(3,4-dimethoxyphenyl)ethanamine	0	1	1
Com_2547_neg	N-Acetylalanine	0	0	1
Com_422_neg	SM (d14:1/20:0)	1	1	0
Com_6354_neg	FAHFA (20:4/22:3)	1	1	1

Supplementary table 3 KEGG enrichment pathways

IgA nephropathy vs controls (positive mode)

MapID	MapTitle	Pvalue	x	y	n	N	EnrichDirect	MetaIDs
map00590	Arachidonic acid metabolism	0.005479189	3	3	19	103	Over	Prostaglandin G2, Thromboxane B2, 16(R)-HETE
map04726	Serotonergic synapse	0.086700103	2	3	19	103	Over	Prostaglandin G2, Thromboxane B2
map00480	Glutathione metabolism	0.154113463	2	4	19	103	Over	L-Pyroglutamic acid, Spermidine
map02010	ABC transporters	0.162349655	3	8	19	103	Over	Choline, Spermidine, Betaine
map04611	Platelet activation	0.184466019	1	1	19	103	Over	Prostaglandin G2
map04976	Bile secretion	0.227169207	4	12	19	103	Over	Salicylic acid, Thromboxane B2, Choline, Spermidine
map00260	Glycine, serine and threonine metabolism	0.305482001	2	6	19	103	Over	Choline, Betaine
map00830	Retinol metabolism	0.336379212	1	2	19	103	Over	4-Oxoretinol
map01040	Biosynthesis of unsaturated fatty acids	0.336379212	1	2	19	103	Over	Eicosapentaenoic acid
map04725	Cholinergic synapse	0.336379212	1	2	19	103	Over	Choline
map04960	Aldosterone-regulated sodium reabsorption	0.336379212	1	2	19	103	Over	Cortisone
map05231	Choline metabolism in cancer	0.336379212	1	2	19	103	Over	Choline
map00380	Tryptophan metabolism	0.3875122	3	10	19	103	Over	5-Methoxyindoleacetic acid, 3-Indoleacetonitrile, Indole
map00410	beta-Alanine metabolism	0.461218766	1	3	19	103	Over	Spermidine
map00564	Glycerophospholipid metabolism	0.563587201	1	4	19	103	Over	Choline
map04080	Neuroactive ligand-receptor interaction	0.563587201	1	4	19	103	Over	N-Oleoyl dopamine
map00330	Arginine and proline metabolism	1	1	5	19	103	Over	Spermidine
map00400	Phenylalanine, tyrosine and tryptophan biosynthesis	1	1	5	19	103	Over	Indole
map00860	Porphyrin and chlorophyll metabolism	1	1	5	19	103	Over	Biliverdin
map05200	Pathways in cancer	1	1	5	19	103	Over	Cortisone
map05215	Prostate cancer	1	1	5	19	103	Over	Cortisone

IgA nephropathy vs controls (negative mode)

MapID	MapTitle	Pvalue	x	y	n	N	EnrichDirect	MetaIDs
map00500	Starch and sucrose metabolism	0.024074074	2	2	13	81	Over	Sucrose, D-Glucose 6-phosphate
map00590	Arachidonic acid metabolism	0.024074074	2	2	13	81	Over	Arachidonic acid, Prostaglandin E2
map04726	Serotonergic synapse	0.024074074	2	2	13	81	Over	Arachidonic acid, Prostaglandin E2
map04921	Oxytocin signaling pathway	0.024074074	2	2	13	81	Over	Arachidonic acid, Prostaglandin E2
map04923	Regulation of lipolysis in adipocytes	0.024074074	2	2	13	81	Over	Arachidonic acid, Prostaglandin E2
map04973	Carbohydrate digestion and absorption	0.024074074	2	2	13	81	Over	Sucrose, D-Glucose 6-phosphate
map04216	Ferroptosis	0.027375929	3	5	13	81	Over	Arachidonic acid, Mevalonic acid, L-Cystine
map04750	Inflammatory mediator regulation ofTRP channels	0.06551805	2	3	13	81	Over	Arachidonic acid, Prostaglandin E2
map00061	Fatty acid biosynthesis	0.118917018	2	4	13	81	Over	Decanoic acid, Lauric acid
map00100	Steroid biosynthesis	0.160493827	1	1	13	81	Over	Calcitriol
map00524	Neomycin, kanamycin and gentamicin biosynthesis	0.160493827	1	1	13	81	Over	D-Glucose 6-phosphate
map00562	Inositol phosphate metabolism	0.160493827	1	1	13	81	Over	D-Glucose 6-phosphate
map00900	Terpenoid backbone biosynthesis	0.160493827	1	1	13	81	Over	Mevalonic acid
map04024	cAMP signaling pathway	0.160493827	1	1	13	81	Over	Prostaglandin E2
map04217	Necroptosis	0.160493827	1	1	13	81	Over	Arachidonic acid
map04270	Vascular smooth muscle contraction	0.160493827	1	1	13	81	Over	Arachidonic acid
map04611	Platelet activation	0.160493827	1	1	13	81	Over	Arachidonic acid
map04666	Fc gamma R-mediated phagocytosis	0.160493827	1	1	13	81	Over	Arachidonic acid

map04723	Retrograde endocannabinoid signaling	0.160493827	1	1	13	81	Over	Arachidonic acid
map04730	Long-term depression	0.160493827	1	1	13	81	Over	Arachidonic acid
map04911	Insulin secretion	0.160493827	1	1	13	81	Over	D-Glucose 6-phosphate
map04912	GnRH signaling pathway	0.160493827	1	1	13	81	Over	Arachidonic acid
map04913	Ovarian steroidogenesis	0.160493827	1	1	13	81	Over	Arachidonic acid
map04917	Prolactin signaling pathway	0.160493827	1	1	13	81	Over	D-Glucose 6-phosphate
map04924	Renin secretion	0.160493827	1	1	13	81	Over	Prostaglandin E2
map04925	Aldosterone synthesis and secretion	0.160493827	1	1	13	81	Over	Arachidonic acid
map04931	Insulin resistance	0.160493827	1	1	13	81	Over	D-Glucose 6-phosphate
map04961	Endocrine and other factor-regulated calcium reabsorption	0.160493827	1	1	13	81	Over	Calcitriol
map05140	Leishmaniasis	0.160493827	1	1	13	81	Over	Prostaglandin E2
map05143	African trypanosomiasis	0.160493827	1	1	13	81	Over	Prostaglandin E2
map05146	Amoebiasis	0.160493827	1	1	13	81	Over	Prostaglandin E2
map05152	Tuberculosis	0.160493827	1	1	13	81	Over	Calcitriol
map05165	Human papillomavirus infection	0.160493827	1	1	13	81	Over	Prostaglandin E2
map05200	Pathways in cancer	0.160493827	1	1	13	81	Over	Prostaglandin E2
map05230	Central carbon metabolism in cancer	0.160493827	1	1	13	81	Over	D-Glucose 6-phosphate
map05323	Rheumatoid arthritis	0.160493827	1	1	13	81	Over	Prostaglandin E2
map01100	Metabolic pathways	0.268454656	10	48	13	81	Over	Arachidonic acid, Mevalonic acid, Decanoic acid, Sucrose, D-Glucose 6-phosphate, Calcitriol, Bilirubin, Inosine, Prostaglandin E2, Lauric acid
map00052	Galactose metabolism	0.29691358	1	2	13	81	Over	Sucrose
map00591	Linoleic acid metabolism	0.29691358	1	2	13	81	Over	Arachidonic acid
map00860	Porphyrin and chlorophyll metabolism	0.29691358	1	2	13	81	Over	Bilirubin
map04664	Fc epsilon RI signaling pathway	0.29691358	1	2	13	81	Over	Arachidonic acid
map04742	Taste transduction	0.29691358	1	2	13	81	Over	Sucrose
map04918	Thyroid hormone synthesis	0.29691358	1	2	13	81	Over	D-Glucose 6-phosphate
map04978	Mineral absorption	0.29691358	1	2	13	81	Over	Calcitriol
map00230	Purine metabolism	0.510509455	1	4	13	81	Over	Inosine
map00330	Arginine and proline metabolism	0.510509455	1	4	13	81	Over	4-Oxoproline
map02010	ABC transporters	0.608174624	2	8	13	81	Over	L-Cystine, Sucrose
map01040	Biosynthesis of unsaturated fatty acids	0.631657309	2	9	13	81	Over	Arachidonic acid, Arachidic acid
map04976	Bile secretion	0.658941953	2	10	13	81	Over	Bilirubin, Prostaglandin E2
map00270	Cysteine and methionine metabolism	1	1	5	13	81	Over	L-Cystine
map04080	Neuroactive ligand-receptor interaction	1	1	5	13	81	Over	Prostaglandin E2

Membranous nephropathy vs controls (positive mode)

MapID	MapTitle	Pvalue	x	y	n	N	EnrichDirect	MetaIDs
map00140	Steroid hormone biosynthesis	0.038069874	7	14	25	103	Over	Cortisol, Tetrahydrocortisone, Cortisone, Pregnenolone, Etiocholanolone, Estriol, Tetrahydrocorticosterone
map04080	Neuroactive ligand-receptor interaction	0.043437696	3	4	25	103	Over	Cortisol, Acetylcholine, N-Oleoyl dopamine
map04725	Cholinergic synapse	0.057110223	2	2	25	103	Over	Acetylcholine, Choline
map04960	Aldosterone-regulated sodium reabsorption	0.057110223	2	2	25	103	Over	Cortisol, Cortisone
map04976	Bile secretion	0.065903463	6	12	25	103	Over	Salicylic acid, Cortisol, Acetylcholine, Thromboxane B2, Choline, Glycocholic acid
map00400	Phenylalanine, tyrosine and tryptophan biosynthesis	0.090776982	3	5	25	103	Over	L-Tyrosine, L-Phenylalanine, Indole
map00360	Phenylalanine metabolism	0.095291088	4	8	25	103	Over	Salicylic acid, 4-Hydroxybenzoic acid, L-Tyrosine, L-Phenylalanine

map00130	Ubiquinone and other terpenoid-quinone biosynthesis	0.145320072	2	3	25	103	Over	4-Hydroxybenzoic acid, L-Tyrosine
map00590	Arachidonic acid metabolism	0.145320072	2	3	25	103	Over	Thromboxane B2, 16(R)-HETE
map04927	Cortisol synthesis and secretion	0.145320072	2	3	25	103	Over	Cortisol, Pregnenolone
map04934	Cushing's syndrome	0.145320072	2	3	25	103	Over	Cortisol, Pregnenolone
map00790	Folate biosynthesis	0.242718447	1	1	25	103	Over	4-Hydroxybenzoic acid
map04810	Regulation of actin cytoskeleton	0.242718447	1	1	25	103	Over	Acetylcholine
map04911	Insulin secretion	0.242718447	1	1	25	103	Over	Acetylcholine
map04970	Salivary secretion	0.242718447	1	1	25	103	Over	Acetylcholine
map04971	Gastric acid secretion	0.242718447	1	1	25	103	Over	Acetylcholine
map04972	Pancreatic secretion	0.242718447	1	1	25	103	Over	Acetylcholine
map05033	Nicotine addiction	0.242718447	1	1	25	103	Over	Acetylcholine
map00564	Glycerophospholipid metabolism	0.247202447	2	4	25	103	Over	Acetylcholine, Choline
map00350	Tyrosine metabolism	0.42832667	1	2	25	103	Over	L-Tyrosine
map00730	Thiamine metabolism	0.42832667	1	2	25	103	Over	L-Tyrosine
map00830	Retinol metabolism	0.42832667	1	2	25	103	Over	Vitamin A
map01040	Biosynthesis of unsaturated fatty acids	0.42832667	1	2	25	103	Over	Eicosapentaenoic acid
map04024	cAMP signaling pathway	0.42832667	1	2	25	103	Over	Acetylcholine
map04721	Synaptic vesicle cycle	0.42832667	1	2	25	103	Over	Acetylcholine
map04742	Taste transduction	0.42832667	1	2	25	103	Over	Acetylcholine
map05231	Choline metabolism in cancer	0.42832667	1	2	25	103	Over	Choline
map04726	Serotonergic synapse	0.56982997	1	3	25	103	Over	Thromboxane B2
map04979	Cholesterol metabolism	0.56982997	1	3	25	103	Over	Glycocholic acid
map05200	Pathways in cancer	0.592642017	2	5	25	103	Over	Cortisol, Cortisone
map05215	Prostate cancer	0.592642017	2	5	25	103	Over	Cortisol, Cortisone
map04974	Protein digestion and absorption	0.630883787	2	6	25	103	Over	L-Phenylalanine, Indole
map01100	Metabolic pathways	0.647151945	17	64	25	103	Over	Salicylic acid, 4-Hydroxybenzoic acid, Cortisol, Vitamin A, Hypoxanthine, L-Tyrosine, Thromboxane B2, Indole-3-acetic acid, Choline, L-Phenylalanine, Glycocholic acid, Cortisone, Pregnenolone, Biliverdin, Estriol, Picolinic acid, Indole
map04977	Vitamin digestion and absorption	0.675913428	2	7	25	103	Over	Vitamin A, Menadione
map00380	Tryptophan metabolism	0.701836206	3	10	25	103	Over	Indole-3-acetic acid, Picolinic acid, Indole
map00120	Primary bile acid biosynthesis	1	1	4	25	103	Over	Glycocholic acid
map00970	Aminoacyl-tRNA biosynthesis	1	2	8	25	103	Over	L-Tyrosine, L-Phenylalanine
map01210	2-Oxocarboxylic acid metabolism	1	1	4	25	103	Over	L-Phenylalanine
map02010	ABC transporters	1	2	8	25	103	Over	Choline, L-Phenylalanine
map04913	Ovarian steroidogenesis	1	1	4	25	103	Over	Pregnenolone
map04925	Aldosterone synthesis and secretion	1	1	4	25	103	Over	Pregnenolone
map04978	Mineral absorption	1	1	4	25	103	Over	L-Phenylalanine

Membranous nephropathy vs controls (negative mode)

MapID	MapTitle	Pvalue	x	y	n	N	EnrichDirect	MetaIDs
map04976	Bile secretion	0.036777045	4	10	12	81	Over	Taurolithocholic acid 3-sulfate, Cholic acid, Bilirubin, Ouabain
map00260	Glycine, serine and threonine metabolism	0.055954055	2	3	12	81	Over	L-Aspartic acid, Pyruvic acid
map00061	Fatty acid biosynthesis	0.102486566	2	4	12	81	Over	Decanoic acid, Lauric acid
map00010	Glycolysis / Gluconeogenesis	0.148148148	1	1	12	81	Over	Pyruvic acid
map00100	Steroid biosynthesis	0.148148148	1	1	12	81	Over	Calcitriol

map00290	Valine, leucine and isoleucine biosynthesis	0.148148148	1	1	12	81	Over	Pyruvic acid
map00440	Phosphonate and phosphinate metabolism	0.148148148	1	1	12	81	Over	Pyruvic acid
map00770	Pantothenate and CoA biosynthesis	0.148148148	1	1	12	81	Over	L-Aspartic acid
map04217	Necroptosis	0.148148148	1	1	12	81	Over	Arachidonic acid
map04270	Vascular smooth muscle contraction	0.148148148	1	1	12	81	Over	Arachidonic acid
map04611	Platelet activation	0.148148148	1	1	12	81	Over	Arachidonic acid
map04666	Fc gamma R-mediated phagocytosis	0.148148148	1	1	12	81	Over	Arachidonic acid
map04723	Retrograde endocannabinoid signaling	0.148148148	1	1	12	81	Over	Arachidonic acid
map04730	Long-term depression	0.148148148	1	1	12	81	Over	Arachidonic acid
map04912	GnRH signaling pathway	0.148148148	1	1	12	81	Over	Arachidonic acid
map04913	Ovarian steroidogenesis	0.148148148	1	1	12	81	Over	Arachidonic acid
map04925	Aldosterone synthesis and secretion	0.148148148	1	1	12	81	Over	Arachidonic acid
map04961	Endocrine and other factor-regulated calcium reabsorption	0.148148148	1	1	12	81	Over	Calcitriol
map05152	Tuberculosis	0.148148148	1	1	12	81	Over	Calcitriol
map00250	Alanine, aspartate and glutamate metabolism	0.156472337	2	5	12	81	Over	L-Aspartic acid, Pyruvic acid
map00270	Cysteine and methionine metabolism	0.156472337	2	5	12	81	Over	L-Aspartic acid, Pyruvic acid
map00030	Pentose phosphate pathway	0.275925926	1	2	12	81	Over	Pyruvic acid
map00052	Galactose metabolism	0.275925926	1	2	12	81	Over	Sucrose
map00053	Ascorbate and aldarate metabolism	0.275925926	1	2	12	81	Over	Pyruvic acid
map00500	Starch and sucrose metabolism	0.275925926	1	2	12	81	Over	Sucrose
map00590	Arachidonic acid metabolism	0.275925926	1	2	12	81	Over	Arachidonic acid
map00591	Linoleic acid metabolism	0.275925926	1	2	12	81	Over	Arachidonic acid
map00860	Porphyrin and chlorophyll metabolism	0.275925926	1	2	12	81	Over	Bilirubin
map00970	Aminoacyl-tRNA biosynthesis	0.275925926	1	2	12	81	Over	L-Aspartic acid
map04664	Fc epsilon RI signaling pathway	0.275925926	1	2	12	81	Over	Arachidonic acid
map04726	Serotonergic synapse	0.275925926	1	2	12	81	Over	Arachidonic acid
map04742	Taste transduction	0.275925926	1	2	12	81	Over	Sucrose
map04921	Oxytocin signaling pathway	0.275925926	1	2	12	81	Over	Arachidonic acid
map04923	Regulation of lipolysis in adipocytes	0.275925926	1	2	12	81	Over	Arachidonic acid
map04973	Carbohydrate digestion and absorption	0.275925926	1	2	12	81	Over	Sucrose
map04978	Mineral absorption	0.275925926	1	2	12	81	Over	Calcitriol
map00040	Pentose and glucuronate interconversions	0.385911861	1	3	12	81	Over	Pyruvic acid
map00120	Primary bile acid biosynthesis	0.385911861	1	3	12	81	Over	Cholic acid
map00340	Histidine metabolism	0.385911861	1	3	12	81	Over	L-Aspartic acid
map00410	beta-Alanine metabolism	0.385911861	1	3	12	81	Over	L-Aspartic acid
map00430	Taurine and hypotaurine metabolism	0.385911861	1	3	12	81	Over	Pyruvic acid
map00620	Pyruvate metabolism	0.385911861	1	3	12	81	Over	Pyruvic acid
map04750	Inflammatory mediator regulation ofTRP channels	0.385911861	1	3	12	81	Over	Arachidonic acid
map00020	Citrate cycle (TCA cycle)	0.48038696	1	4	12	81	Over	Pyruvic acid
map00220	Arginine biosynthesis	0.48038696	1	4	12	81	Over	L-Aspartic acid
map00330	Arginine and proline metabolism	0.48038696	1	4	12	81	Over	Pyruvic acid
map00760	Nicotinate and nicotinamide metabolism	0.48038696	1	4	12	81	Over	L-Aspartic acid
map04216	Ferroptosis	0.561365615	1	5	12	81	Over	Arachidonic acid
map01040	Biosynthesis of unsaturated fatty acids	0.615400065	2	9	12	81	Over	Arachidonic acid, Nervonic acid

map01100	Metabolic pathways	0.752916262	8	48	12	81	Over	Arachidonic acid, Decanoic acid, L-Aspartic acid, Sucrose, Cholic acid, Calcitriol, Bilirubin, Lauric acid
map00350	Tyrosine metabolism	1	1	6	12	81	Over	Pyruvic acid
map00360	Phenylalanine metabolism	1	1	6	12	81	Over	Pyruvic acid

Diabetic nephropathy vs controls (positive mode)

MapID	MapTitle	Pvalue	x	y	n	N	EnrichDirect	MetaIDs
map00400	Phenylalanine, tyrosine and tryptophan biosynthesis	0.049389599	4	5	36	103	Over	Phenylpyruvic Acid, L-Tyrosine, L-Phenylalanine, Indole
map00830	Retinol metabolism	0.119931468	2	2	36	103	Over	4-Oxoretinol, Vitamin A
map04024	cAMP signaling pathway	0.119931468	2	2	36	103	Over	Acetylcholine, Serotonin
map04721	Synaptic vesicle cycle	0.119931468	2	2	36	103	Over	Acetylcholine, Serotonin
map04725	Cholinergic synapse	0.119931468	2	2	36	103	Over	Acetylcholine, Choline
map04742	Taste transduction	0.119931468	2	2	36	103	Over	Acetylcholine, Serotonin
map04750	Inflammatory mediator regulation ofTRP channels	0.119931468	2	2	36	103	Over	Eucalyptol, Serotonin
map04080	Neuroactive ligand-receptor interaction	0.121522638	3	4	36	103	Over	Acetylcholine, N-Oleoyl dopamine, Serotonin
map04978	Mineral absorption	0.121522638	3	4	36	103	Over	L-Threonine, L-Glutamine, L-Phenylalanine
map00360	Phenylalanine metabolism	0.123982317	5	8	36	103	Over	Salicylic acid, Phenylpyruvic Acid, L-Tyrosine, 2-Phenylacetamide, L-Phenylalanine
map02010	ABC transporters	0.123982317	5	8	36	103	Over	L-Threonine, L-Glutamine, Choline, L-Phenylalanine, Betaine
map00260	Glycine, serine and threonine metabolism	0.179908834	4	6	36	103	Over	L-Threonine, Choline, L-Cystathionine, Betaine
map04974	Protein digestion and absorption	0.179908834	4	6	36	103	Over	L-Threonine, L-Glutamine, L-Phenylalanine, Indole
map00310	Lysine degradation	0.279048465	2	3	36	103	Over	N6,N6,N6-Trimethyl-L-lysine, Pipecolic acid
map00590	Arachidonic acid metabolism	0.279048465	2	3	36	103	Over	Thromboxane B2, 16(R)-HETE
map04726	Serotonergic synapse	0.279048465	2	3	36	103	Over	Thromboxane B2, Serotonin
map01230	Biosynthesis of amino acids	0.313439367	5	10	36	103	Over	Phenylpyruvic Acid, L-Threonine, L-Glutamine, L-Phenylalanine, L-Cystathionine
map04976	Bile secretion	0.334699428	6	12	36	103	Over	Salicylic acid, Acetylcholine, Thromboxane B2, Choline, Glycocholic acid, Serotonin
map00230	Purine metabolism	0.340043313	3	5	36	103	Over	2'-Deoxyadenosine, Hypoxanthine, L-Glutamine
map00290	Valine, leucine and isoleucine biosynthesis	0.349514563	1	1	36	103	Over	L-Threonine
map04540	Gap junction	0.349514563	1	1	36	103	Over	Serotonin
map04724	Glutamatergic synapse	0.349514563	1	1	36	103	Over	L-Glutamine
map04727	GABAergic synapse	0.349514563	1	1	36	103	Over	L-Glutamine
map04810	Regulation of actin cytoskeleton	0.349514563	1	1	36	103	Over	Acetylcholine
map04911	Insulin secretion	0.349514563	1	1	36	103	Over	Acetylcholine
map04964	Proximal tubule bicarbonate reclamation	0.349514563	1	1	36	103	Over	L-Glutamine
map04970	Salivary secretion	0.349514563	1	1	36	103	Over	Acetylcholine
map04971	Gastric acid secretion	0.349514563	1	1	36	103	Over	Acetylcholine
map04972	Pancreatic secretion	0.349514563	1	1	36	103	Over	Acetylcholine
map05033	Nicotine addiction	0.349514563	1	1	36	103	Over	Acetylcholine
map00970	Aminoacyl-tRNA biosynthesis	0.445551083	4	8	36	103	Over	L-Threonine, L-Tyrosine, L-Glutamine, L-Phenylalanine
map00564	Glycerophospholipid metabolism	0.609936048	2	4	36	103	Over	Acetylcholine, Choline
map01210	2-Oxocarboxylic acid metabolism	0.609936048	2	4	36	103	Over	Phenylpyruvic Acid, L-Phenylalanine
map00240	Pyrimidine metabolism	1	1	2	36	103	Over	L-Glutamine
map00250	Alanine, aspartate and glutamate metabolism	1	1	2	36	103	Over	L-Glutamine
map00270	Cysteine and methionine metabolism	1	1	2	36	103	Over	L-Cystathionine
map00350	Tyrosine metabolism	1	1	2	36	103	Over	L-Tyrosine
map00471	D-Glutamine and D-glutamate metabolism	1	1	2	36	103	Over	L-Glutamine

map00730	Thiamine metabolism	1	1	2	36	103	Over	L-Tyrosine
map00770	Pantothenate and CoA biosynthesis	1	1	2	36	103	Over	Pantothenic acid
map00860	Porphyrin and chlorophyll metabolism	1	2	5	36	103	Over	L-Threonine, Biliverdin
map00910	Nitrogen metabolism	1	1	2	36	103	Over	L-Glutamine
map01040	Biosynthesis of unsaturated fatty acids	1	1	2	36	103	Over	Eicosapentaenoic acid
map01522	Endocrine resistance	1	1	2	36	103	Over	Androstenedione
map04917	Prolactin signaling pathway	1	1	2	36	103	Over	Androstenedione
map04960	Aldosterone-regulated sodium reabsorption	1	1	2	36	103	Over	Cortisone
map05200	Pathways in cancer	1	2	5	36	103	Over	Androstenedione, Cortisone
map05215	Prostate cancer	1	2	5	36	103	Over	Androstenedione, Cortisone
map05231	Choline metabolism in cancer	1	1	2	36	103	Over	Choline

Diabetic nephropathy vs controls (negative mode)

MapID	MapTitle	Pvalue	x	y	n	N	EnrichDirect	MetaIDs
map01100	Metabolic pathways	0.005384037	21	48	25	81	Over	Arachidonic acid, Mevalonic acid, Jasmonic acid, Decanoic acid, D-Sedoheptulose 7-phosphate, L-Aspartic acid, 4-Pyridoxic acid, Sucrose, 4-Methylphenol, Xanthosine, Cholic acid, Ribitol, Histamine, D-Glucose 6-phosphate, Linoleic acid, Calcitriol, Bilirubin, Inosine, Prostaglandin E2, Xylitol, Lauric acid
map00340	Histidine metabolism	0.026957337	3	3	25	81	Over	3-Methylhistidine, L-Aspartic acid, Histamine
map04750	Inflammatory mediator regulation ofTRP channels	0.026957337	3	3	25	81	Over	Arachidonic acid, Histamine, Prostaglandin E2
map00500	Starch and sucrose metabolism	0.092592593	2	2	25	81	Over	Sucrose, D-Glucose 6-phosphate
map00590	Arachidonic acid metabolism	0.092592593	2	2	25	81	Over	Arachidonic acid, Prostaglandin E2
map00591	Linoleic acid metabolism	0.092592593	2	2	25	81	Over	Arachidonic acid, Linoleic acid
map04664	Fc epsilon RI signaling pathway	0.092592593	2	2	25	81	Over	Arachidonic acid, Histamine
map04726	Serotonergic synapse	0.092592593	2	2	25	81	Over	Arachidonic acid, Prostaglandin E2
map04921	Oxytocin signaling pathway	0.092592593	2	2	25	81	Over	Arachidonic acid, Prostaglandin E2
map04923	Regulation of lipolysis in adipocytes	0.092592593	2	2	25	81	Over	Arachidonic acid, Prostaglandin E2
map04973	Carbohydrate digestion and absorption	0.092592593	2	2	25	81	Over	Sucrose, D-Glucose 6-phosphate
map00040	Pentose and glucuronate interconversions	0.223863104	2	3	25	81	Over	Ribitol, Xylitol
map00100	Steroid biosynthesis	0.308641975	1	1	25	81	Over	Calcitriol
map00524	Neomycin, kanamycin and gentamicin biosynthesis	0.308641975	1	1	25	81	Over	D-Glucose 6-phosphate
map00562	Inositol phosphate metabolism	0.308641975	1	1	25	81	Over	D-Glucose 6-phosphate
map00592	alpha-Linolenic acid metabolism	0.308641975	1	1	25	81	Over	Jasmonic acid
map00740	Riboflavin metabolism	0.308641975	1	1	25	81	Over	Ribitol
map00750	Vitamin B6 metabolism	0.308641975	1	1	25	81	Over	4-Pyridoxic acid
map00770	Pantothenate and CoA biosynthesis	0.308641975	1	1	25	81	Over	L-Aspartic acid
map00900	Terpenoid backbone biosynthesis	0.308641975	1	1	25	81	Over	Mevalonic acid
map04024	cAMP signaling pathway	0.308641975	1	1	25	81	Over	Prostaglandin E2
map04217	Necroptosis	0.308641975	1	1	25	81	Over	Arachidonic acid
map04270	Vascular smooth muscle contraction	0.308641975	1	1	25	81	Over	Arachidonic acid
map04611	Platelet activation	0.308641975	1	1	25	81	Over	Arachidonic acid
map04666	Fc gamma R-mediated phagocytosis	0.308641975	1	1	25	81	Over	Arachidonic acid
map04721	Synaptic vesicle cycle	0.308641975	1	1	25	81	Over	Histamine
map04723	Retrograde endocannabinoid signaling	0.308641975	1	1	25	81	Over	Arachidonic acid
map04730	Long-term depression	0.308641975	1	1	25	81	Over	Arachidonic acid

map04911	Insulin secretion	0.308641975	1	1	25	81	Over	D-Glucose 6-phosphate
map04912	GnRH signaling pathway	0.308641975	1	1	25	81	Over	Arachidonic acid
map04913	Ovarian steroidogenesis	0.308641975	1	1	25	81	Over	Arachidonic acid
map04917	Prolactin signaling pathway	0.308641975	1	1	25	81	Over	D-Glucose 6-phosphate
map04924	Renin secretion	0.308641975	1	1	25	81	Over	Prostaglandin E2
map04925	Aldosterone synthesis and secretion	0.308641975	1	1	25	81	Over	Arachidonic acid
map04931	Insulin resistance	0.308641975	1	1	25	81	Over	D-Glucose 6-phosphate
map04961	Endocrine and other factor-regulated calcium reabsorption	0.308641975	1	1	25	81	Over	Calcitriol
map04971	Gastric acid secretion	0.308641975	1	1	25	81	Over	Histamine
map05140	Leishmaniasis	0.308641975	1	1	25	81	Over	Prostaglandin E2
map05143	African trypanosomiasis	0.308641975	1	1	25	81	Over	Prostaglandin E2
map05146	Amoebiasis	0.308641975	1	1	25	81	Over	Prostaglandin E2
map05152	Tuberculosis	0.308641975	1	1	25	81	Over	Calcitriol
map05165	Human papillomavirus infection	0.308641975	1	1	25	81	Over	Prostaglandin E2
map05200	Pathways in cancer	0.308641975	1	1	25	81	Over	Prostaglandin E2
map05230	Central carbon metabolism in cancer	0.308641975	1	1	25	81	Over	D-Glucose 6-phosphate
map05310	Asthma	0.308641975	1	1	25	81	Over	Histamine
map05323	Rheumatoid arthritis	0.308641975	1	1	25	81	Over	Prostaglandin E2
map00030	Pentose phosphate pathway	0.524691358	1	2	25	81	Over	D-Sedoheptulose 7-phosphate
map00052	Galactose metabolism	0.524691358	1	2	25	81	Over	Sucrose
map00860	Porphyrin and chlorophyll metabolism	0.524691358	1	2	25	81	Over	Bilirubin
map00970	Aminoacyl-tRNA biosynthesis	0.524691358	1	2	25	81	Over	L-Aspartic acid
map04742	Taste transduction	0.524691358	1	2	25	81	Over	Sucrose
map04918	Thyroid hormone synthesis	0.524691358	1	2	25	81	Over	D-Glucose 6-phosphate
map04978	Mineral absorption	0.524691358	1	2	25	81	Over	Calcitriol
map00061	Fatty acid biosynthesis	0.583468571	2	4	25	81	Over	Decanoic acid, Lauric acid
map00230	Purine metabolism	0.583468571	2	4	25	81	Over	Xanthosine, Inosine
map04080	Neuroactive ligand-receptor interaction	0.641620686	2	5	25	81	Over	Histamine, Prostaglandin E2
map04216	Ferroptosis	0.641620686	2	5	25	81	Over	Arachidonic acid, Mevalonic acid
map00120	Primary bile acid biosynthesis	1	1	3	25	81	Over	Cholic acid
map00232	Caffeine metabolism	1	1	3	25	81	Over	Xanthosine
map00260	Glycine, serine and threonine metabolism	1	1	3	25	81	Over	L-Aspartic acid
map00410	beta-Alanine metabolism	1	1	3	25	81	Over	L-Aspartic acid
map00430	Taurine and hypotaurine metabolism	1	1	3	25	81	Over	Sulfoacetic acid