The first step in a healthy preterm baby’s life is nutrition.
Nutrition for preterm babies

Neonatal medicine has made great strides in the care of preterm babies. Thanks to a better understanding of nutrition, we now know that human milk gives preterm babies the best start in life. Miris helps you measure the macronutrient composition of human milk contributing to a better outcome for the baby, the family and the hospital.
Preterm health begins with nutrition

New-borns and their mothers are unprepared for a premature arrival into the world. Mothers may have difficulty producing milk. Preterm babies with their tiny digestive systems can only take in small feeds. Human milk must therefore have the best nutritional quality to ensure growth, with preferably an individual plan for each baby. Because at this stage, every drop counts. Apart from its nutritional properties, breast milk kick-starts the immune system and provides hormones and enzymes that promote gut maturation and digestion.

Miris Human Milk Analyzer provides a fast and simple way to measure the total amounts of macronutrients in breast milk. Ensuring that optimal nutrition can be determined individually for preterm infants during the first challenging weeks of life.
Individualised nutrition and Target fortification

By knowing the macronutrient composition of human milk it becomes easy to identify if fortification is needed.

During the last trimester, the fetus has a growth rate that is three times greater than that of a term baby. The dilemma is that preterm babies are born with high energy requirements and low reserves of macronutrients. Furthermore, individual metabolic status, organ maturity and health can vary greatly. Because of this, one feeding regimen cannot be applied to all.

There are large variations in the macronutrient content of human milk used in neonatal care. Mother to mother variation, stage of lactation, and methods of storage and treatment can all affect composition. The only way to be certain of macronutrient composition is to analyse. Miris Human Milk Analyzer provides the information that clinicians need to decide optimal macronutrient composition to be given to each individual preterm infant.

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The need to optimise nutrition

Although human milk boosts immunity it may not always meet the nutritional requirements of each individual.

Miris Human Milk Analyzer helps develop individualised nutritional programmes that mimic intrauterine growth according to specific nutritional requirements of the three birth weight classes:

The concentration of protein in human milk declines significantly after birth. The ESPGHAN 2010 guidelines\(^2\) indicate that most preterm babies have a protein deficit that is linked to their weight and composition of their feed. Extreme and very low weight babies often need additional energy and protein to enable growth similar to intrauterin

![Day-to-day variation in protein content](image)

![Daily protein requirements according to ESPGHAN 2010](image)

Left: Protein content of human milk declines after birth.\(^3\) Right: The specific protein requirements of preterm babies.\(^4\)

\(^1\) Agostoni et al. Enteral nutrient supply for Preterm Infants: Commentary from the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition Committee on Nutrition. JPGN 2010; 50: 85-91.


Measuring with Miris

Miris Human Milk Analyzer gives the energy, fat, carbohydrate, and protein content in human milk within minutes using a small sample volume.

Medical device
Used routinely in neonatal units and milk banks, Miris Human Milk Analyzer has been extensively tested and is registered as a medical device in many parts of the world.

Small sample volume
All you need is a 3 ml sample to analyse fat, protein, carbohydrate, energy and dry matter. Analysis is done without chemicals.

Results in 60 seconds
Determine nutritional content in just 60 seconds. The results are presented instantly on the display and can be transferred to your computer or USB device.

Analyse when needed
No need to send samples for time consuming and high cost chemical analysis. Bring fast and reliable analysis to your own laboratory.
At Swedish neonatal units, the Mother's own milk is always the first choice to be given to the preterm baby if it is available. If not available, donor milk from other moms will be provided. The breast milk is analysed to determine the macronutrient content in the milk and is fortified according to the clinician's recommendations to meet each baby's needs – enabling individual nutrition through target fortification.

The Miris Milky Way originates from the expertise received from Swedish neonatal units on how to perform target fortification. Combined with Miris’ extended knowledge of analysing breastmilk, The Miris Milky Way is in its simplest form mapping out how to optimise breast milk analysis and enabling target fortification.
The Miris Solution

Sample Preparation
Milk that has been stored and thawed, separates into fat and proteins aggregates. This lowers analytical quality since samples vary in content. By using Miris Heater and Miris Ultrasonic Processor before analysis, samples are rapidly homogenised and represent the true composition of the milk.

Analysis
The Miris Human Milk Analyzer will analyse fat, protein, carbohydrate, energy and dry matter in breast milk. It requires only a small sample volume and present the results for all parameters in 60 seconds.

In the Miris Solution everything needed for human milk analysis is provided. It includes Miris Human Milk Analyzer, Miris Heater, Miris Ultrasonic Processor and a range of consumables, such as tubes, bottles, syringes, cleaning solutions, and control samples.