# Supplemental information

## Rapid isolation and diagnosis of live bacteria from human joint fluids by using an integrated microfluidic system

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**I. Automatic transportation of liquid.** Automatic liquid transportation, mixing, and suction performed on the microfluidic chip are shown in Video 1. At first, red ink was transported from the reagent chambers to the reaction chambers. Then, blue ink was transported from the wash buffer chambers to the reaction chambers. Subsequent mixing causes the ink in the reaction chambers to turn into purple. After mixing, the ink in the reaction chambers was sucked out from the reaction chambers.

**II. Positive control cloning.** The PCR products amplified by the 16S rRNA primer set from *Escherichia coli* were cloned into pCR®2.1-TOPO® TA vector by the method described in the product manual (TOPO TA Cloning®, Invitrogen Corp., USA). The cloned plasmids were then used as the target in subsequent PCR reactions using the 16S rRNA primer set. The PCR products using the cloned plasmids are shown in Figure S1. Furthermore, the cloned plasmid was further confirmed by DNA sequencing.

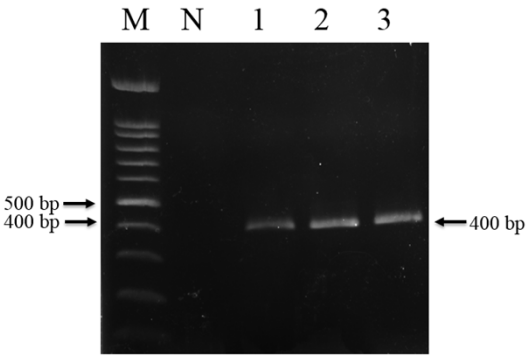


**Figure S1**. Confirmation of the plasmids containing the 16S rRNA-specific framgent by PCR. M: 100-bp ladders, N: PCR products of the negative control using double-distilled water, lane 1: PCR products of the cloned plasmid 1, lane 2 : PCR products of the cloned plasmid 2, 3: PCR products of the cloned plasmid 3.