Supporting Information

Microfluidic-Integrated Multicolor Immunosensor for Visual Detection of HIV-1 p24 Antigen with the Naked Eye

Dan Liu, ^{†, ‡} Yuqian Zhang, ^{†, ‡} Mingyang Zhu, [†] Zongzhong Yu, [†] Xiaoming Ma, [§] Yanling Song,[¶] Shufeng Zhou, ^{*, †} and Chaoyong Yang ^{*, ¶}

[†]School of Biomedical Sciences, College of Chemical Engineering, Huaqiao University, Xiamen, Fujian 362000, China

[§]School of Chemistry and Chemical Engineering, Gannan Normal University, Ganzhou, Jiangxi 341000, China

"The MOE Key Laboratory of Spectrochemical Analysis & Instrumentation, the Key Laboratory of Chemical Biology of Fujian Province, State Key Laboratory of Physical Chemistry of Solid Surfaces, Collaborative Innovation Center of Chemistry for Energy Materials, Department of Chemical Biology, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, Fujian 362000, China

Corresponding Author

* E-mail: <u>szhou@hqu.edu.cn</u>

* E-mail: cyyang@xmu.edu.cn

Supplement Figure.

- Figure S1. Characterization of synthetic AuNRs.
- Figure S2. Design of the microfluidic chip.
- Figure S3. HCl and CTAB concentration optimization.
- Figure S4. Integrated multicolor visual detection of HIV-1 p24.
- Figure S5. A typical curve for HIV-1 p24 detection by ELISA.



Figure S1. (A) TEM image, (B) length statistical analysis and (C) photographs and UV-visible spectra of synthetic AuNRs.



Figure S2. Design of the microfluidic chip by Auto-CAD, which shows the five layers from top to bottom (A-E).



Figure S3. Change in $\Delta\lambda$ with various concentrations of (A) HCl and (B) CTAB. Error bars represent the standard deviation (SD) of three measurements.



Figure S4. Results for detecting different concentrations of HIV-1 p24: (A-G) 0, 2, 3, 3.5, 4.5, 5.5, 6 ng mL⁻¹, respectively.



Figure S5. A typical curve for HIV-1 p24 detection by ELISA with the range of 0-5 ng mL⁻¹.