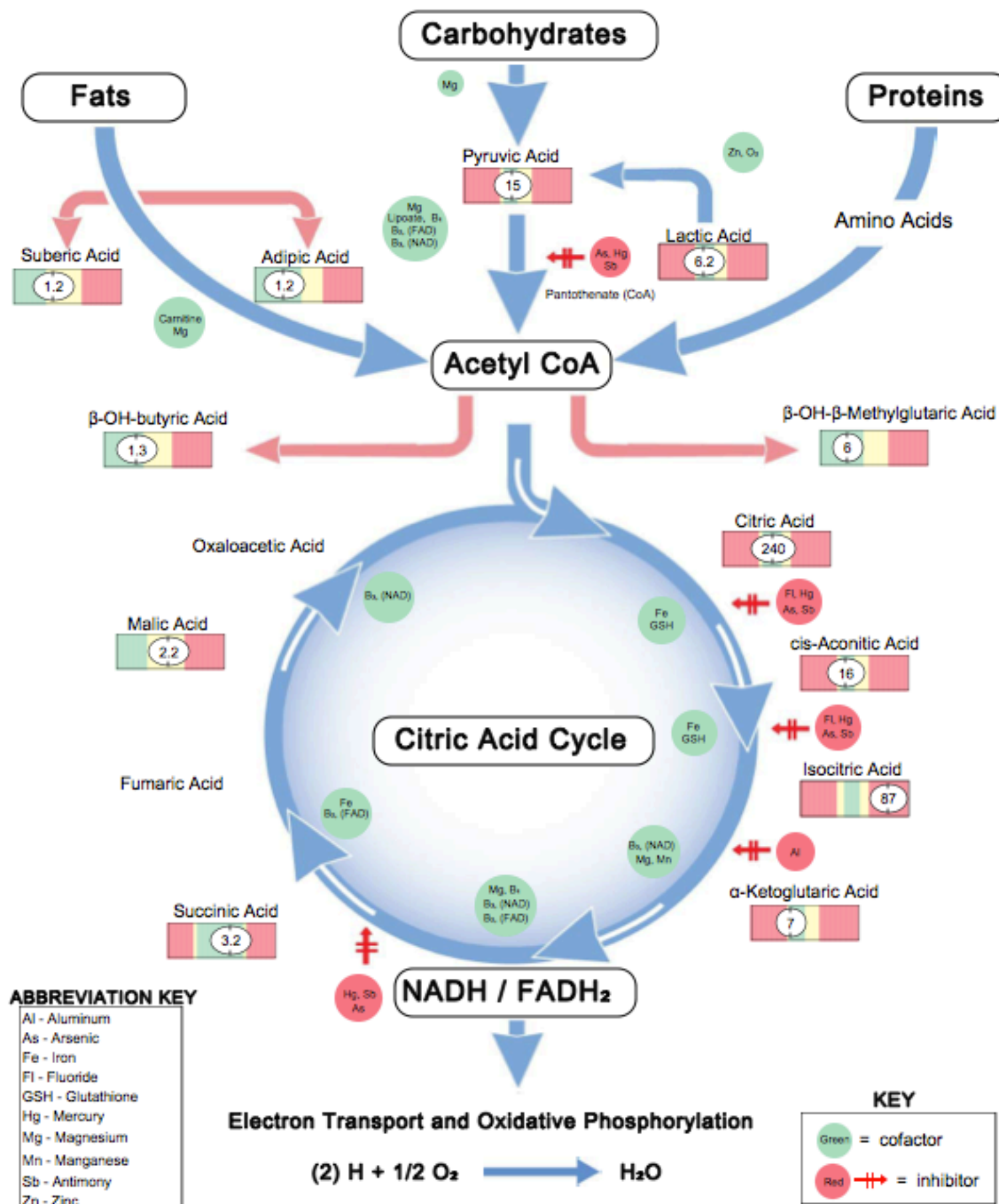


**Krebs Cycle At-A-Glance****Metabolic Analysis Markers**

All biomarkers reported in mmol/mol creatinine unless otherwise noted.

**Malabsorption and Dysbiosis Markers**

Malabsorption Markers	Reference Range
Indoleacetic Acid (IAA)	1.5 <= 4.2
Phenylacetic Acid (PAA)	0.13 <= 0.12

**Bacterial Dysbiosis Markers**

Dihydroxyphenylpropionic Acid (DHPPA)	1.1 <= 5.3
3-Hydroxyphenylacetic Acid	5.0 <= 8.1
4-Hydroxyphenylacetic Acid	12 <= 29
Benzolic Acid	0.06 <= 0.05
Hippuric Acid	191 <= 603

**Yeast / Fungal Dysbiosis Markers**

Arabinose	38 <= 96
Citramalic Acid	3.4 <= 5.8
Tartaric Acid	29 <= 15

**Cellular Energy & Mitochondrial Metabolites**

Carbohydrate Metabolism	Reference Range
Lactic Acid	6.2 1.9-19.8
Pyruvic Acid	15 7-32
β-OH-Butyric Acid (BHBA)	1.3 <= 2.8

**Energy Metabolism**

Citric Acid	240 40-520
Cis-Aconitic Acid	16 10-36
Isocitric Acid	87 22-65
α-Ketoglutaric Acid (AKG)	7 4-52
Succinic Acid	3.2 0.4-4.6
Malic Acid	2.2 <= 3.0
β-OH-β-Methylglutaric Acid (HMG)	6 <= 15

**Fatty Acid Metabolism**

Adipic Acid	1.2 <= 2.8
Suberic Acid	1.2 <= 2.1

**Creatinine Concentration**

Reference Range
Creatinine • 6.3 3.1-19.5 mmol/L

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with • as cleared by the U.S. Food and Drug Administration, assays are For Research Use Only.

**Neurotransmitter Metabolites**

Reference Range
Vanilmandelic Acid 2.6 0.4-3.6
Homovanillic Acid 3.1 1.2-5.3
5-OH-Indoleacetic Acid 14.3 3.8-12.1
3-Methyl-4-OH-phenylglycol 0.17 0.02-0.22
Kynurenic Acid 6.5 <= 7.1
Quinolinic Acid 8.1 <= 9.1
Kynurenic / Quinolinic Ratio 0.80 >= 0.44

**Vitamin Markers**

Reference Range
α-Ketoadipic Acid 0.5 <= 1.7
α-Ketoisovaleric Acid 0.36 <= 0.97
α-Ketoisocaproic Acid 0.58 <= 0.89
α-Keto-β-Methylvaleric Acid 1.3 <= 2.1
Formiminoglutamic Acid (FIGlu) 1.7 <= 1.5
Glutaric Acid 0.60 <= 0.51
Isovalerylglycine 1.5 <= 3.7
Methylmalonic Acid 1.5 <= 1.9
Xanthurenic Acid 1.15 <= 0.96
3-Hydroxypropionic Acid 10 5-22
3-Hydroxyisovaleric Acid 15 <= 29

**Toxin & Detoxification Markers**

Reference Range
α-Ketophenylacetic Acid (from Styrene) 0.20 <= 0.46
α-Hydroxyisobutyric Acid (from MTBE) 3.7 <= 6.7
Orotic Acid 0.93 0.33-1.01
Pyroglutamic Acid 25 16-34

**Tyrosine Metabolism**

Reference Range
Homogentisic Acid 10 <= 19
2-Hydroxyphenylacetic Acid 0.49 <= 0.76

Metabolic Analysis Reference Ranges are Age Specific