**Supplementary Information**

# Electrochemical Investigation of Hydroxyapatite-Lanthanum Strontium Cobalt Ferit Composites (HA-LSCF) for SARS-CoV-2 Aptasensor

Yeni Wahyuni Hartati[*a], Melania Janisha Devi[a], Irkham[a], Salsha Zulqaidah[a], Atiek Rostika Noviyanti[a], Siti Rochani[b], Seda Nur Topkaya[c], Yasuaki Einaga[d]

[a]Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia. Email : *yeni.w.hartati@unpad.ac.id*
[b]Mining Technology Research Center, National Research and Innovation Agency, Indonesia.
[c]Department of Pharmacy, Izmir Katip Celebi University, Turkey.
[d]Department of Chemistry, Keio University, 3-4-1 Hiyashi, Yokohama 223-8522, Japan.

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**Table S1. Data on the peak current of potassium ferricyanide on variations in RBD S protein concentrations**

| Antigen concentration (x) / (ng/mL) | $\Delta I \pm SD$ (y) / ($\mu A$) |
|---|---|
| 0.125 | $0.352 \pm 0.030$ |
| 0.25 | $0.413 \pm 0.010$ |
| 0.5 | $0.455 \pm 0.012$ |
| 1 | $0.561 \pm 0.030$ |
| 2 | $0.803 \pm 0.011$ |

Linier regression :

$Y = 0.232x + 0.337$

$\text{Standard error} = \sqrt{\frac{\Sigma(y - y\text{ predict})^2}{N-2}} = 13.86153 \times 10^{-3}$

$\sigma \text{ intercept} = SE\sqrt{\frac{\Sigma Xi^2}{N\ \Sigma(x-\bar{x})^2}} = 9.36352 \times 10^{-3}$

$LoD = \frac{3 \times \sigma}{\text{Slope}} = 0.1211$ ng/mL or $1.211 \times 10^2$ pg/mL

$LoQ = \frac{10 \times \sigma}{\text{Slope}} = 0.4036$ ng/mL or $4.036 \times 10^2$ pg/mL

**Table S2. Precision data**

| Antigen concentration (ng/mL) | I ($\mu A$) | I $\pm$ SD ($\mu A$) |
|---|---|---|
| 0.5 | 2.945 | $2.9721 \pm 0.0434$ |
|  | 2.982 |  |
|  | 2.898 |  |
|  | 2.993 |  |
|  | 2.998 |  |
|  | 3.017 |  |

$CV = \frac{SD}{\bar{I}} \times 100\% = 1.46\%$

Precision = 100% - CV = 98.54%

*In probability theory and statistics, the coefficient of variation (CV), also known as relative standard deviation (RSD), so that RSD = 1.46%

**Accuracy**

$X_{observed} = 0.48765$ ng/mL

$X_{true} = 0.5$ ng/mL

$\%Error = \left|\frac{X_{observed} - X_{true}}{X_{true}}\right| \times 100\% = 2.47\%$

Accuracy = 100% - %error = 97.53%