



Nightingale Cord Blood Biomarker Analysis Service

Features

- ▶ *Comprehensive biomarker panel*
- ▶ *Absolute biomarker quantification*
- ▶ *High-throughput*
- ▶ *Fast results delivery*
- ▶ *Affordable service*

Metabolic biomarker analysis of umbilical cord blood

Metabolic biomarker analysis of cord blood samples in cohorts and trials allows for numerous epidemiology applications. Metabolomics provides a snapshot of metabolic health, allowing for the assessment of molecular effects related to both infant and maternal metabolism at birth. This unique viewpoint into metabolic interactions offers the opportunity to explore how perinatal metabolic biomarkers associate with risk factor exposures in pregnancy, epigenetic markers and risk factor levels throughout the life-course.

Nightingale's high-throughput cord blood biomarker analysis service offers a cost-effective solution, accommodating cohorts and trials of any size, and providing quantitative and repeatable biomarker quantification. The biomarker levels are provided in absolute concentration units, facilitating epidemiological analyses, including combination with other biomarker measures, genomic data and biofluids. By combining metabolic biomarker analyses from several biofluids, it is possible to use cord blood samples to further elucidate the impact of early life metabolic effects on life-course health and disease.

▶ Quality

Nightingale Health is dedicated to delivering high quality results that guarantee the validity of scientific findings and allow for effective clinical translation. As proof of our commitment, Nightingale Health's quality management system has been certified according to EN ISO 13485 standard. The cord blood biomarker analysis service will be part of the certified quality management system. All our biomarker analysis services provide highly repeatable metabolite measures that are delivered in absolute concentrations and free of batch effects.

Applications

- Molecular Epidemiology
- Biomarker reflections on maternal lifestyle and early life stressors
- Molecular understanding of the pregnancy metabolism and its influence on life-course health
- Future risk of non-communicable diseases, such as CVD or diabetes

Tech specifications

Technology/ method	1H NMR Spectroscopy, Nightingale Health's proprietary analysis
Specimen type	Human umbilical cord serum/plasma
Sample volume	100µL
Number of biomarkers	88
Result report format	Spreadsheet and graphical reports
Result units	Absolute biomarker quantification (mmol/l)
Sample container requirements	Outer diameter of vial less than 13mm or in 96-well plate format
Sample storage	Long-term storage -70°C or below
Sample shipping	In dry ice

List of Biomarkers

Metabolite	Unit	Metabolite	Unit	Metabolite	Unit
Cholesterol		Leucine	mmol/l	IDL (average size 28.6 nm)	
Total cholesterol	mmol/l	Valine	mmol/l	IDL-P	mol/l
VLDL cholesterol	mmol/l			IDL-L	mmol/l
Remnant cholesterol	mmol/l	<i>Aromatic amino acids</i>			
LDL cholesterol	mmol/l	Phenylalanine	mmol/l	Large LDL (average size 25.5 nm)	
HDL cholesterol	mmol/l	Tyrosine	mmol/l	L-LDL-P	mol/l
HDL2 cholesterol	mmol/l			L-LDL-L	mmol/l
HDL3 cholesterol	mmol/l	Glycolysis related metabolites			
Esterified cholesterol	mmol/l	Glucose	mmol/l	Medium LDL (average size 23 nm)	
Free cholesterol	mmol/l	Lactate	mmol/l	M-LDL-P	mol/l
		Pyruvate *	mmol/l	M-LDL-L	mmol/l
		Citrate **	mmol/l		
		Glycerol *	mmol/l	Small LDL (average size 18.7 nm)	
Glycerides and phospholipids				S-LDL-P	mol/l
Total triglycerides	mmol/l	Ketone bodies		S-LDL-L	mmol/l
VLDL triglycerides	mmol/l	Acetate	mmol/l		
LDL triglycerides	mmol/l	Acetoacetate	mmol/l	Very large HDL (average size 14.3 nm)	
HDL triglycerides	mmol/l	Beta-hydroxybutyrate	mmol/l	XL-HDL-P	mol/l
Phosphoglycerides	mmol/l			XL-HDL-L	mmol/l
Triglycerides to phosphoglycerides	ratio	Fluid balance			
Total cholines	mmol/l	Creatinine	mmol/l	Large HDL (average size 12.1 nm)	
Phosphatidylcholines	mmol/l	Albumin	signal area	L-HDL-P	mol/l
Sphingomyelins	mmol/l			L-HDL-L	mmol/l
		Inflammation			
Apolipoproteins		GlycA (Glycoprotein acetyls)	mmol/l	Medium HDL (average size 10.9 nm)	
Apolipoprotein B	g/l			M-HDL-P	mol/l
Apolipoprotein A1	g/l	Lipoprotein subclasses		M-HDL-L	mmol/l
ApoB/ApoA1	ratio				
		Chylomicrons and extremely large VLDL (particle sizes from 75 nm upwards)		Small HDL (average size of 8.7 nm)	
Fatty acids		XXL-VLDL-P	mol/l	S-HDL-P	mol/l
Total fatty acids	mmol/l	XXL-VLDL-L	mmol/l	S-HDL-L	mmol/l
Degree of unsaturation	degree			Average lipoprotein particle size	
Omega-3 fatty acids	mmol/l	Very large VLDL (average size 64 nm)		VLDL diameter	nm
Omega-6 fatty acids	mmol/l	XL-VLDL-P	mol/l	LDL diameter	nm
Polyunsaturated fatty acids	mmol/l	XL-VLDL-L	mmol/l	HDL diameter	nm
Monounsaturated fatty acids	mmol/l				
Saturated fatty acids	mmol/l	Large VLDL (average size 53.6 nm)			
Docosahexaenoic acid	mmol/l	L-VLDL-P	mol/l		
Linoleic acid	mmol/l	L-VLDL-L	mmol/l		
		Medium VLDL (average size 44.5 nm)			
Fatty acid ratios		M-VLDL-P	mol/l		
Omega-3 to total fatty acids	%	M-VLDL-L	mmol/l		
Omega-6 to total fatty acids	%				
PUFA to total fatty acids	%	Small VLDL (average size 36.8 nm)			
MUFA to total fatty acids	%	S-VLDL-P	mol/l		
SFA to total fatty acids	%	S-VLDL-L	mmol/l		
DHA to total fatty acids	%				
LA to total fatty acids	%	Very small VLDL (average size 31.3 nm)			
		XS-VLDL-P	mol/l		
Amino acids		XS-VLDL-L	mmol/l		
Alanine	mmol/l				
Glutamine	mmol/l				
Glycine *	mmol/l				
Histidine	mmol/l				
<i>Branched-chain amino acids</i>					
Isoleucine	mmol/l				



Nightingale

Nightingale Health Ltd. provides a NMR (Nuclear Magnetic Resonance) based metabolomics technology, supplying biomarker analysis services for human blood, urine, CSF and umbilical cord blood samples. By measuring biomarkers from multiple pathways in a single experiment, Nightingale equips public health researchers with comprehensive insights into the effects of lifestyle factors and future disease risk, accelerating future breakthroughs in precision medicine. In the long term, the company plans to fully integrate its services into clinical practice, helping to empower patients to follow-up on their own well-being and take proactive steps to stay healthy.



See also

- [Nightingale Blood Analysis Service](#)
- [Nightingale CSF Biomarker Analysis Service](#)
- [Nightingale Urine Biomarker Analysis Service](#)

www.nightingale.health

All listed biomarkers are available for Serum and Heparin plasma samples.

Biomarkers marked with * are not available for EDTA plasma samples.

Biomarkers marked with ** are not available for Citrate plasma samples.