Electronic Supplementary Material (ESI) for RSC Advances.

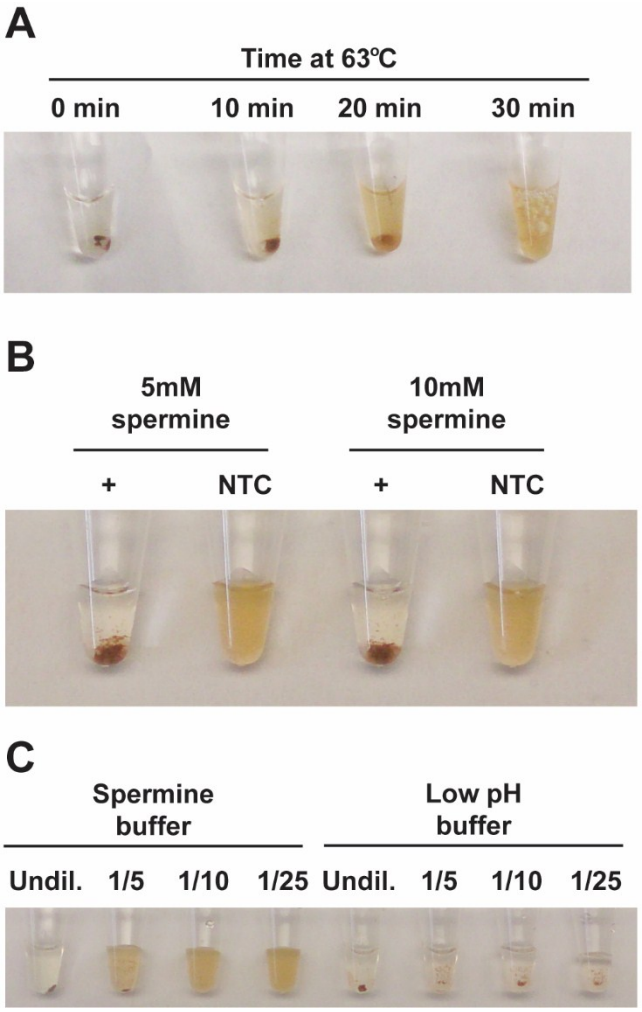

Figure S1. Spermine-based flocculation is less sensitive to heat and contaminants. (A) Tubes containing LAMP amplicons in the base and low pH flocculation solution with paramagnetic beads in the lid were placed at 63ºC for 0, 10, 20 or 30 minutes before the two solutions were mixed. (B) Tubes were setup as described in A except 5 or 10 mM spermine was used in the flocculation solution. Samples were placed at 63ºC for 60 minutes. Water was used instead of DNA amplicons in the no template control (NTC) samples. (C) Spermine or low pH based flocculation solutions were added to undiluted or 1 in 5, 1 in 10, or 1 in 25 dilutions of a boiled overnight culture of *Salmonella enterica* subsp. *enteritidis*.

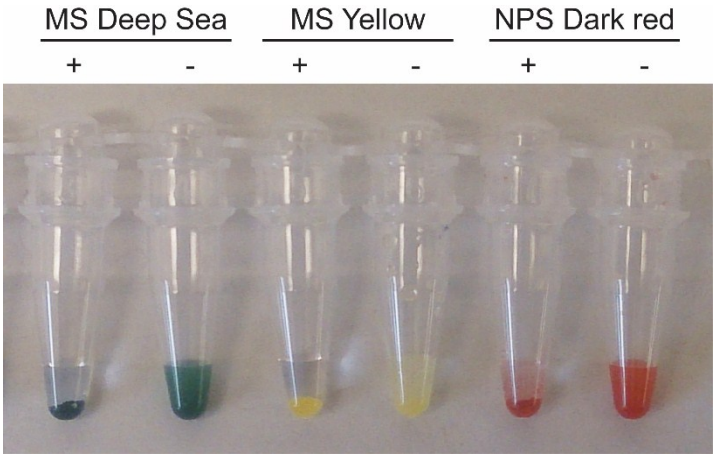

Figure S2. Flocculation readout using colored silica particles. A flocculation solution containing 25 μg/μl of either Mason stains (MS) color stains (Deep Sea and Yellow) and Northcote pottery supplies (NPS) Dark red was added to 250ng of salmon sperm DNA or water, mixed briefly and held vertically to view the results.

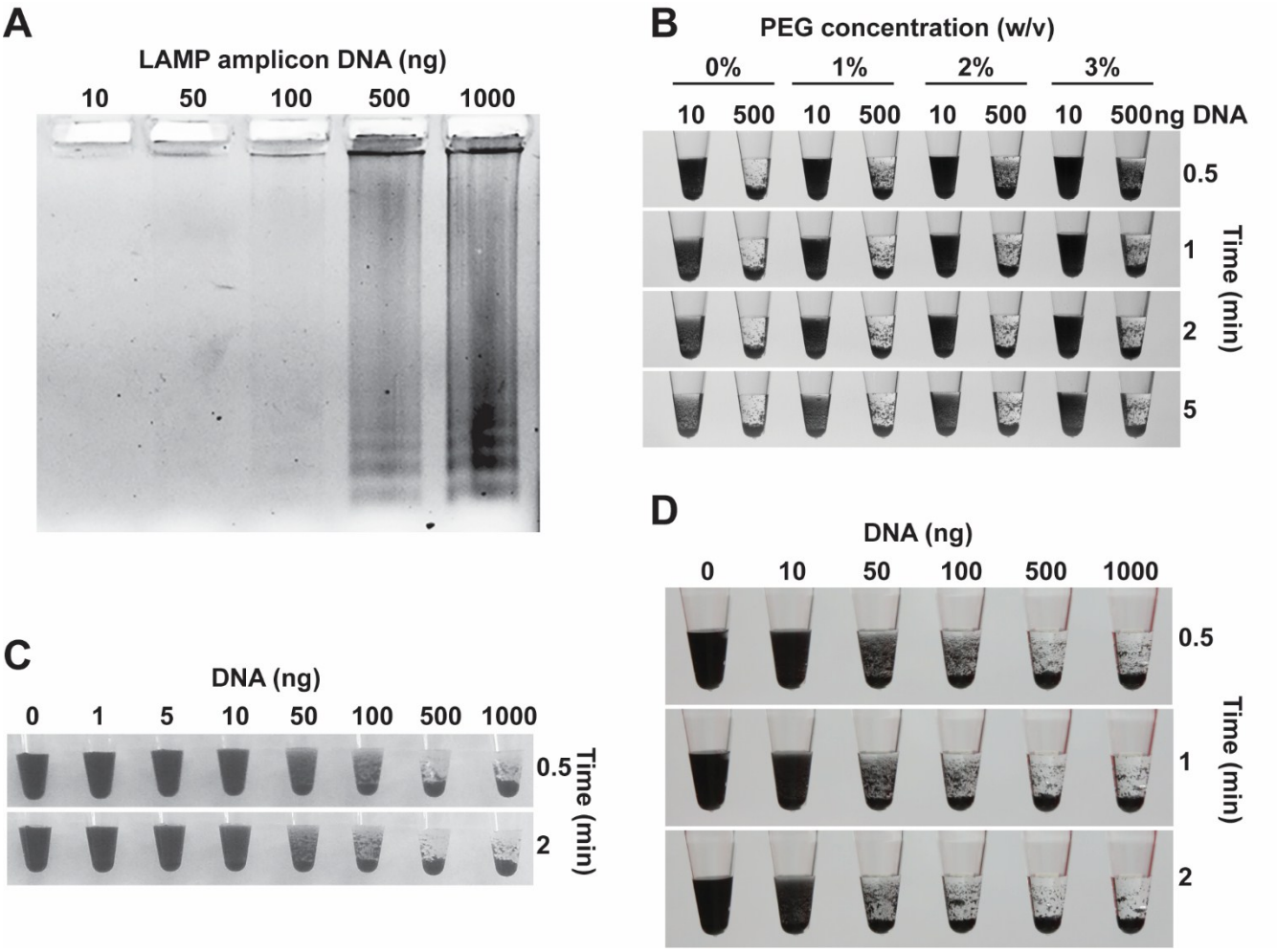

Figure S3. Development of the flocculation-based DNA amplification readout. (A) 10 to 1000 ng of purified LAMP amplicons were separated by agarose gel electrophoresis. (B) Images of flocculation reactions detailed in Figure 1B in which images were recorded 0.5, 1, 2 and 5 minutes after mixing either 10 or 500 ng of purified LAMP amplicons with flocculation solution containing 0, 1, 2 or 3% (v/v) PEG8000. (C) Flocculation solutions containing 2.5 mM hexamine cobalt(III) chloride instead of spermine were used in flocculation assays of 0 to 1000 ng purified LAMP amplicons. Image was taken 0.5 and 2 minutes after mixing the DNA and flocculation solution. (D) Spermine based flocculation was used in flocculation assays of 0 to 1000 ng purified PCR amplicons. Images were taken 0.5, 1 and 2 minutes after mixing the DNA and flocculation solution.

Movie S1. Rapid detection of DNA by flocculation-based assay. In the video, the flocculation solution is added to tubes containing 0 or 5 μg of salmon sperm DNA before being briefly mixed and held vertically to view the results.