

**Supplementary Table 1**

Metabolites and their isotopomers	m/z	Retention time (min)
M+0 Succinate (Relative quantification and enrichment analysis-TBDMS method)	289.1	18.0
M+1 Succinate (Relative quantification and enrichment analysis-TBDMS method)	290.1	18.0
M+2 Succinate (Relative quantification and enrichment analysis-TBDMS method)	291.1	18.0
M+3 Succinate (Relative quantification and enrichment analysis-TBDMS method)	292.1	18.0
M+4 Succinate (Relative quantification and enrichment analysis-TBDMS method)	293.1	18.0
M+0 Succinate (Absolute quantification-TMS method)	247.0	10.8
M+4 Succinate (Absolute quantification-TMS method)	251.0	10.7
M+0 Fumarate	287.1	18.4
M+1 Fumarate	288.1	18.4
M+2 Fumarate	289.1	18.4
M+3 Fumarate	290.1	18.4
M+4 Fumarate	291.1	18.4
M+0 Malate	419.3	23.0
M+1 Malate	420.3	23.0
M+2 Malate	421.3	23.0
M+3 Malate	422.3	23.0
M+4 Malate	423.3	23.0
M+0 Citrate	459.3	29.0
M+1 Citrate	460.3	29.0
M+2 Citrate	461.3	29.0
M+3 Citrate	462.3	29.0
M+4 Citrate	463.3	29.0
M+5 Citrate	464.3	29.0
M+6 Citrate	465.3	29.0
Norvaline	288.2	16.6
M+0 Fructose	328.0	19.8
M+1 Fructose	329.0	19.8
M+2 Fructose	330.0	19.8
M+3 Fructose	331.0	19.8
M+4 Fructose	332.0	19.8
M+5 Fructose	333.0	19.8
M+6 Fructose	334.0	19.8
M+0 Glucose	387.0	18.7
M+1 Glucose	388.0	18.7
M+2 Glucose	389.0	18.7
M+3 Glucose	390.0	18.7
M+4/6 Glucose	391.0	18.7
2DG	182.1	17.1