Supplementary information

A hook effect-Free immunochromatographic assay (HEF-ICA) for measuring the C-reactive protein concentration in one drop of human serum

Jusung Oh[1‡], Hyou-Arm Joung[2‡], Hyung Soo Han[3], Jong Kun Kim[4], Min-Gon Kim[1*]

[1]Department of Chemistry, School of Physics and Chemistry, Gwangju Institute of Science and Technology (GIST), 123 Cheomdan-gwagiro, Gwangju 500-712, Republic of Korea

[2]Department of Electrical Engineering, University of California, Los Angeles, California 90095, United States

[3]Department of Physiology, School of Medicine, Kyungpook National University, Daegu, Republic of Korea

[4]Department of Emergency Medicine, School of Medicine, Kyungpook National University, Daegu, Republic of Korea

‡These authors contributed equally to this work.

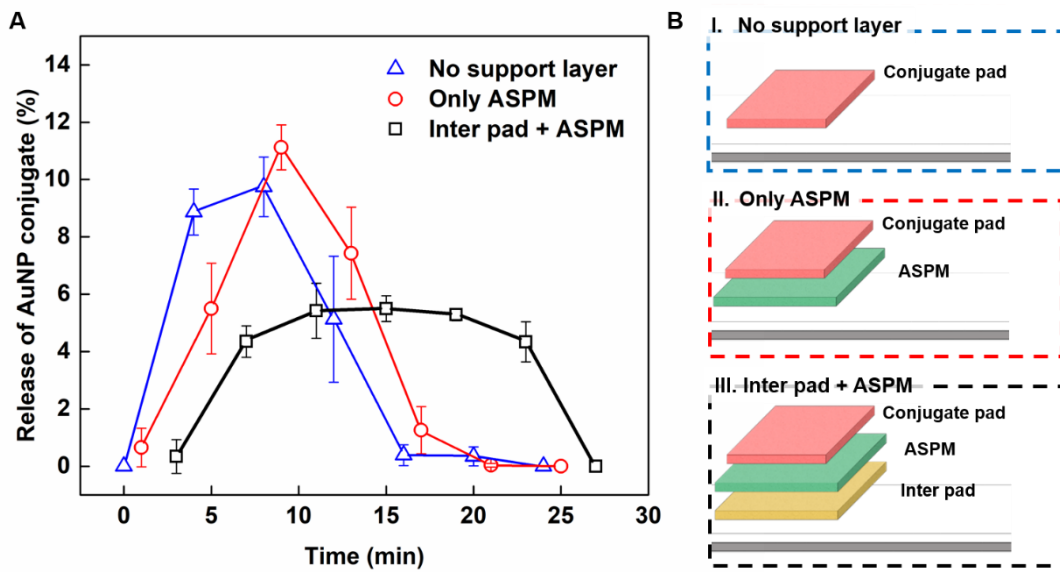*Corresponding author (M.G.K): FAX: +82-62-715-3419, E-mail address: mkim@gist.ac.kr

Figure S1. Evaluation of delayed-release components. Time profiling of the proportion of the AuNP conjugate release in the progressive stacking structures of the delayed-release components **(A)**. A schematic illustration of progressive stacking structures of delayed-release components **(B)**.
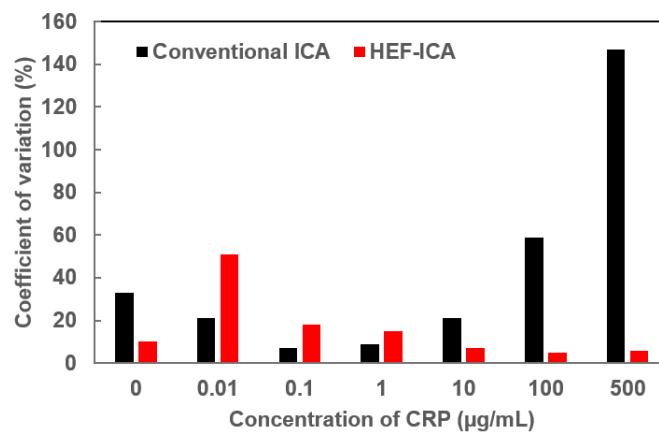

Figure S2. Evaluation of coefficient of variation by CRP concentration for the conventional ICA and HEF-ICA
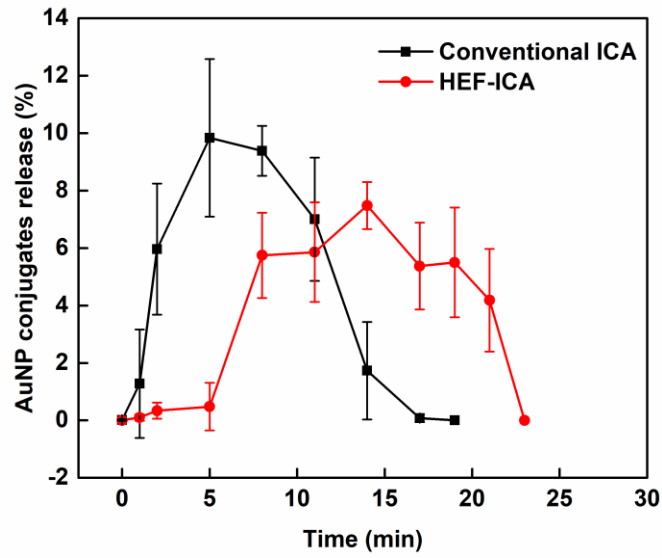
Figure S3. Comparison of the time profiling of the proportion of AuNP conjugates for the conventional ICA and HEF-ICA.
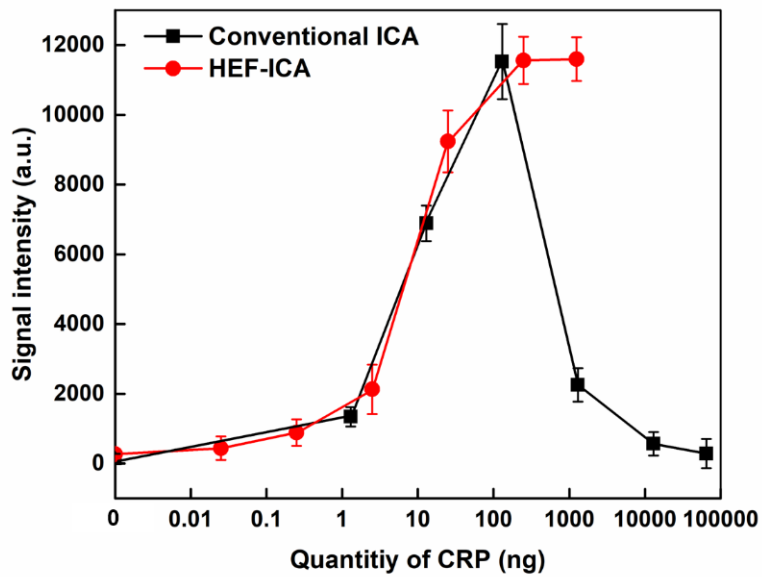

Figure S4. Comparison of titration curve between conventional ICA and HEF-ICA based on the quantity of CRP versus signal intensity
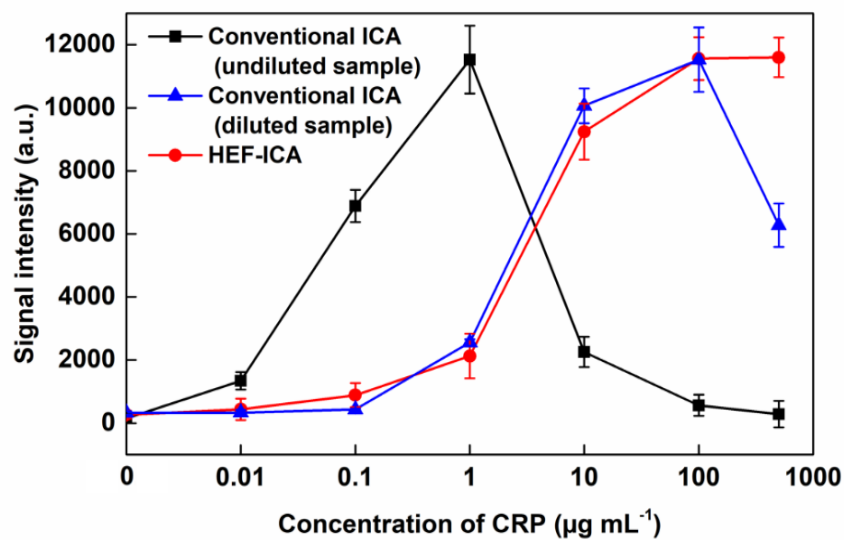
Figure S5. The comparison of titration curve between conventional ICA (case of diluted sample and undiluted sample) and HEF-ICA.

Structure	Conventional ICA		HEF-ICA
Sample	Undiluted	Diluted	Undiluted
Limit of detection	4.1 ng mL^{-1}	139 ng mL^{-1}	43 ng mL^{-1}
Dynamic range	19 ng mL^{-1} - 1 µg mL^{-1}	202 ng mL^{-1} - 100 µg mL^{-1}	119 ng mL^{-1} – 100 µg mL^{-1}
$\dfrac{\text{Concentration (upper limit)}}{\text{Concentration (lower limit)}}$	250	719	2326

Table S1. Comparison of limit of detection and dynamic range depending on the ICA structure and whether the sample was diluted (48 fold).
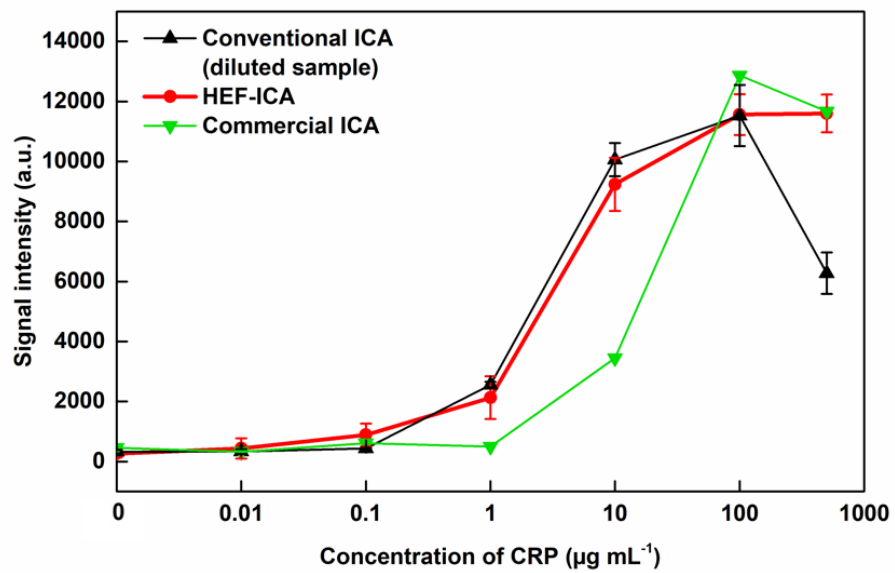
Figure S6. Titration curve of signal intensity by CRP concentration for the commercial ICA.