

- 1 **Supplementary Table 1.** List of KEGG pathways predicted from the abundance of the gut microbiota after a dietary change to normal diet
 2 with metformin treatment.

	High-fat diet	Normal diet
	Change to normal diet (<i>n</i> = 11)	Metformin treatment (<i>n</i> = 45)
Benzoate degradation	Aminobenzoate degradation	African trypanosomiasis
Biosynthesis of ansamycins	Arachidonic acid metabolism	alpha-Linolenic acid metabolism
Chloroalkane and chloroalkene degradation	Ascorbate and aldarate metabolism	Aminoacyl-tRNA biosynthesis
D-Alanine metabolism	Biosynthesis of unsaturated fatty acids	Aminobenzoate degradation
Dioxin degradation	Bisphenol degradation	Amyotrophic lateral sclerosis (ALS)
Glycerolipid metabolism	Caprolactam degradation	Apoptosis
Nitrotoluene degradation	Carotenoid biosynthesis	Arachidonic acid metabolism
Porphyrin and chlorophyll metabolism	Chlorocyclohexane and chlorobenzene degradation	Atrazine degradation
Protein kinases	Ether lipid metabolism	Bacterial chemotaxis
Tetracycline biosynthesis	Fatty acid elongation in mitochondria	Bacterial motility proteins
Xylene degradation	Fatty acid metabolism	Bile secretion
	Flavonoid biosynthesis	Biosynthesis and biodegradation of secondary metabolites
	Fluorobenzoate degradation	Biosynthesis of siderophore group nonribosomal peptides
	Geraniol degradation	Caprolactam degradation
	Glycosaminoglycan degradation	Cardiac muscle contraction
	Limonene and pinene degradation	Carotenoid biosynthesis
	Linoleic acid metabolism	Chagas disease (American trypanosomiasis)
	Lipoic acid metabolism	Chlorocyclohexane and chlorobenzene degradation
	Lipopolysaccharide biosynthesis	Colorectal cancer
	Lipopolysaccharide biosynthesis proteins	D-Arginine and D-ornithine metabolism
	Nitrotoluene degradation	Electron transfer carriers
	Sphingolipid metabolism	Ether lipid metabolism
	Steroid biosynthesis	Ethylbenzene degradation
	Steroid hormone biosynthesis	Flagellar assembly
	Stilbenoid, diarylheptanoid and gingerol biosynthesis	Flavone and flavonol biosynthesis
	Styrene degradation	Flavonoid biosynthesis

Synthesis and degradation of ketone bodies

Toluene degradation

Tryptophan metabolism

Valine, leucine and isoleucine degradation

Fluorobenzoate degradation

Germination

Influenza A

Inorganic ion transport and metabolism

Insulin signaling pathway

Limonene and pinene degradation

Meiosis – yeast

Nitrotoluene degradation

Non-homologous end-joining

Parkinson's disease

Polycyclic aromatic hydrocarbon degradation

Polyketide sugar unit biosynthesis

Small cell lung cancer

Sporulation

Steroid biosynthesis

Stilbenoid, diarylheptanoid and gingerol biosynthesis

Toxoplasmosis

Two-component system

Viral myocarditis

3 Pathways in bold typeface were unique among the 18 KEGG pathways predicted during metformin treatment in mice on a HFD.

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