Electronic Supplementary Material (ESI) for Lab on a Chip
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A CMOS wireless biomolecular sensing system-on-chip based on polysilicon nanowire technology

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Supplementary Figures

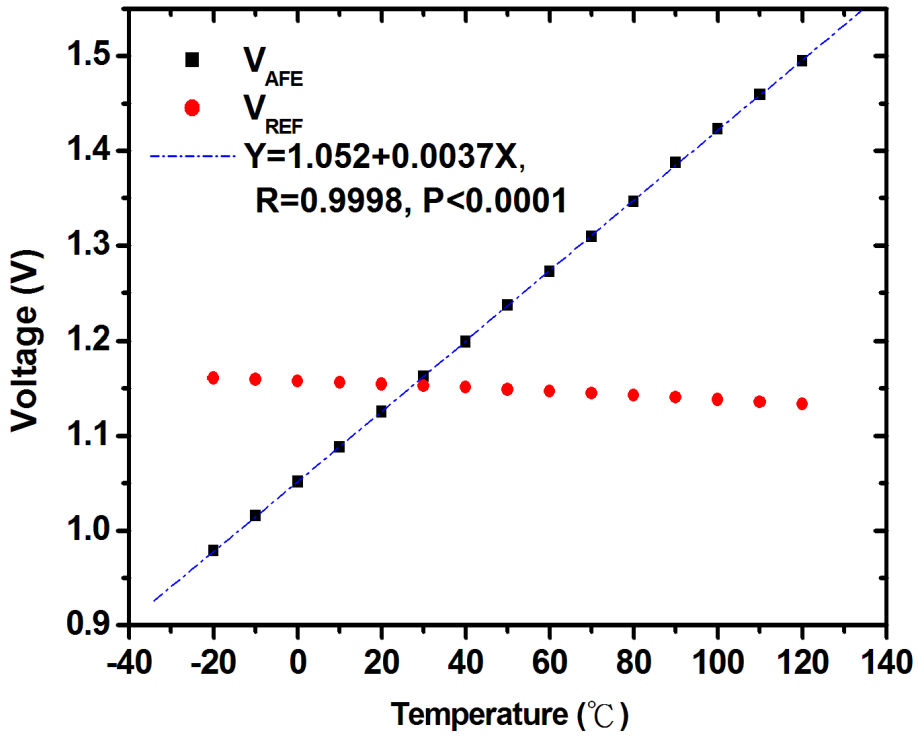

Figure S1. A temperature calibration curve of the on-chip temperature sensor in the developed bio-SSoC. V_{AFE} represents the readout voltage of the temperature sensor after amplified by AFE. V_{REF} represents the referenced bias voltage on the chip. While temperature varies from -20℃ to 120℃, the V_{REF} changes within 0.02 V. This also shows the temperature stability of the designed circuits.

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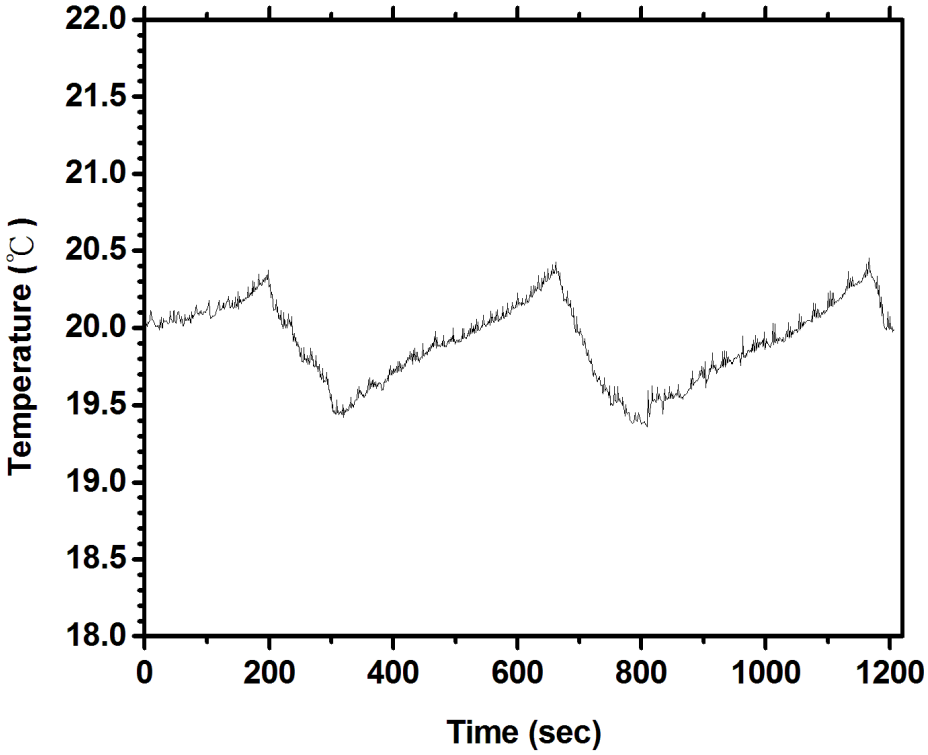

Figure S2. An experimental measurement of the on-chip temperature sensor for 20 minutes. This result was measured during a HBV DNA detection was operated. In other words, the temperature varied within 1℃ in HBV DNA detection experiments.

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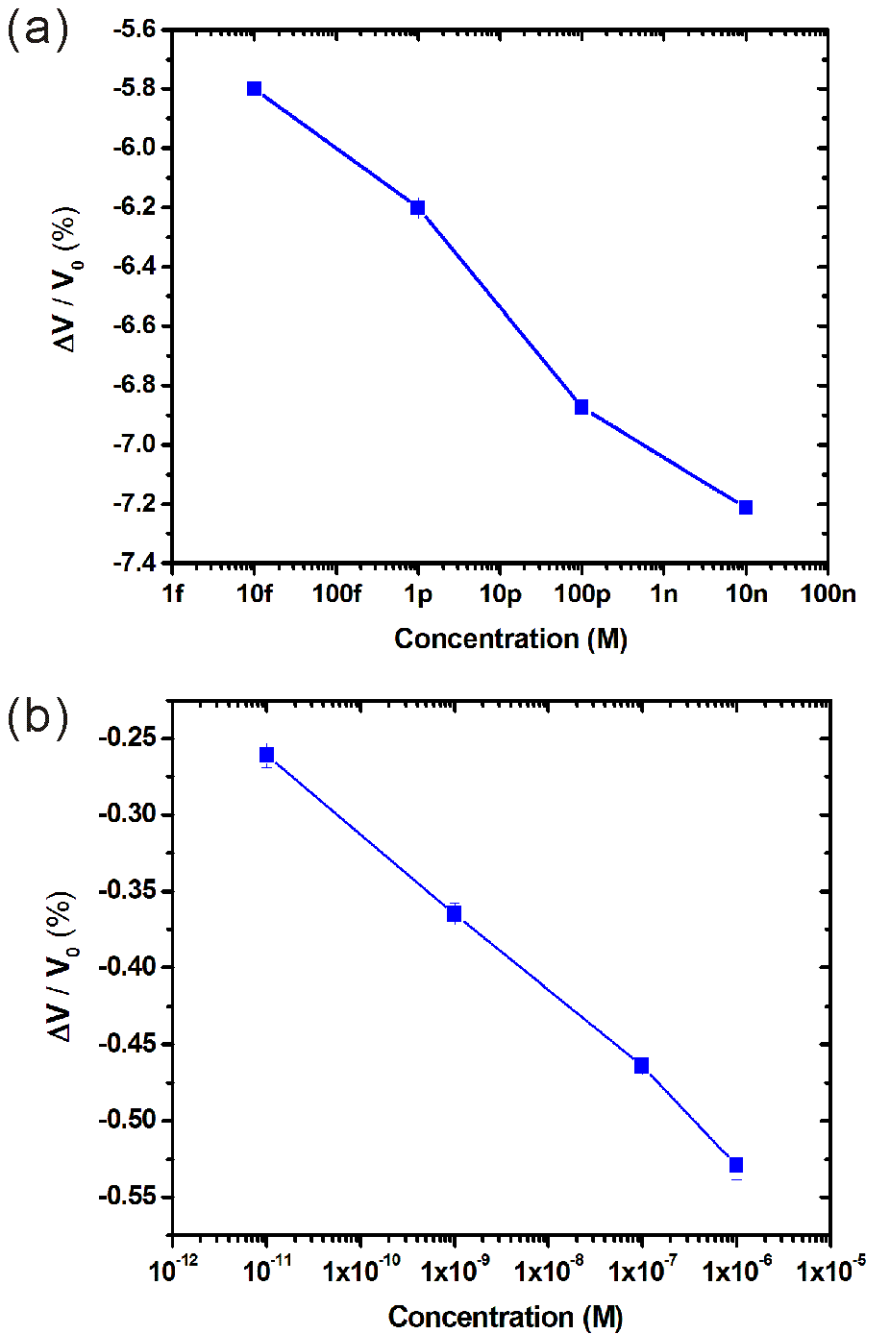

Figure S3. The comparison of the bio-SSoC with and without post-etching process. (a) The experimental data of the bio-SSoC with post-etching process. (b) the experimental data of the bio-SsoC without post-etching process. It is clear that the LOD of post-etched SSoC (10fM) is lower than that of no-etched SSoC (10pM). In addition, the sensitivity of post-etched SSoC (0.23% per decay) is also better than that of no-etched SSoC (0.051% per decay).