Bringing metabolic profiling into clinical practice

Linda Mustelin, MD, PhD, MPH
Senior Medical Scientist
Nightingale Health
Preventive Healthcare

Shifting focus from sick care to health care in chronic diseases by systemically analyzing the metabolic health of citizens. This enables enormous healthcare cost savings and improved quality of life.

A

Reactive sick care
Improving disease treatment

B

Preventive healthcare
Predicting disease risk

10x impact

Nightingale
Nightingale Health Ltd.

- Finnish biotech company specialized in comprehensive metabolic profiling
- Enabling disease prediction and preventive medicine in chronic diseases
- Roots in peer-reviewed biomedical science
- 500,000+ blood samples analyzed
- 100+ scientific publications
Our laboratories

Nightingale Helsinki & Kuopio

University of Oxford
Clinical Trial Service Unit

University of Bristol
MRC Epidemiology
NMR-based metabolic profiling platform
228 Metabolic Measures

Complete list of metabolic measures: nightingalehealth.com/biomarkers
Novel biomarker associations proven by epidemiology

The studies demonstrate the relation between Nightingale’s biomarker data and the biological pathways of the targeted diseases. Epidemiological studies continue to showcase further clinical applications.

**Biomarkers associated to increase risk/disease**
- Isoleucine
- Valine
- Alanine
- Leucine
- Phenylalanine
- Tyrosine
- Glycerol
- Acetoacetate
- 3-hydroxybutyrate
- Apolipoprotein B/LDL cholesterol
- Apolipoprotein A1/LDL cholesterol
- Monounsaturated fatty acids
- Saturated fatty acids

**Biomarkers associated to decrease risk/disease**
- Omega-6 fatty acids
- Omega-3 fatty acids
- Histiocytic
- Glutamine

**Type 2 diabetes biomarkers in Europeans and Asians**
- Glycoprotein acetyltransferase
- Citrate
- Albumin
- VLDL particle size

**Short-term risk of death from all causes**
- PLOS Medicine 2014;11(2):e1001606

**Infectious disease risk**
- Glycoprotein acetyltransferase

**Cardiovascular disease**
- Phenylalanine
- Tyrosine
- Monounsaturated fatty acids
- LDL cholesterol

**Kidney disease risk for Type 1 diabetes patients**
- Sphingomyelin
- Large HDL cholesterol
- Large VLDL cholesterol
- Dial dehydroascorbic acid

**Pre-diabetes biomarkers**
- Isoleucine
- Valine
- Tyrosine
- Leucine
- Phenylalanine
- Alanine
- Acetoacetate
- 3-hydroxybutyrate
- Caylylglycerol acetyltransferase
- Total fatty acids

**PLOS Medicine 2014;11(2):e1001606**
Better decision-making tools

**Type 2 diabetes risk**
- Current risk level: High
- Glutamine: 55
- Alanine: 42

**Heart disease risk**
- Current risk level: Moderate
- Phenylalanine: 80
- Omega-6 FA: 2.2

**Total fatty acids**
- 72% of people in your reference group have higher values

**Underlying data**
- Glutamine: 8%
- Alanine: 51%
- Tyrosine: 21%
- Glutamine: 8%
Nightingale’s extended lipid panel

In addition:

Glucose  Creatinine  ApoA1  ApoB  ApoB/ApoA1
MD, PhD, MPH
Linda Mustelin
linda.mustelin@nightingalehealth.com

nightingalehealth.com