

Supporting Information

Facile and sensitive detection of influenza viruses using SERS antibody probes

*Jeong Moon,^a So Yeon Yi,^a AhReum Hwang,^{a,b} Gayoung Eom,^{a,b} Jieun Sim,^{a,c,d}
Jinyoung Jeong,^{a,c,d} Eun-Kyung Lim,^{a,c,d} Bong Hyun Chung,^{a,c,d} Bongsoo Kim,^b
Juyeon Jung,^{*,a,c,d} and Taejoon Kang^{*,a,c,d}*

^aBioNanotechnology Research Center, KRIBB, Daejeon 34141, Korea.

^bDepartment of Chemistry, KAIST, Daejeon 34141, Korea.

^cBioNano Health Guard Research Center, KRIBB, Daejeon 34141, Korea.

^dMajor of Nanobiotechnology and Bioinformatics, UST, Daejeon 34113, Korea.

Table S1. Commercial influenza virus assays

Product	Detection limit	Detection method	Time/Complexity
Cepheid® Xpert Flu Assay	5 TCID ₅₀ /ml	PCR	1 h/Moderate
Qiagen <i>artus</i> ® Infl A/B RG RT-PCR Kit	$10 \times 10^{0.9}$ TCID ₅₀ /ml	PCR	~4 h/High
Simplexa™ Influenza A H1N1 (2009)	2.7×10^1 TCID ₅₀ /ml	PCR	<4 h/High
BD Directigen™ EZ Flu A+B	1.86×10^3 TCID ₅₀ /ml	Immunoassay	15 min/Moderate
Quick Vue Influenza A+B test	4.4×10^3 TCID ₅₀ /ml	Immunoassay	10 min/Easy
Binax NOW Flu A & Flu B	5.63×10^4 TCID ₅₀ /ml	Immunoassay	15 min/Easy

Table S1 shows the representative commercial influenza virus assays. The data was referred from manufacturer's information.¹⁻⁶

SERS Spectra of Probes Before and After Ag Enhancement. Figure S1 shows SERS spectra of RBITC before and after Ag enhancement. Although the SERS signals are weak and cannot be reproduced before Ag enhancement, the signals became strong and reproducible after Ag enhancement. The stable and significantly increased SERS signals allowed sensitive and quantitative detection of pH1N1.

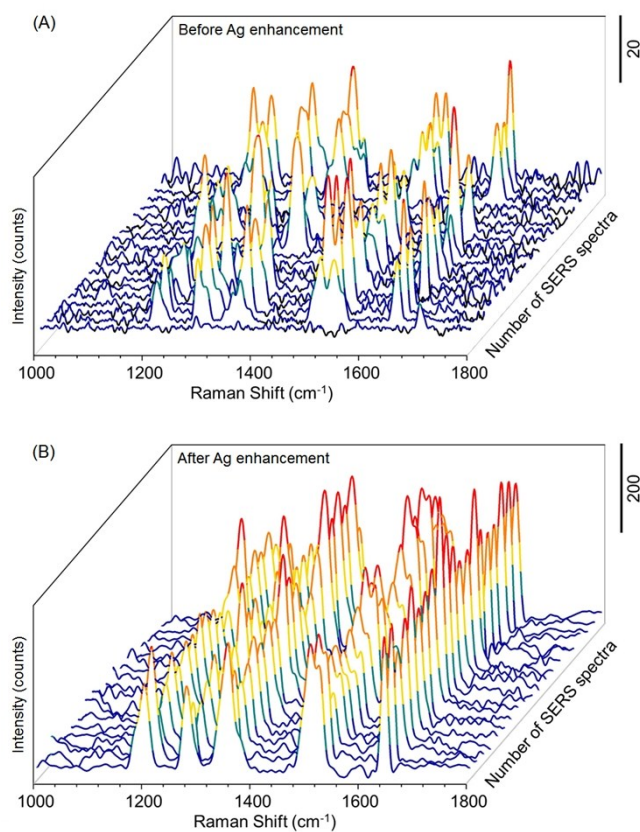


Figure S1. Twenty SERS spectra of RBITC (A) before and (B) after Ag enhancement.

References

1. <http://www.cepheid.com/us/cepheid-solutions/clinical-ivd-tests/critical-infectious-diseases/xpert-flu>
2. <https://www.qiagen.com/fi/shop/detection-solutions/human-pathogens/artus-inflh1-lcrg-rt-pcr-kit-ruo/#orderinginformation>
3. <https://www.focusdx.com/product-catalog/category/us-catalog/simplexa/>
4. <http://www.bd.com/ds/productCenter/256050.asp>
5. <https://www.quidel.com/immunoassays/rapid-influenza-tests/quickvue-influenza-test>
6. <http://www.alere.com/en/home/support/edu/product-demos/binaxnow/binaxnow-influenza-a-b.html>