

Variations in diet cause alterations in microbiota and metabolites that follow changes in disease severity in a multiple sclerosis model

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Figure S1. Flow chart detailing the treatment groups. Above the dotted line shows the animals on the different diets. Below the dotted line shows the *Lactobacillus paracasei* pre-treatment/treatment experiment.

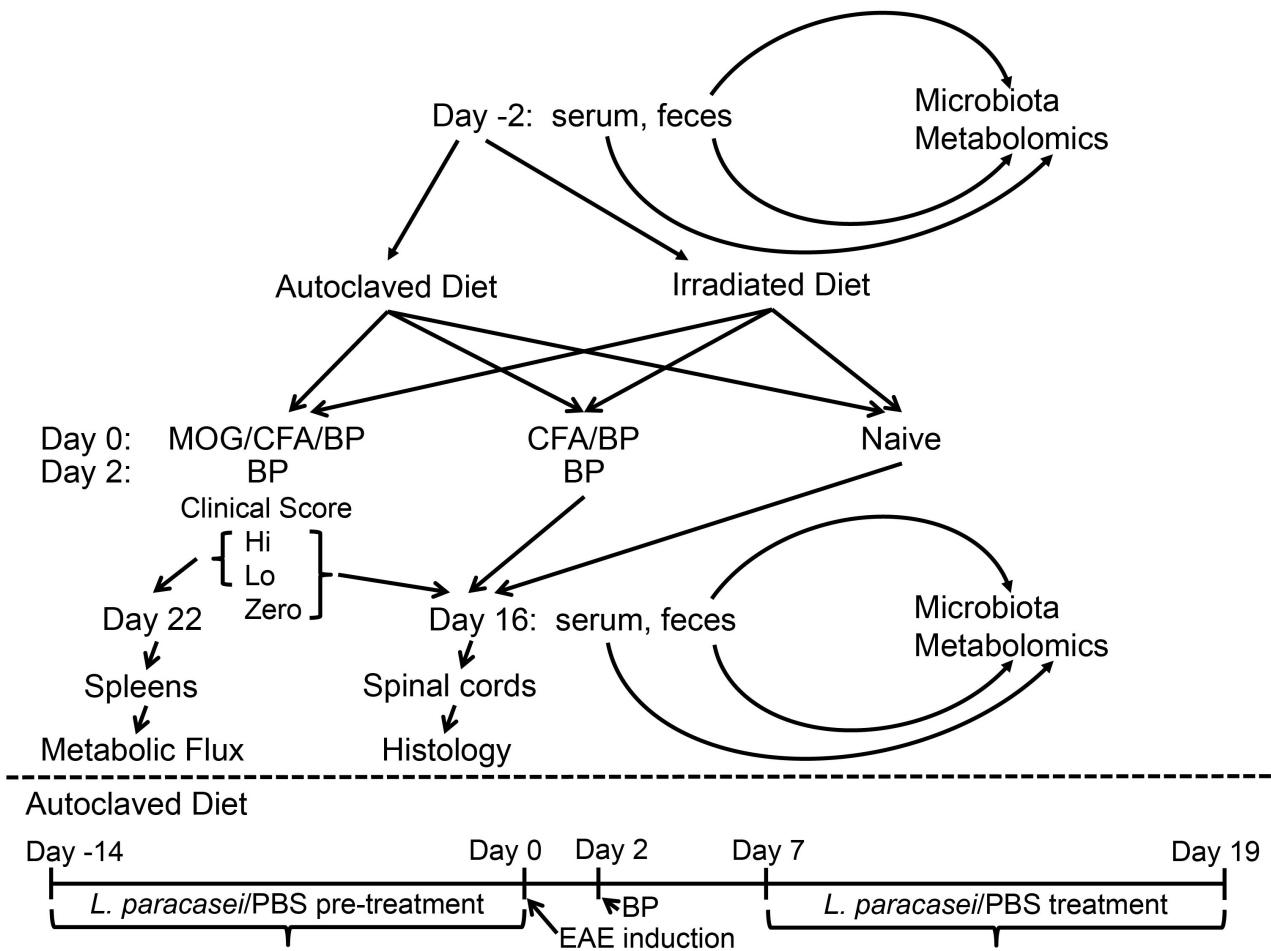
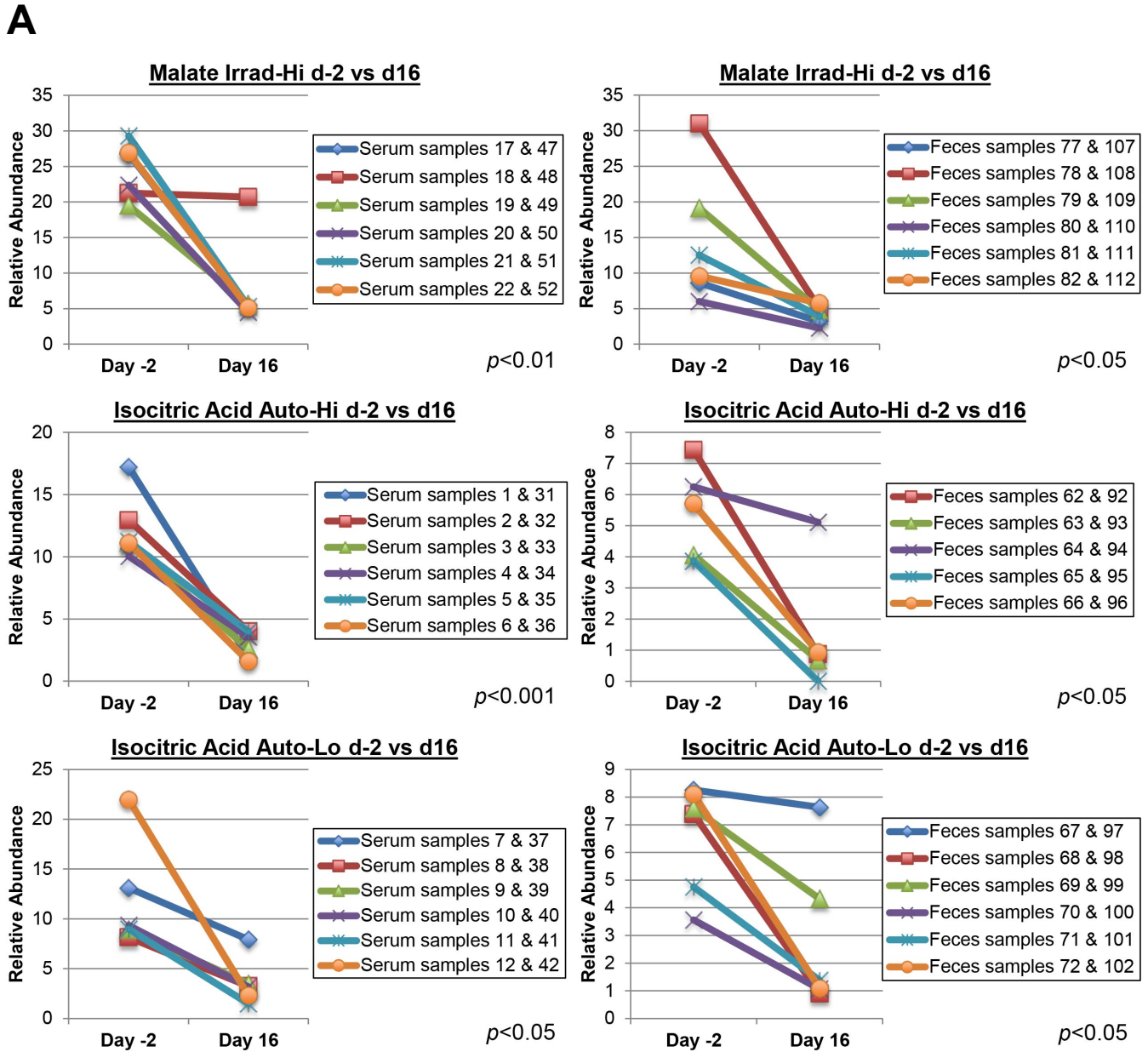


Figure S2. Correlation analyses of select metabolites. Metabolites were chosen from Figures 3 & 4 that showed the same significance for the same comparison for both serum and feces. (A) Cross-time point comparisons. Two-tailed *t* test. (B) Comparisons examining the effects of diet on disease. Spearman's rank correlation.



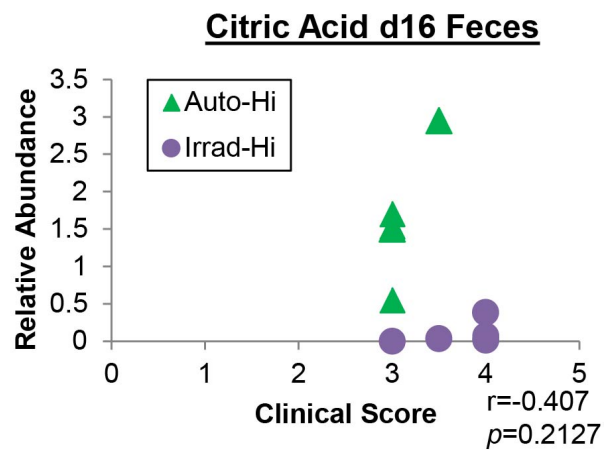
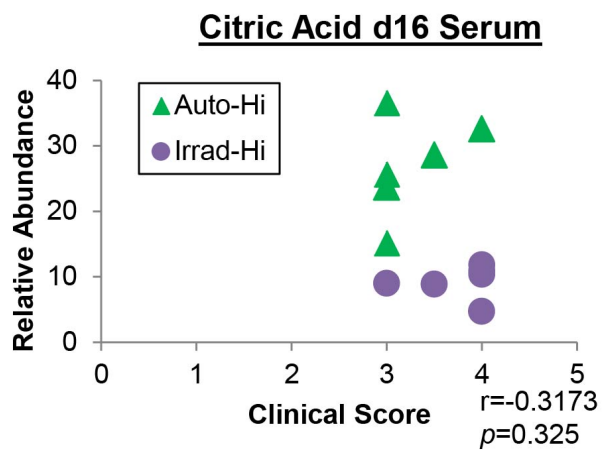
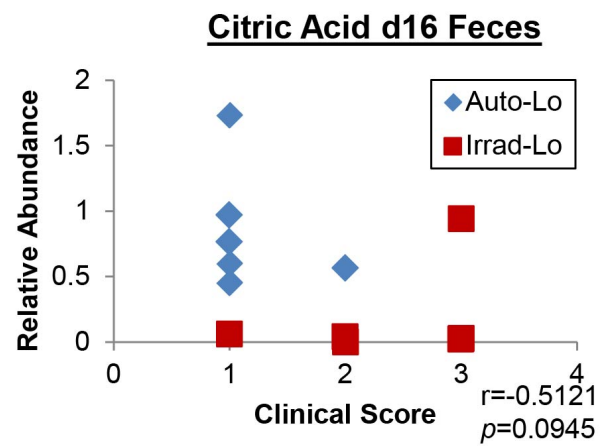
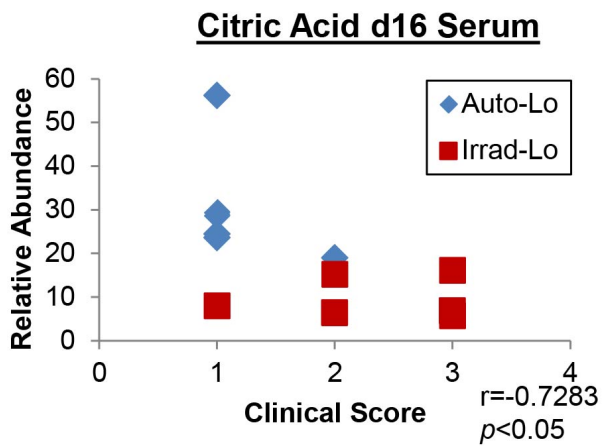
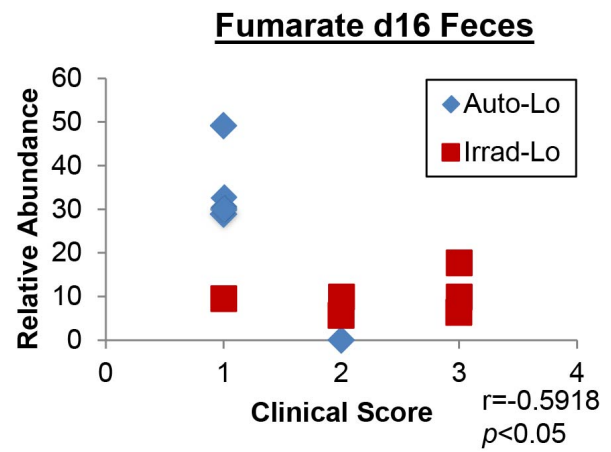
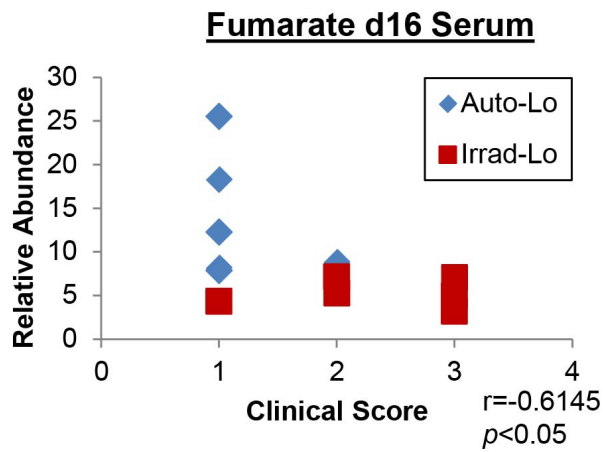
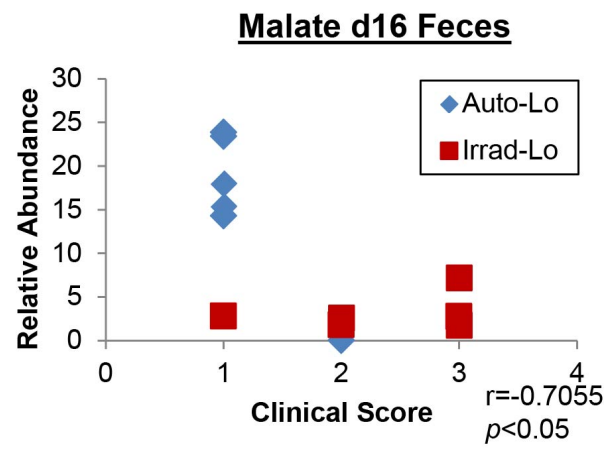
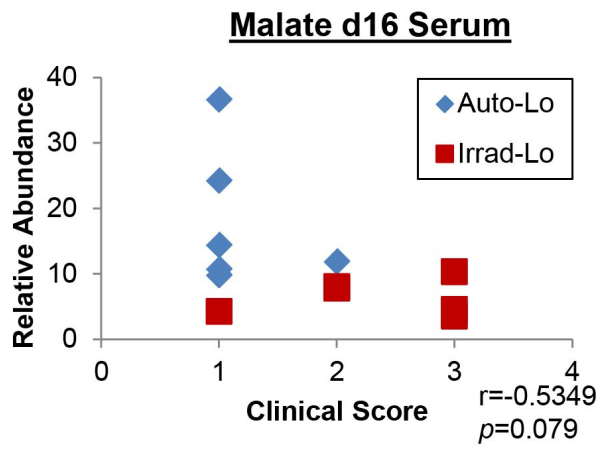
B

Table S1. Grouped x-timept comparisons day -2 vs day 16 with mice with clinical score 0.

1) Aut Zero, d-2 vs d16		2) Zero, d-2 vs d16	
Serum	Feces	Serum	Feces
1-monostearyllycerol	1-monostearyllycerol	1-monostearyllycerol	1-monostearyllycerol
1-monopalmitoyllycerol	1-monopalmitoyllycerol	1-monopalmitoyllycerol	1-monopalmitoyllycerol
4-hydroxyproline	4-hydroxyproline	4-hydroxyproline	4-hydroxyproline
homoserine	homoserine	homoserine	homoserine
isocitric acid	isocitric acid	isocitric acid	L-pipecolic acidN
succinic acid	succinic acid	succinic acid	chlorogenic acid
2-hydroxybutyric acid	2-hydroxybutyric acid	2-hydroxybutyric acid	pantothenic acid
hypoxanthine	hypoxanthine	2-ketoglutaric acid	hypoxanthine
xanthine	xanthine	uric acid	xanthine
tryptophan	tryptophan		23:0 FA
	uracil	uracil	
1-monooleoyllycerol	lauric acid	1-monooleoyllycerol	lauric acid
citric acid	un20.83_333.1338	citric acid	un20.83_333.1338
glucose-6-phosphate	un20.83_333	glucose-6-phosphate	un20.83_333
3-hydroxyanthranilic acid	un18.55_204.1001	3-hydroxyanthranilic acid	un18.55_204.1001
2-DOG	B-hydroxybutyric acid	2-DOG	B-hydroxybutyric acid
un30.06_83	GalNAc	un30.06_83	GalNAc
ribose(xyl)-5-phosphate	GlcNAc	ribose(xyl)-5-phosphate	GlcNAc
diphosphate	un14.96_133.0501	diphosphate	un14.96_133.0501
3-(3-hydroxyphenyl)propanoic acid	2-hydroxyphenylpropionic acid	3-(3-hydroxyphenyl)propanoic acid	2-hydroxyphenylpropionic acid
1-phosphoglycerol	5-aminovaleric acid		5-aminovaleric acid
urea	un30.81_387		un30.81_387
	AMP		AMP
	deoxyinositol		deoxyinositol
	palmitelaidic acid		palmitelaidic acid
	B-alanine		B-alanine
	glucose		glucose
	9H-purin-6-amine		9H-purin-6-amine
	un5.79_211.0033		un5.79_211.0033
	un6.55_174.1128		un6.55_174.1128
	D-erythro-2-pentulose		D-erythro-2-pentulose
	gluconic acid		gluconic acid
	ribose		ribose
	arabinofuranose		arabinofuranose
	ornithine		ornithine
	20:0 FA		20:0 FA
	N-methylalanine		N-methylalanine
	arachidonic acid		
	dihydroxyquinone		
	un16.50_117.0729		
	un20.99_333.1338		
	17:0 FA		
	malic acid		
	galacitol		
	sorbitol		
	22:0 FA		
	palmitic acid		
	oleic acid		
	phosphate		
	glutamine		
	fumaric acid		
	orotateN		
	m-hydroxyphenylpropionic acid		
	erythrose		

Table S2. Grouped x-timept comparisons day -2 vs day 16 with mice having any disease (HiLo).

1) Aut HiLo: d-2 vs d16		2) Irr HiLo: d-2 vs d16		3) HiLo: d-2 vs d16	
Serum	Feces	Serum	Feces	Serum	Feces
uracil	uracil	uracil	uracil	uracil	uracil
homoserine	homoserine	homoserine	homoserine	homoserine	homoserine
4-hydroxyproline		4-hydroxyproline	4-hydroxyproline	4-hydroxyproline	4-hydroxyproline
	arachidonic acid	arachidonic acid	arachidonic acid	arachidonic acid	arachidonic acid
2-hydroxybutyric acid	2-hydroxybutyric acid	2-hydroxybutyric acid		2-hydroxybutyric acid	2-hydroxybutyric acid
glucose-6-phosphate	glucose-6-phosphate	glucose-6-phosphate		glucose-6-phosphate	glucose-6-phosphate
sedoheptulose-7-P	sedoheptulose-7-P	sedoheptulose-7-P		sedoheptulose-7-P	sedoheptulose-7-P
succinic acid	succinic acid	succinic acid		succinic acid	succinic acid
isocitric acid	isocitric acid	isocitric acid		isocitric acid	
2-monostearyl glycerol		2-monostearyl glycerol	2-monostearyl glycerol	2-monostearyl glycerol	
		pantothenic acid	pantothenic acid	pantothenic acid	pantothenic acid
		B-alanine	B-alanine	B-alanine	
		aconitate	aconitate	aconitate	
diphosphate	GalNAc	diphosphate	GalNAc	diphosphate	GalNAc
uric acid	GlcNAc	uric acid	GlcNAc	uric acid	GlcNAc
2-ketoglutaric acid	5-aminovaleric acid	2-ketoglutaric acid	5-aminovaleric acid	2-ketoglutaric acid	5-aminovaleric acid
citric acid	un30.81_387	citric acid	un30.81_387	citric acid	un30.81_387
3-hydroxyanthranilic acid	xanthine	3-hydroxyanthranilic acid	xanthine	3-hydroxyanthranilic acid	xanthine
N-acetylglycine	hypoxanthine	N-acetylglycine	hypoxanthine	N-acetylglycine	hypoxanthine
2-DOG	un16.50_117.0729	1-phosphoglycerol	un16.50_117.0729	1-phosphoglycerol	un16.50_117.0729
urea	un5.79_211.0033	fumaric acid	un5.79_211.0033	fumaric acid	un5.79_211.0033
linoleic acid	AMP	un30.06_83	AMP	un30.06_83	AMP
	glucose	3-(3-hydroxyphenyl)propanoic	glucose	3-(3-hydroxyphenyl)propanoic	glucose
	6-phosphogluconate	inositol	6-phosphogluconate	2-DOG	6-phosphogluconate
	phosphate	malic acid	phosphate	urea	phosphate
	D-erythro-2-pentulose?	nicotinamide	D-erythro-2-pentulose?		D-erythro-2-pentulose?
	22:0 FA	glutamic acid	22:0 FA		22:0 FA
	1-monolinoleoylglycerol		1-monolinoleoylglycerol		1-monolinoleoylglycerol
	ribose		ribose		ribose
	mannose		mannose		mannose
	mannitol		mannitol		mannitol
	24:0 FA		24:0 FA		24:0 FA
	24:1 FA		24:1 FA		24:1 FA
	fructose		fructose		fructose
	chlorogenic acid		chlorogenic acid		chlorogenic acid
	lysine		lysine		lysine
	leucine		leucine		leucine
	ornithine		ornithine		ornithine
	alanine		alanine		alanine
	isoleucine		isoleucine		isoleucine
	gluconic acid		gluconic acid		gluconic acid
	N-methylalanine		N-methylalanine		N-methylalanine
	un18.55_204.1001		un18.55_204.1001		un18.55_204.1001
	un14.96_133.0501		un14.96_133.0501		un14.96_133.0501
	un6.55_174.1128		L-pipecolic acidN		L-pipecolic acidN
	un20.83_333		Indolecarboxylic acid?		Indolecarboxylic acid?
	un20.83_333.1338		methionine		methionine
	9H-purin-6-amine?		glycerol		glycerol
	arabinofuranose		aspartic acid		aspartic acid
	palmitelaidic acid		N-acetylaspartate		N-acetylaspartate
	3-hydroxybutyrate		threonine		threonine
	B-hydroxybutyric acid		19:0 FA		19:0 FA
	un20.99_333.1338		thymine		thymine
	N-acetylglutamate		valine		valine
	un30.94_387.1141		sarcosine		sarcosine

ergosterol
lauric acid
pyridine-2-6-dicarboxylic acid
orotateN
1-monostearyl glycerol
rhamnose
1-monopalmitoyl glycerol
2,3-pyridinedicarboxylic acid
Trans-cinnamic acid
Xylose or isomer
Fructose-6-phosphate
2-phosphoglycerol
Dihydroxyquinone
un12.13_263
p-hydroxyphenylacetic acid
deoxy-inositol?
un13.58_204.1001
5-hydroxyindoleacetic acid
aminopimelic acid
2-hydroxyphenylpropionic acid
3-phosphoglycerate
galactitol
sorbitol
2-aminoadipic acid
5-aminopentanoic acid
3-indoleacetic acid
glutamic acid
B-sitosterol

un13.58_204.1001
inositol
malic acid
histidine
1-monooleoyl glycerol
Ribulose(xylulose)-5-P
Erythrose-4-phosphate
Mevalonic acid

un6.55_174.1128
un20.83_333
un20.83_333.1338
9H-purin-6-amine?
arabinofuranose
palmitelaidic acid
3-hydroxybutyrate
B-hydroxybutyric acid
un20.99_333.1338
N-acetylglutamate
un30.94_387.1141
ergosterol
lauric acid
pyridine-2-6-
dicarboxylic acid
orotateN
1-monostearyl glycerol
rhamnose
1-monopalmitoyl glycerol
2,3-pyridinedicarboxylic acid
Trans-cinnamic acid
Xylose or isomer
Fructose-6-phosphate
2-phosphoglycerol
Dihydroxyquinone
un12.13_263
p-hydroxyphenylacetic acid
deoxy-inositol?
tyrosine

Table S3. Grouped x-timept comparisons day -2 vs day 16 for different clinical score groups.

1) Hi: d-2 vs d16		2) HiLo: d-2 vs d16		3) Lo: d-2 vs d16		4) Zero: d-2 vs d16	
Serum	Feces	Serum	Feces	Serum	Feces	Serum	Feces
homoserine	homoserine	homoserine	homoserine	homoserine	homoserine	homoserine	homoserine
uracil	uracil	uracil	uracil	uracil	uracil	uracil	
2-hydroxybutyric a	2-hydroxybutyric a	2-hydroxybutyric a	2-hydroxybutyric a	2-hydroxybutyric a	2-hydroxybutyric a	2-hydroxybutyric a	
4-hydroxyproline	4-hydroxyproline	4-hydroxyproline	4-hydroxyproline	4-hydroxyproline		4-hydroxyproline	4-hydroxyproline
glucose-6-phosphate	glucose-6-phosphate	glucose-6-phosphate	glucose-6-phosphate	glucose-6-phosphate		glucose-6-phosphate	
pantothenic acid	pantothenic acid	pantothenic acid	pantothenic acid	pantothenic acid			pantothenic acid
	1-monostearylglycerol		1-monostearylglycerol	1-monostearylglycerol	1-monostearylglycerol	1-monostearylglycerol	1-monostearylglycerol
			1-monopalmitoylglycerol	1-monopalmitoylglycerol	1-monopalmitoylglycerol	1-monopalmitoylglycerol	1-monopalmitoylglycerol
sedoheptulose-7-P	sedoheptulose-7-P	sedoheptulose-7-P	sedoheptulose-7-P	sedoheptulose-7-P	23:0 FA		23:0 FA
ribose(xyl)-5-P	arachidonic acid	arachidonic acid	arachidonic acid	arachidonic acid	arachidonic acid	ribose(xyl)-5-P	
B-alanine	B-alanine	B-alanine		B-alanine			B-alanine
succinic acid		succinic acid	succinic acid	succinic acid		succinic acid	
3-(3-hydroxyphenyl) propanoic acid	2-hydroxyphenylpropionic acid	3-(3-hydroxyphenyl) propanoic acid	deoxy-inositol?	3-(3-hydroxyphenyl) propanoic acid	3-(3-hydroxyphenyl) propanoic acid	3-(3-hydroxyphenyl) propanoic acid	2-hydroxyphenylpropionic acid
3-hydroxyanthranilic a	GalNAc	3-hydroxyanthranilic a	GalNAc	3-hydroxyanthranilic a	GalNAc	3-hydroxyanthranilic a	GalNAc
2-DOG	GlcNAc	2-DOG	GlcNAc	2-DOG	GlcNAc	2-DOG	GlcNAc
un30.06_83	5-aminovaleric acid	un30.06_83	5-aminovaleric acid	un30.06_83	5-aminovaleric acid	un30.06_83	5-aminovaleric acid
diphosphate	xanthine	diphosphate	xanthine	diphosphate	xanthine	diphosphate	xanthine
2-ketoglutaric acid	un20.83_333.1338	2-ketoglutaric acid	un20.83_333.1338	2-ketoglutaric acid	un20.83_333.1338	2-ketoglutaric acid	un20.83_333.1338
uric acid	un20.83_333	uric acid	un20.83_333	uric acid	un20.83_333	uric acid	un20.83_333
isocitric acid	un14.96_133.0501	isocitric acid	un14.96_133.0501	isocitric acid	un14.96_133.0501	isocitric acid	un14.96_133.0501
citric acid	un30.81_387	citric acid	un30.81_387	citric acid	un30.81_387	citric acid	un30.81_387
N-acetylglycine	AMP	N-acetylglycine	AMP	N-acetylglycine	AMP	1-monooleoylglycerol	AMP
1-phosphoglycerol	L-pipecolic acidN	1-phosphoglycerol	L-pipecolic acidN	1-phosphoglycerol	L-pipecolic acidN		L-pipecolic acidN
fumaric acid	palmitelaidic acid	fumaric acid	palmitelaidic acid	fumaric acid	palmitelaidic acid		palmitelaidic acid
urea	glucose	urea	glucose	urea	glucose		glucose
2-monostearylglycerol	9H-purin-6-amine	2-monostearylglycerol	9H-purin-6-amine	2-monostearylglycerol	9H-purin-6-amine		9H-purin-6-amine
linoleic acid	un18.55_204.1001	aconitinate	un18.55_204.1001	homocysteine	un18.55_204.1001		un18.55_204.1001
	N-methylalanine		N-methylalanine		N-methylalanine		N-methylalanine
	gluconic acid		gluconic acid		gluconic acid		gluconic acid
	ribose		ribose		ribose		ribose
	hypoxanthine		hypoxanthine		hypoxanthine		hypoxanthine
	D-erythro-2-pentulose		D-erythro-2-pentulose		D-erythro-2-pentulose		D-erythro-2-pentulose
	un5.79_211.0033		un5.79_211.0033		un5.79_211.0033		un5.79_211.0033
	arabinofuranose		arabinofuranose		arabinofuranose		arabinofuranose
	ornithine		ornithine		ornithine		ornithine
	un6.55_174.1128		un6.55_174.1128		un6.55_174.1128		un6.55_174.1128
	lauric acid		lauric acid		lauric acid		lauric acid
	1-monooleoylglycerol		chlorogenic acid		chlorogenic acid		chlorogenic acid
	B-hydroxybutyric acid		B-hydroxybutyric acid				B-hydroxybutyric acid
	6-phosphogluconate		6-phosphogluconate		6-phosphogluconate		6-phosphogluconate
	pyridine-2-6-dicarboxylic a		pyridine-2-6-dicarboxylic a		pyridine-2-6-dicarboxylic a		pyridine-2-6-dicarboxylic a
	24:0 FA		24:0 FA		24:0 FA		24:0 FA
	24:1 FA		24:1 FA		24:1 FA		24:1 FA
	fructose		fructose		fructose		fructose
	mannose		mannose		mannose		mannose
	mannitol		mannitol		mannitol		mannitol
	22:0 FA		22:0 FA		22:0 FA		22:0 FA
	alanine		alanine		alanine		alanine
	orotateN		orotateN		orotateN		orotateN
	N-acetylglutamate		N-acetylglutamate		N-acetylglutamate		N-acetylglutamate
	rhamnose		rhamnose		rhamnose		rhamnose
	ergosterol		ergosterol		ergosterol		ergosterol
	sarcosine		sarcosine		sarcosine		sarcosine
	1-monolinoleoylglycerol		1-monolinoleoylglycerol		5-aminopentanoic acid		1-monolinoleoylglycerol
	un16.50_117.0729		un16.50_117.0729		histidine		un16.50_117.0729
	3-hydroxybutyrate		3-hydroxybutyrate		serine		3-hydroxybutyrate
	N-acetylaspartate		N-acetylaspartate		2-aminoadipic acid		N-acetylaspartate
	phosphate		phosphate		galactitol		phosphate

un20.99_333.1338
un30.94_387.1141
thymine
Dihydroxyquinone
trans-cinnamic acid
indolecarboxylic acid?
un12.13_263
2,3-pyridinedicarboxylic a
fructose-6-phosphate
Mevalonic acid
glyceric acid

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un12.13_263
2,3-pyridinedicarboxylic a
fructose-6-phosphate
leucine
isoleucine
methionine
glycerol
lysine
aspartic acid
threonine
19:0 FA
valine
Xylose or isomer
2-phosphoglycerol
p-hydroxyphenylacetic a
tyrosine

aminomalonic acid
ribulose(xylulose)-5-P
erythrose-4-phosphate
sorbitol
3-phosphoglycerate

leucine
isoleucine
methionine
glycerol
lysine
aspartic acid
threonine
19:0 FA
valine
Xylose or isomer
2-phosphoglycerol
p-hydroxyphenylacetic a
tyrosine
