

Supplementary material:

Reliability testing in a range of Ambient temperatures.

Detailed Method and results: Mylee device is designed to auto correct conductivity to 25C, according to system temperature sensor measurements. For testing system reliability in diverse temperatures, conductivity as repeatedly re-measured in a bath-warmed standard sample (Starting Temp 39°C, End Temp 30°C, %CV₉₅ = 3.02%) and a Fridge-cooled standard sample (Starting Temp 17°C, End Temp 24.7°C, %CV₉₅ = 1.69%). Two independent room temperature samples were included for reference (26.4°C; 27.6°C). For testing reliability in various ambient temperatures, conductivity records of two levels of conductivity standard material (1413uS/cm, 5000uS/cm), from 10 different dates representing various environmental conditions, and two Separate device units were compared. Samples' Temp ranged between 23.4°C to 27.4 °C (N=20 scans). Average %CV_{95%} ±SD = 1.55%± 0.3.

A

Table 1. Stability variability

Reference Value uS/cm	Mylee Conductivity uS/cm [Mean±SD]	Precision %CV95%	Accuracy %Error [Mean±SD]
1413	1420±13	2.8±0.2	0.9±0.3
5000	5177±58	2.2±0.3	3.5±0.8

B

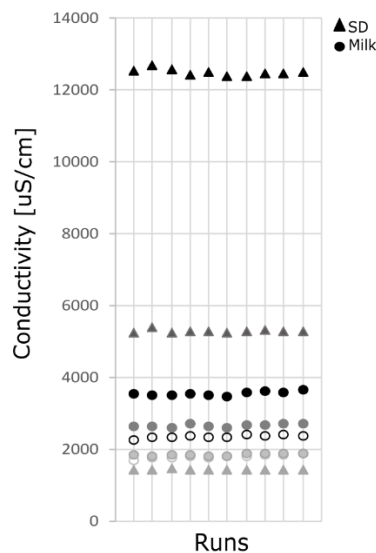
Table 1. Inter device variability

Reference Value uS/cm	Mylee Conductivity uS/cm [Mean±SD]	Precision %CV95%	Accuracy %Error [Mean±SD]
1413	1430±18	2.5±0.4	1.7±0.9
5000	5121±76	2.9±0.4	2.4±0.5

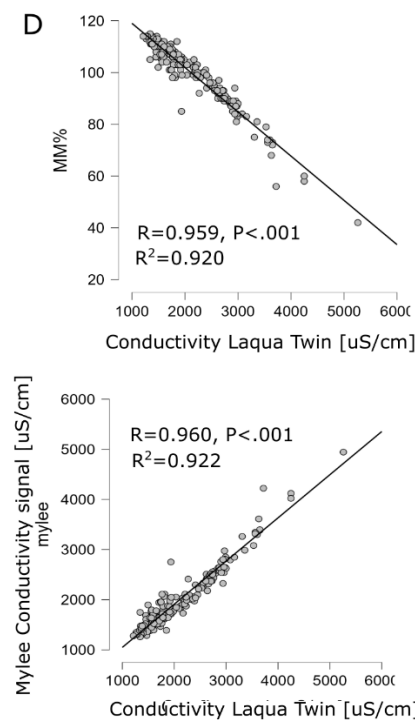
Table 2. Inter day variability

Reference Value uS/cm	Mylee Conductivity uS/cm [Mean±SD]	Precision %CV95%	Accuracy %Error [Mean±SD]
1413	1433±32	4.5±0.9	1.7±0.3
5000	5164±64	2.6±0.6	2.5±1.1

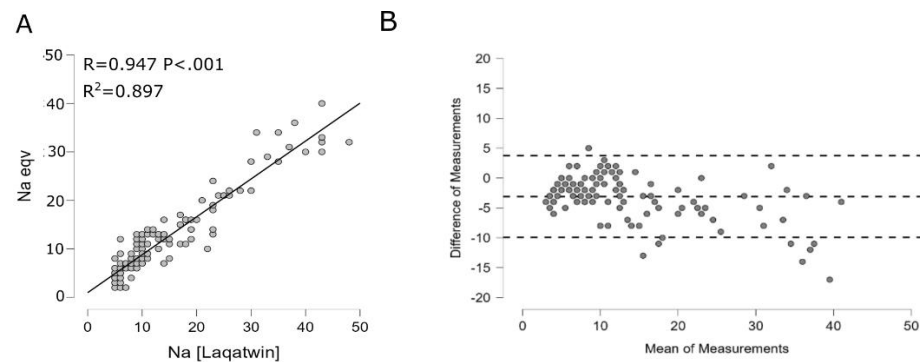
C



D

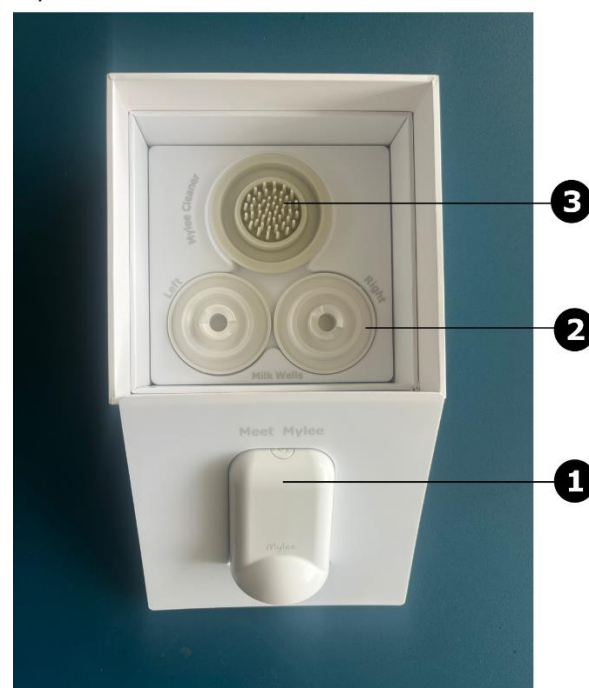


Supplementary Figure S1. Reliability testing of the Mylee device. (A) Stability testing table, summarizing variability in conductivity measurements of two levels of standard materials, as recorded by 5 devices over a period of 2 months (average 120 scans per device, 32 different dates). **(B)** Inter-device variability (Table 1) and Inter-day variability (Table 2) analysis, for two levels of standard solution, recorded by 9 devices in 5 independent dates. **(C)** Dot-plot representation, of conductivity measurement by the Mylee device in a set of 8 samples (5 breast milk samples (circle), 3 standard materials (triangle)) over 10 days of repetition (runs). **(D)** Correlation and regression analysis plotting the milk maturation (MM%) records or the raw conductivity signal as recorded by the Mylee device, against conductivity levels as recorded by the laboratory conductivity meter instrument (Laqua Twin, Horiba), recorded in a dataset of breast milk samples (N=177).

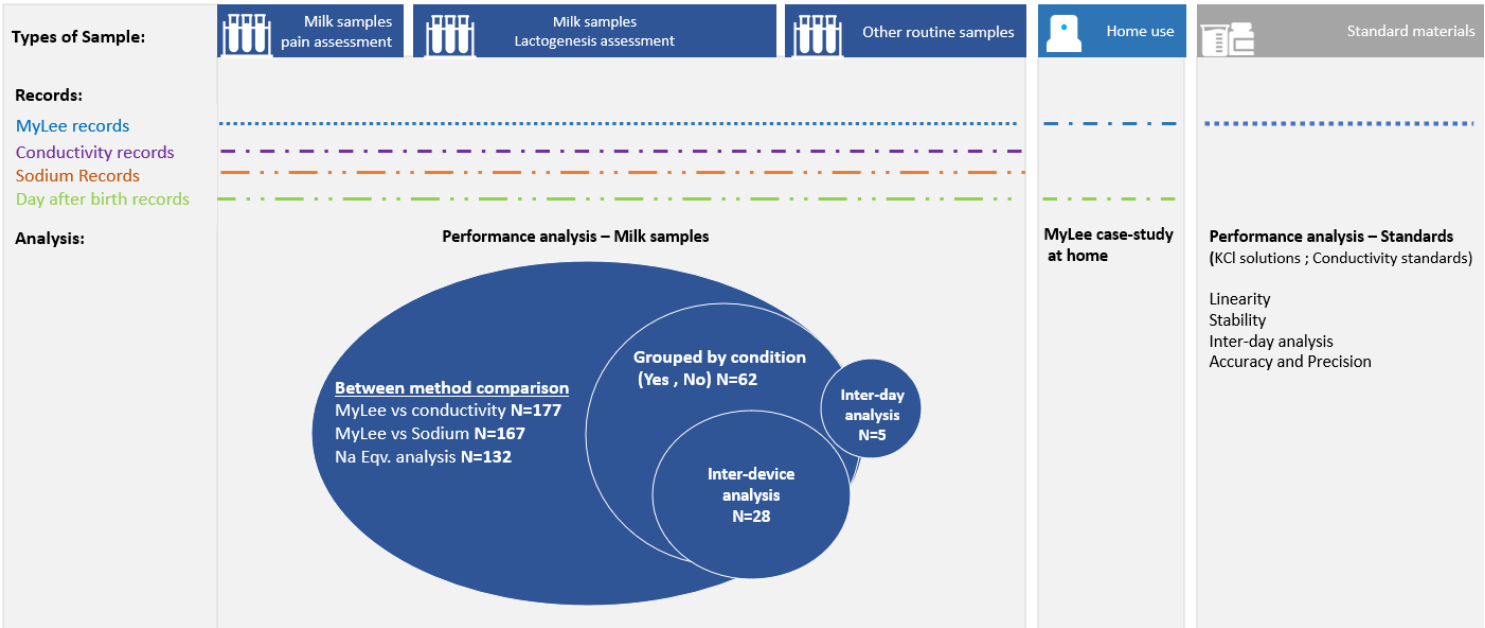


Supplementary Figure S2. Between methods validation of the Mylee device with Na⁺ ion selective electrode instrument **(A)** correlation and regression analysis comparing calculated sodium equivalent (Na⁺ Eqv), based on conductivity measurement by the device converted by calibration equation, against real sodium ion levels (Na⁺) as recorded by ion selective electrode (LaquaTwin, Horiba), recorded in a dataset of breast milk (N=132). **(B)** Bland-Altman plot plotting the difference between paired measurements (y-axis) over the average of these measurements (x-axis).

MyLee Kit



Supplementary Figure S3. MyLee kit, including a Mylee Device (item #1), two milk wells for breast milk sample (item #2), and a cleaning accessory (item #3). Kit is provided with a quick starter guide brochure, that includes a QR code to Mylee App, Barcode for device activation and short instructions for milk measurement. An online version to the full user guide (<https://www.mymilklab.com/wp-content/uploads/Mylee-user-guide-V1.6.pdf>), which include milk sampling guidelines and device usage, is available through QR link on the box.



Supplementary Figure S4. Overview of sample types, data records, and performance analysis described in the manuscript. The top panel detail sample types from MyMilk laboratories. Dots and lines represent the inherent non completeness of the dataset where each subset of samples have certain data records associated to them, as measured under ongoing lab operations. For the various analysis in the current study, samples sets were selected from the whole dataset according to the specific data types required for each analysis. The milk sample performance analysis illustration demonstrates the general overlap between sample-sets used for each of the analyses performed.