Electronic Supplementary Information

Lateral flow immunochromatographic assay on a single piece of paper

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Table S1 Comparison of parameters for different substrate materials

| Material               | Thickness | Capillary Flow Rate | Protein Binding | Cost       |
|------------------------|-----------|---------------------|-----------------|------------|
| Whatman™ Grade 1 Chr   | 0.18 mm   | 553.8 s/4cm         | Excellent       | $15.66/m²  |
| Whatman™ Grade 3MM Chr | 0.34 mm   | 553.8 s/4cm         | Excellent       | $16.44/m²  |
| Whatman™ FF120HP       | 0.1 mm    | 90-150 s/4cm        | Excellent       | $177.6/m²  |
| Fusion 5               | 0.37      | 38 s/4cm            | Poor            | $121.78/m² |
Fig. S1 (A) Test results of samples containing 32 ng/mL of PfHRP2 in PBS using assay cards with 2 mm-, 3 mm-, 4 mm- or 5 mm-wide test strips. The plastic film is removed from the card for improved visualization of the test strip. (B) Mean gray values of the background color for test strips with varying widths obtained from images in panel A. (C) Signal-to-background ratios (SBRs) generated from mean gray values of the test line and background color of the test strip. Each bar represents the mean ± SD of three measurements.
**Figure S2.** Test results of samples containing 0 ng/mL, 16 ng/mL and 1,024 ng/mL of *Pf* HRP2 in PBS using assay cards containing AuNP-IgG conjugates with AuNP ODs of OD 3 (A), OD 5 (B), OD 8 (C) or OD 10 (D). The plastic film is removed from the card for improved visualization of the test strip. (E) Mean gray values of the test line obtained from images in panels A-D. (F) SBRs generated from mean gray values of the test line and background color of the test strips in panels A-D. Each bar represents the mean ± SD of three measurements.