Electronic Supplementary Material (ESI) for Analyst
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Lateral flow assay for identification of *Escherichia coli* by ribosomal RNA hybridisation

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Supporting information

Estimation of yield of RNA isolation using rapid “one step” lysis method

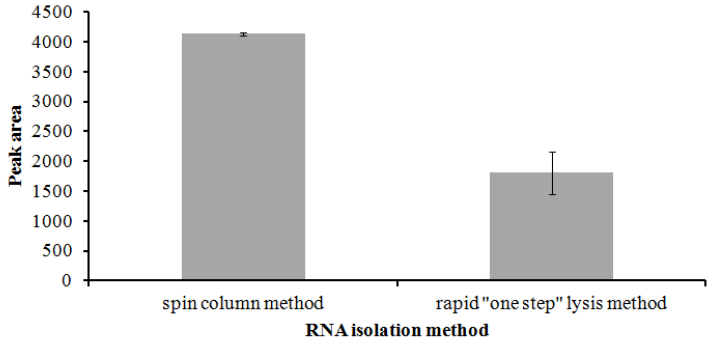

Fig. S1 Peak area of test line (grey bars) of RNALFA applying total RNA isolated from 5 x 10^7 cfu mL^{-1} *E. coli* 163 using the spin column method (reference method) and the rapid “one step” lysis method. The peak areas were quantified using ImageJ software. Yield of rapid “one step” isolation method in comparison to reference method is 43.6% ± 8.3% (n = 3).

Quantitation of signal strength of different RNALFA hybridisation assemblies

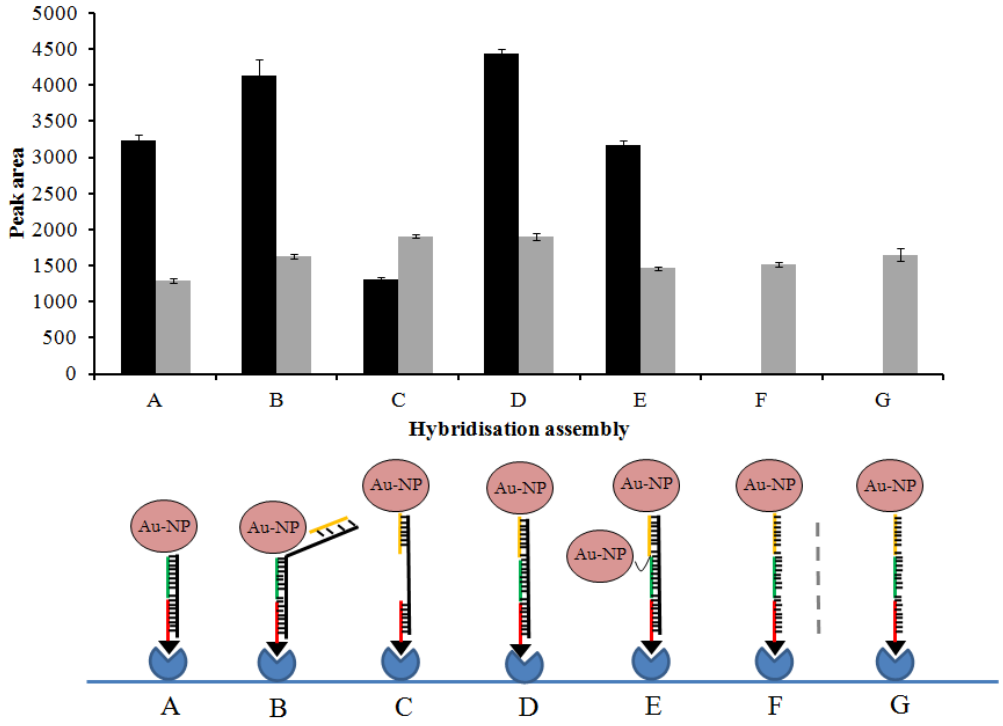

Fig. S2 Peak area of test (black bars) and control line (grey bars) in dependence of different hybridisation assemblies. Images of the strips are depicted in Fig. 3. Three (A, C) components and four (B, D, E, F, G) components hybridisation with one or two AuNP-labelled ODNs are shown. Total RNA was isolated from 5 x 10^7 cfu mL^{-1} *E. coli* 163. (A) shows the peak area resulting from three components hybridisation composed of EC_Capture, AuNP-UD1072 and the target RNA. (B) is same as (A) plus the presence of the helper ODN Helper-UD1072. (C) is a three components hybridisation in presence of EC_Capture and AuNP-UD1082 (missing helper ODN). Four components assemblies are depicted in (D), (E) and (F). (D) is the four components assembly composed of EC_Capture, Helper and UD1082-AuNP, whereas (E) depicts an analogous approach, however, in presence of an additional AuNP integrated as 5´-extension of the helper ODN (AuNP-UD1072 conjugate). (F) and (G) are controls in the presence of RNA purified from 5 x 10^8 cfu mL^{-1} *B. subtilis* instead of *E. coli* RNA and in the absence of *E. coli* RNA, respectively. Biotinylated capture ODN, helper ODN and detector ODN are depicted in red, green and yellow, respectively. Control line exhibited a average signal strength of 1625 ± 207 (n = 21).

Detection of *E. coli* in human urine samples

Human urine was filtered through a 0.2 µm syringe filter (Millipore, Billerica, MA, USA). Urine sample was artificially contaminated with 0, 5 x 10^7 or 5 x 10^5 cfu mL^{-1} *E. coli* 163, respectively. A 1 mL urine sample was centrifuged at 5,000xg for min and 25°C. RNA was isolated using rapid “one step” lysis method as described.

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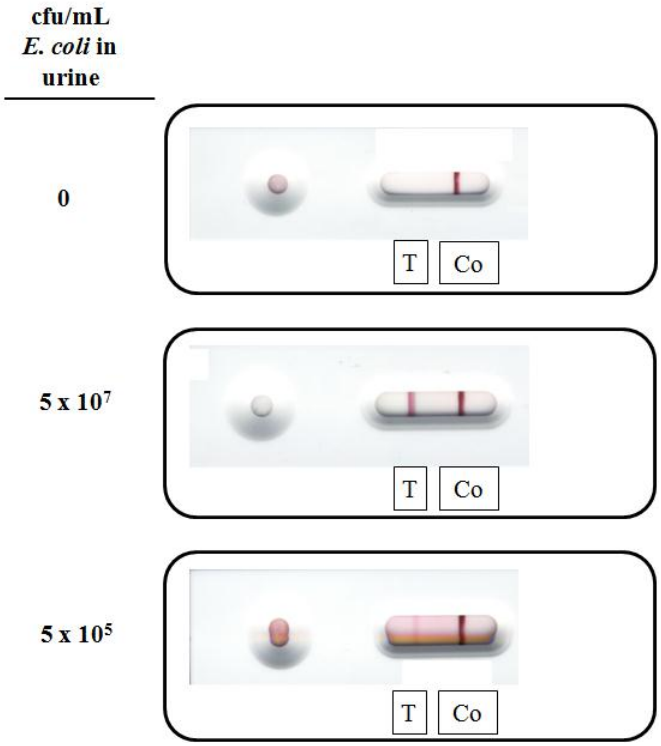

Fig. S3 RNALFA analysis of urine sample artificially contaminate with 5 x 10^7 or 5 x 10^5 cfu mL^{-1}. As negative control a urine sample without *E. coli* was tested (0 cfu mL^{-1}). Control (Co) and test (T) lines are indicated.