Supporting Information

Point-of-care human milk testing for maternal secretor status

Author names and affiliation: Saeromi Chung\textsuperscript{a}, Lars Bode\textsuperscript{b}, Drew A. Hall\textsuperscript{a,c,*}

\textsuperscript{a} Department of Electrical and Computer Engineering, University of California – San Diego, La Jolla, CA 92093, USA
\textsuperscript{b} Department of Pediatrics and Mother-Milk-Infant Center of Research Excellence (MOMI CORE), University of California – San Diego, La Jolla, CA 92093, USA
\textsuperscript{c} Department of Bioengineering, University of California – San Diego, La Jolla, CA 92093, USA
\textsuperscript{* Corresponding author: drewhall@ucsd.edu}
Figure S1. Optimization of experimental parameters. A. UEA immobilization time, B. 2’FL incubation time with 1.5µM 2’FL, and C. pH with 2.0µM 2’FL in 0.1 M PBS containing 5 mM Fe(CN)$_6^{3-}$/$4^-$.

Table S1. Comparison of concentration of banked samples (HPLC vs. EIS).

| Sample ID | EIS (µM) | HPLC (µM) | Secretor/non-secretor? | Prediction |
|-----------|----------|-----------|------------------------|------------|
| A         | <330     | 5         | Non-secretor           | Correct    |
| B         | 10129    | 11985     | Secretor               | Correct    |
| C         | 7268     | 8197      | Secretor               | Correct    |
| D         | 5323     | 4017      | Secretor               | Correct    |
| E         | 10243    | 11378     | Secretor               | Correct    |
| F         | <330     | 71        | Non-secretor           | Correct    |
| G         | 8660     | 9159      | Secretor               | Correct    |
| H         | 4894     | 4632      | Secretor               | Correct    |
| I         | <330     | 34        | Non-secretor           | Correct    |
| J         | 6126     | 7045      | Secretor               | Correct    |
| K         | <330     | 5         | Non-secretor           | Correct    |
| L         | 9484     | 9585      | Secretor               | Correct    |

Table S2. Cost analysis of proposed assay for 2’FL detection. All prices are from the published price on the vendor’s website in low quantity.

| Item            | Unit Cost (USD) | Cost (USD)/batch (20×) |
|-----------------|-----------------|------------------------|
| Top 5 reagents  |                 |                        |
| Cys             | $15/10g         | $0.15                  |
| UEA             | $44.40/1mg      | $0.44                  |
| Glutaraldehyde  | $20/10mL        | $0.10                  |
| 10% BSA         | $24.20/10mL     | $0.01                  |
| NH$_4$OH        | $40/1L          | $0.10                  |
| Electrode       | Au electrode    | $350/75                |

Cost per test $2.50