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Supporting Information

Troponin Aptamer on an Atomically Flat Au Nanoplate Platform for Detection of Cardiac Troponin I

Hyoban Lee [1], Hyungjun Youn [2], Ahreum Hwang [1,3], Hyunsoo Lee [1,4], Jeong Young Park [1,4], Weon Kim [5], Youngdong Yoo [6], Changill Ban [2,*], Taejoon Kang [3,*] and Bongsoo Kim [1,*]

[1] Department of Chemistry, KAIST, Daejeon 34141, Korea; stban1829@gmail.com (H.L.); ahreumh@kaist.ac.kr (A.H.); hsoolee@kaist.ac.kr (H.L.); jeongypark@kaist.ac.kr (J.Y.P.)
[2] Department of Chemistry, POSTECH, Pohang 37673, Korea; yhj1005@postech.ac.kr
[3] Bionanotechnology Research Center, KRIBB, Daejeon 34141, Korea
[4] Center for Nanomaterials and Chemical Reactions, IBS, Daejeon 34141, Korea
[5] Division of Cardiology, Department of Internal Medicine, Kyung Hee University Hospital, Kyung Hee University, Seoul 02447, Korea; mylovekw@hanmail.net
[6] Department of Chemistry, Ajou University, Suwon 16499, Korea; yyoo@ajou.ac.kr
* Correspondence: bongsoo@kaist.ac.kr (B.K.); kangtaejoon@kribb.re.kr (T.K.); ciban@postech.ac.kr (C.B.)

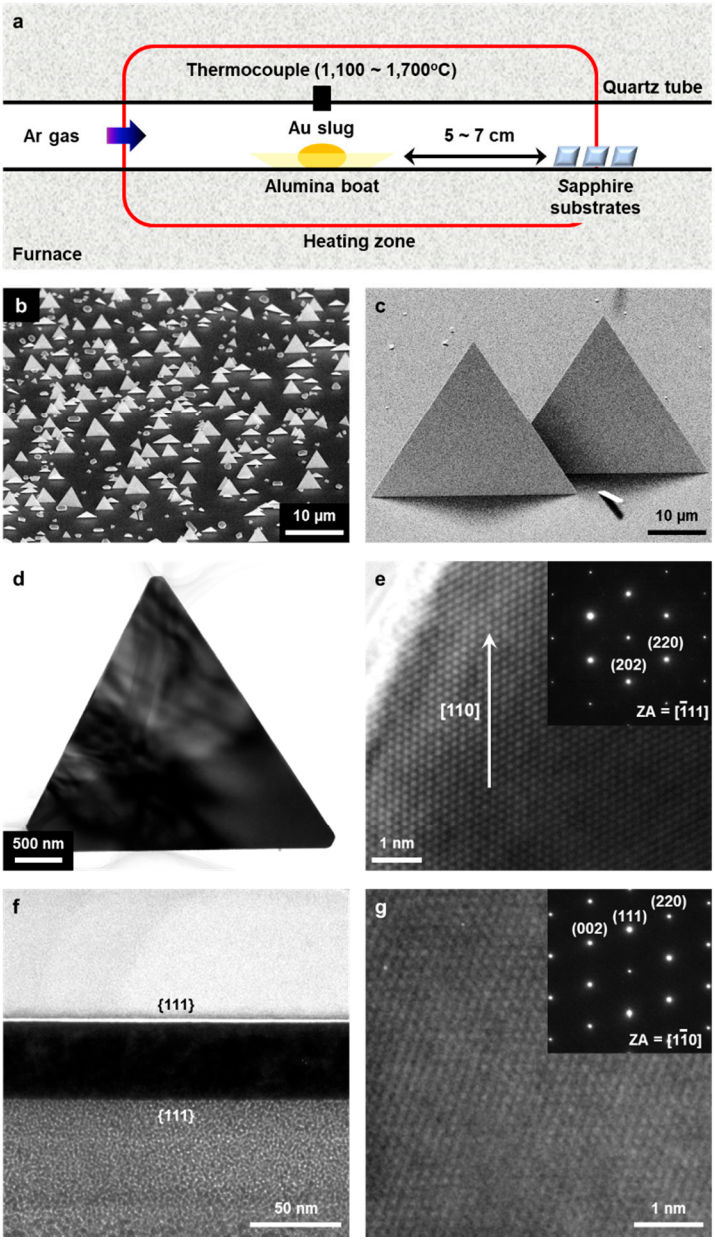


Figure S1. (**a**) Schematic illustration of the experimental setup for the synthesis of Au nanoparticles. (**b, c**) SEM images of Au nanoplates on a sapphire substrate. (**d**) TEM image of the Au nanoplate. (**e**) High-resolution transmission electron microscopy (HRTEM) image of the Au nanoplate. Inset is a selected area electron diffraction (SAED) pattern of the Au nanoplate. (**f**) Cross-sectional TEM image of Au nanoplate. (**g**) HRTEM image and SAED pattern of Au nanoplate.

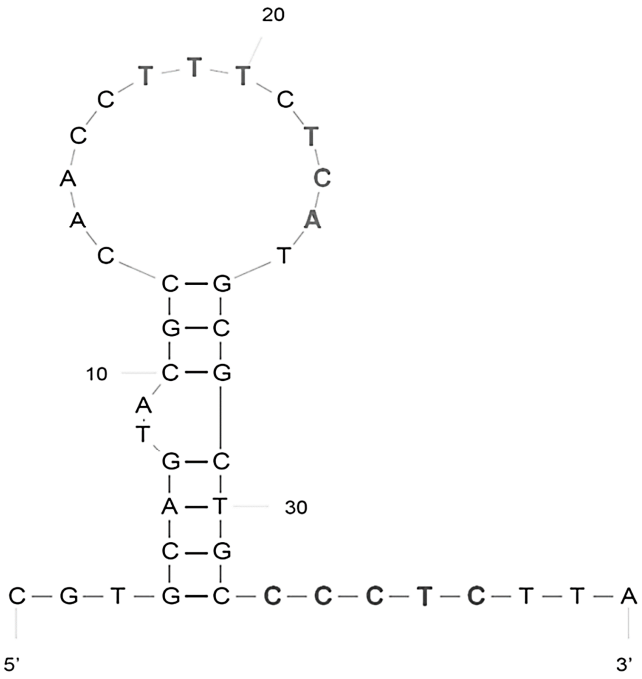
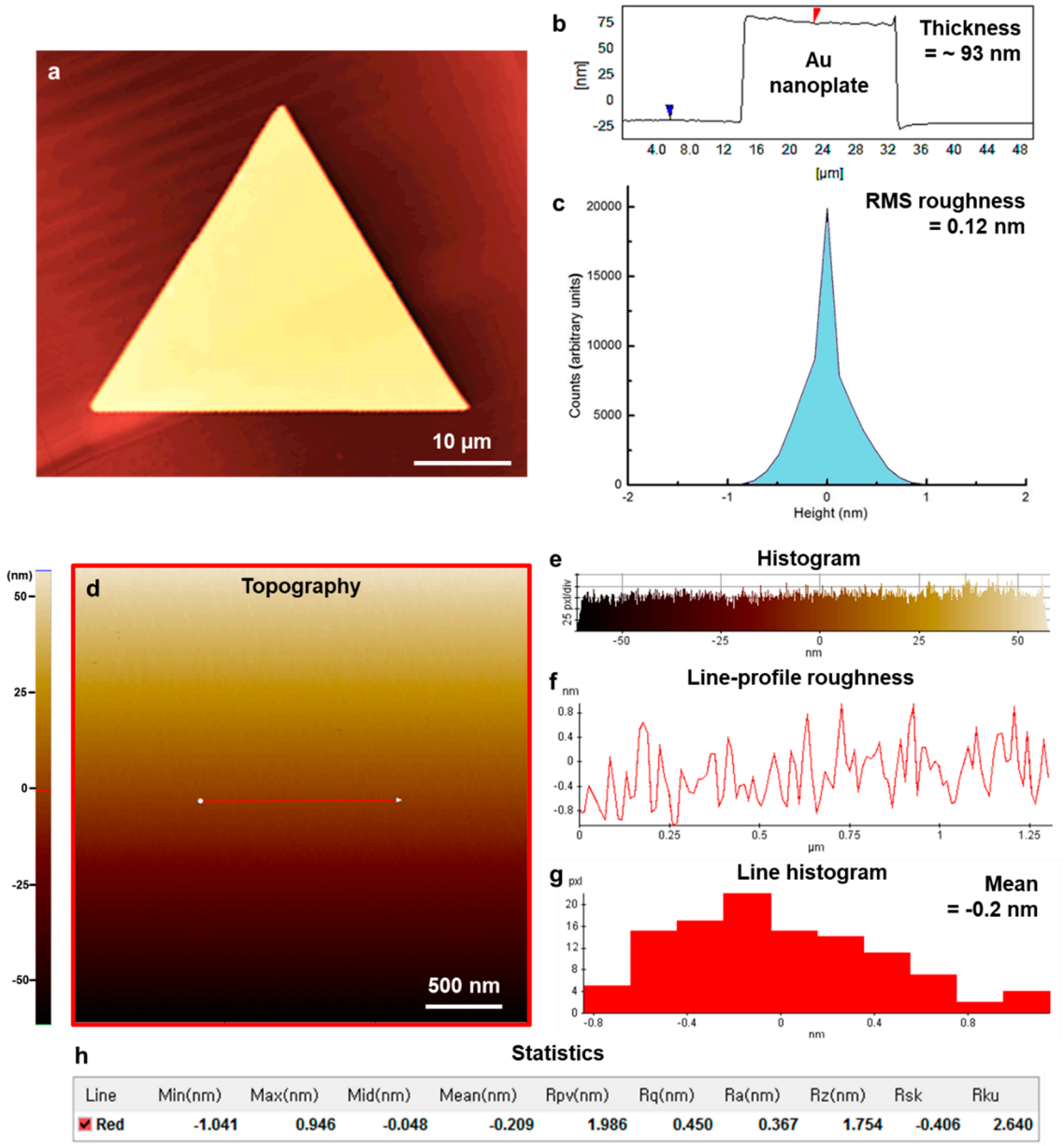


Figure S2. Predicted secondary structure of probe aptamer..



Line	Min(nm)	Max(nm)	Mid(nm)	Mean(nm)	Rpv(nm)	Rq(nm)	Ra(nm)	Rz(nm)	Rsk	Rku
☑ Red	-1.041	0.946	-0.048	-0.209	1.986	0.450	0.367	1.754	-0.406	2.640

Figure S3. (**a**) AFM topography image of an atomically flat Au nanoplate. (**b**) Sectional view of the Au nanoplate (R_q = 0.15 nm). (**c**) Surface-height distribution of the Au nanoplate (S_q = 0.15 nm). (**d**) Magnified AFM topography image of the Au nanoplate. (**e-h**) Histogram (e), line-profile roughness (f), line histogram (g), and statistics (g) obtained from the red line in (d).

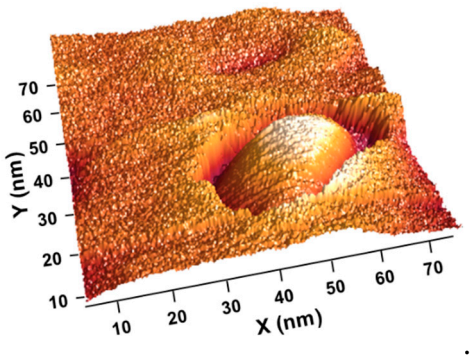


Figure S4. Three-dimensional AFM image of an aptamer-immobilized Au nanoplate after reaction with cTnI.

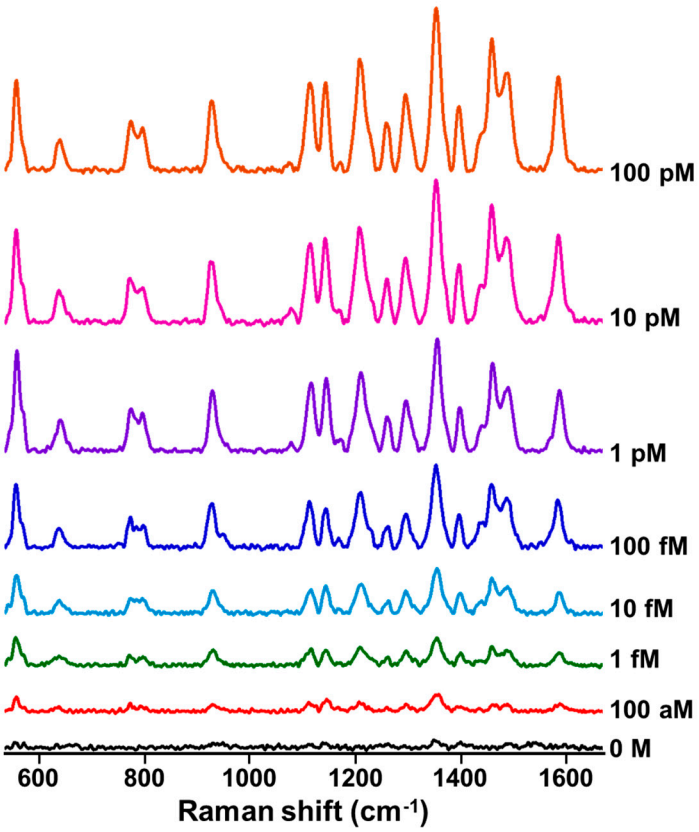


Figure S5. Full SERS spectra corresponding to Figure 3a.

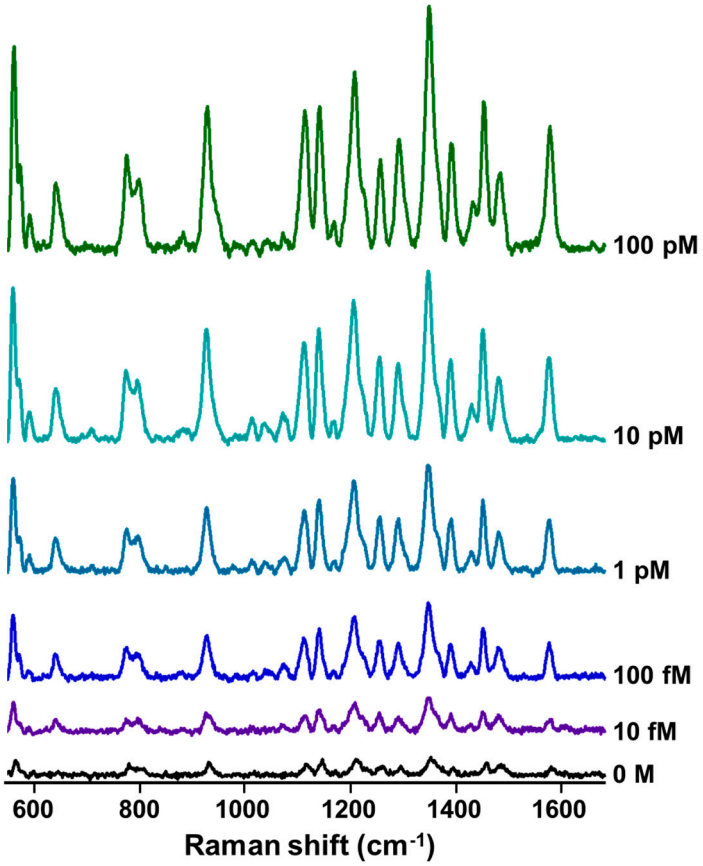


Figure S6. Full SERS spectra corresponding to Figure 3b.

Table S1. Comparison of other cTnI detection methods.

Signal	Detection Limit	Tested Matrix	Reference
Electrochemistry	1.0 pM	Buffer	[1]
Electrochemistry	700 aM	Buffer	[2]
Amperometry	1.0 pM	Serum	[3]
Fluorescence	3.4 pM	Plasma	[4]
Fluorescence	167 nM	Serum	[5]
SERS	372 fM	Buffer	[6]
SERS	210 fM	Buffer	[7]
SERS	3.76 pM	Serum	[8]
SERS	1.41 pM	Buffer	[9]
SERS	4.18 pM	Buffer	[10]
SERS	33.4 pM	Buffer	[11]
SERS	100 aM 100 fM	Buffer Serum	This work

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