

### Supplementary Figure Legends

**Supplementary Figure 1.** Reduced bead volumes in the BSC reaction. RT-PCR results comparing non-methylated control DNA standards, converted with reduced bead volumes.

**Supplementary Figure 2. Details from one  $\mu$ CD domain.** **a**, One domain with numbered chambers and positions of valves. **b**, A key corresponding to the assigned chamber numbers and names. **c**, The radial positions of each valve; those depicted in green correspond to 'normally closed valves' that are opened and those highlighted in red correspond to 'channel closures.'

**Supplementary Figure 3. Comparison of DNA recovery and conversion efficiency at microfluidic volumes.** **a**, RT-PCR and **b**, HRM results comparing samples prepared with a modified in-tube approach at microfluidic volumes and the automated, 'on-disc' microfluidic method.

**Supplementary Table 1. Comparison of gold-standard versus on-disc microfluidic conversion incubation intervals.** Reaction incubation times are collectively reduced by 41 minutes using the on-disc method when compared to the gold-standard. Intervals that have been altered are highlight in red.